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State of Wisconsin

Department of Natural Resources

Bureau of Community Financial Assistance (CF/2) PO Box 7921, Madison WI 53707-7921

dnr.wi.gov

**General application instructions for sections 1-7**

# Surface Water Grant Application

## Lake Management Planning, Lake Protection & Classification, River Protection, River Planning,

**Aquatic Invasive Species (AIS) Control**

Form 8700-284 (9/15) Page 1 of 7

**Notice:** Use of this form is required by the Department of Natural Resources for any application filed pursuant to chs. NR 190,191,195 & 198, Wis. Adm. Code. Personal Information collected on this form, will be used for administrative purpose and may be provided to requesters to the extent required by Wisconsin’s Open Records Laws [ss.19.31 – 19.39 Wis. Stats.] **To be considered, applications must either be submitted electronically by the December 10th or February 1st due date or paper applications must be postmarked no later than by the December 10th or February 1st due date.**

**Section 1: Application Type (check one)**

### Application Deadlines:

**DECEMBER 10 FEBRUARY 1**

**Lake Management Planning Grant:**

**Lake Protection Grant:**

Large Scale Planning

●

**Lake Protection Grant:**

Small Scale Planning

Land/Easement Acquisition

Wetland & Shoreline Habitat Restoration

Lake Classification & Ordinance Development

**Aquatic Invasive Species Grant:**

Education, Prevention & Planning

Lake Management Plan Implementation

Healthy Lakes Project

**Aquatic Invasive Species Grant:**

Clean Boats Clean Water Use

**River Protection Grant:**

River Planning

Form 8700-337

Established Population Control

**Rivers Protection Grant:**

River Management Land/Easement Acquisition

**YEAR-ROUND:**

**Aquatic Invasive Species Grants:**

Early Detection & Response Maintenance & Containment Use

Form 8700-323

**Section 2: Applicant Information**

Project Title

Cherokee Rehabilitation Plan- Phase 2 (Analysis)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Applicant Name (Organization)  Dane County Land & Water Resources | | Organization Type  County | | |
| Authorized Representative (AR) Name  Kevin Connors | | AR Title  Director | | |
| AR Address  5201 Fen Oak Drive | | City  Madison | State  WI | ZIP Code  53718 |
| AR Phone Number (include area code)  (608) 224-3731 | AR Ext. | E-mail Address  [connors.kevin@countyofdane.com](mailto:connors.kevin@countyofdane.com) | | |
| Contact Representative Name, if different from AR  John Reimer | | Contact Title  Stormwater Engineer | | |
| Phone Number (include area code)  (608) 224-3612 | Ext. | Contact E-mail Address  [reimer.john@countyofdane.com](mailto:reimer.john@countyofdane.com) | | |

Indicate if you have been approved as one of the following:

Qualified lake association, Form 8700-226, nonprofit conservation organization or qualified nonprofit organization, Form 8700-290, or river management organization, Form 8700-287? Yes No *(If no, you must be approved prior to applying for a grant.)*

|  |  |  |  |
| --- | --- | --- | --- |
| **Section 3: Project Information** | | | |
| Waterbody Name  Cherokee Lake | Proposed Start Date | | Proposed End Date  December 31 2017 |
| February 15 | 2016 |
| (Start Date) (Year) | | (End Date) (Year) |
| Project Area (Select all that apply):  County-wide Multi-county Town-wide Regional ● Lake River Other (specify): | County(ies) | | |

|  |  |  |
| --- | --- | --- |
| **Public Access:** Is there public access to the waterbody of which the project is proposed?  Yes No  **If yes, attach a map showing all public access points.**  No. of public access sites including boat launches and walk-ins: 2 | | Does this project include Laboratory sample  analysis?  Yes No  Indicate lab service provider:  State Lab of Hygiene, use Form 8700-360 Other Certified Lab: |
| No. of public vehicle-trailer parking spaces available at public access sites: 10 | |
|  |  |
| **Consultation** | | |

Township (N)

Range

E or W

Section

Quarter

Quarter- Quarter

Latitude (North, 4 to 7 decimal places)

08 N

9

E

12

08 N

9

E

13

08 N

9

E

13

08 N

9

E

23

08 N

9

E

24

Has the applicant had a pre-application grant scoping consultation with the Department?

Yes No

Date of Contact Name of DNR Contact

12/01/2015 Susan Graham

**Project Location**

State Assembly District number(s): State Senate District number(s):

48,79 16

**Legal Description**

Sponsor Type

(city, village, town, etc. - Longitude (West, 4 to

ex. Holland, Town of) 7 decimal places)

* Town of Westport
* Town of Westport
* City of Madison
* City of Madison
* City of Madison +

**Section 4: Federal Nonpoint Source Program Funding Eligibility - *For Lake Protection or River Protection Grants Only***

### Not applicable.

**Section 5: Cost Estimate and Grant Request**

List organization (e.g., school, town, county, nonprofit other management organization, etc.) other than the applicant that are providing financial support in the project. Identify the type of financial support (cash, volunteer hours, equipment, etc) and attach a copy of the organizations letter of financial commitment.

Type of Support

Volunteer

Organization Name

Friends of Cherokee Marsh

Amount

of Support

+

Are there federal dollars in this project?

Yes

No

Source of Federal Funds

Costs for

Each Category Activity

## Project Budget

Project Costs

Time Cash Cost (hr.)

Time

(hr.) Donated Value Subtotal

- Purchased Services Bathymetric Survey 100 5,000.00 $5,000.00 Barge Mounted Subsurface

- Consulting Services

Investigation 100 5,000.00 40 2,000.00 $7,000.00

Hydrodynamic and Sediment

- Purchased Services

Analysis 300 15,000.00 $15,000.00

Purchased Services USGS Monitoring Station at

-

Highway 113 (Stream flow,

TSS, TP, N) Dane Co Share

Purchased Services USGS Monitoring Station at Windsor (Stream flow, TSS, TP, N) Dane Co Share

-

- Wages & Emp. Benefits Dane County Barge Services,

3,500.00 $3,500.00

12,914.00 $12,914.00

Fuel, Supplies 40 3,000.00 $3,000.00 +

**Subtotals** 25,000.00 21,414.00 $46,414.00

**Override Default State**

**Share Percentage: Alternative State Share %**

**Total Project Cost Estimate**

(Cash + Donated Value) $46,414.00

**State Share Requested** $25,000.00

Large Scale Lake Planning Project - maximum grant up to $25,000 - up to 67% state share, cannot exceed cash cost.

**Section 6: Attachments (check all that are included)**

1. **For all applicants: (Refer to instructions for applicability.)**
   1. Authorizing resolution
   2. Letters of commitment if the project is receiving donation or cash contribution
   3. Map of project location, boundaries, and public access
   4. For projects sending samples to the State Lab of Hygiene (SLOH) only; a completed SLOH projected cost form
2. **For first time applicants that are Lake Management Organizations (LMOs), River Management Organizations (RMOs)**
   1. Completed Form 8700-226 (LMOs) or 8700-287 (RMOs)
3. **For First time non-profit organizations or non-profit conservation organization**
   1. Copy of IRS 501(c)(3) determination letter and copies of your Articles of Incorporation and Bylaws
   2. A completed Form 8700-290

For projects that entail sending samples to the State Lab of Hygiene (SLOH) only; a completed SLOH projected cost form

1. **For Land Acquisition**
   1. Completed Form 1800-001, Environmental Hazard Assessment
   2. Appraised
   3. Title insurance
2. **Design specifications, if applicable, for River Management or Lake Management Plan Implementation**

**Section 7: Certification**

By submitting this application, I am requesting a variance from the DNR to ss. NR 190.05(4), NR 190.15(6), NR 191.05(1),

NR 195.07(4), NR 198.23(1), NR 198.44(1), Wis. Adm. Code, as appropriate, to establish an application deadline of December 10 and February 1. The requested variance is in my interest and is essential to effect the necessary DNR grant actions and program objective of a uniform application deadline.

**Note:** If submitting this request by email, please type your name on the signature line. Your email message can be used as an electronic signature.

Kevin Connors

Signature of Authorized Representative

Date Signed

12/10/2015

**DNR USE ONLY**

Application Type

County

Research/Demo Project Yes No

Waterbody ID

Project Priority Rank

Is the applicant a Green Tier Community Charter member?

Yes No

Is the **project** within a Green Tier Community?

Yes No

AIS/Lake/River Coordinator Approval/Date

Environmental Grants Specialist Approval/Date

**Section 8: Project Description**

1. **Project Area and Public Access/Use ?**

The project area is Cherokee Lake and a portion of the Yahara River, which is an important estuary to Lake Mendota. The total project area (bounded in red in attached map) is approximately 670 acres. Total shoreline length is approximately 7 miles long and is surrounded predominately by public shoreline (95% or 6.63 miles long). There are multiple (>7) public access points along City of Madison shoreline for neighborhood kayak and canoe users. The project site contains two public access sites as shown in the attached map. The area is designated as an area of Special Natural Resource Interest (ASNRI). Also, the project is also within a designated 303(d)impaired water.

Even though Cherokee Lake is degraded, the wetland remains complex comprised of marsh, fen, shrub carr, sedge meadow. Cherokee Lake is home to many mammals, amphibians, reptiles, and birds. Rare and unusual animals using the site include Henslow's sparrow, American bittern, least bittern, Blanding's turtle, and mulberry wing and smokey- eyed brown butteries. Overall Cherokee plays an important role in maintaining ecosystem diversity. The project area is surrounded by predominately public land and this project provides a great opportunity to expand and develop public access for recreation, education, and interpretation.

1. **Problem Statement ?**

Cherokee Lake has lost more than 275 acres of highly diverse wetlands since 1937. The Cherokee wetland loss can be attributed to many factors including water level, large storm flows, sediment loadings, and wave forces. Increased sediment loadings from runoff and carp bioturbation creates turbid water, yielding a negative environment for vegetation survival. Transported sediment and phosophorus flowing through Cherokee enters Lake Mendota, impacting water quality to downstream waters.

There have been several past and ongoing efforts. Since 2001, the City of Madison has worked to restore the lost wetlands in Cherokee. While there has been some success, it has been observed that the restored plants respond differently depending on wave climate, water flow velocity, and turbidity (water clarity) conditions at various locations. In some occasions (1993, 2001, 2008), the restored wetlands can be totally lost again due to the elevated flow velocity and wave energy during high water levels. Recently, Dane County and UW-Madison have partnered to install Floating Bog Interceptors. FBI's as they are called, were originally installed in 2011 at a high wave energy site that was losing shoreline at a rate of 3 feet per year. Since installation of the FBI's the shoreline has remained constant and sediment accumulation has occurred allowing for rooted plants. The FBI's as a demo project have shown that rehabilitation is possible using sound engineering and ecology. However, a rehabilitation plan to identify where practices and structures should be placed while engaging the community has not been completed.

1. **Project Description and Timeline Matrix**

**?**

* 1. **Goal/Job Objective:**

The purpose of the Cherokee Rehabilitation Plan is to create a long-term plan for a portion of the Yahara River and Cherokee that responds to diverse regional and local needs. This plan will provide a vision for improvements to Cherokee Lake over time and will serve as a planning tool for the State, Dane County and local municipalities. The plan will outline priorities and a strategy to implement the proposed improvements in a coordinated and holistic manner. The plan will be formulated in such a way that capital investments can be prioritized when funds become available.

The project includes two lake planning grants. Phase 1 is to develop a concept and rehabilitation plan with the goal of restoring the form and function of the Cherokee system. Phase 2 is engineering analysis to assist the information needs for phase 1. A continuous feedback between Phase 1 (Planning) and Phase 2 (Analyses) is proposed. Some examples for rehabilitation may include island or peninsula structures, substrate changes, or vegetation placement.

Some specific objectives of developing a rehabilitation plan are intended to:

* Enhance sediment trapping efficiency;
* Attenuate flooding;
* Decrease Phosphorus loading to downstream Lake Mendota and the Yahara Lakes,
* Restore marshland communities by slowing erosion, increasing vegetative density and diversity, improving fishery habitat, and improving water quality; and
* Improve access for recreation, education and interpretation.

Below is a list of activities within Phase 2 (Analysis).

Add Goal

* 1. **Activity**

Perform a bathymetric survey and prepare project base maps displaying river bottom, shoreline conditions, vegetation, structures, roads and trails. The activity is expected to occur over the summer months within the first year.

**Method and Data Collected**

Bathymetry mapping in Cherokee will be regularly obtained during the summer months. Cherokee Lake consists of unconsolidated soft sediments and due to the riverine environment (e.g. large storms) the sediment is mobile. We have found from previous studies that the sediment bottom can change by as much as 1 meter change from month to month. However, we have not performed bathymetric mapping for the entire Cherokee Lake as what is being proposed. In particular the mapping will be conducted to reveal areas of deposition and erosion of bed sediment. The bathymetry mapping is intended to reveal and provide information on the sediment dynamics and provide water depths that may be used for navigational and engineering design of green shoreline structures. The loss of sediment in areas may suggest areas where plant roots are subjected to reduced anchoring forces, yielding loss of plants.

**Deliverable/Outcomes**

Add Matrix

Bathymetric maps will be provided to reveal the bottom sediment changes.

* 1. **Activity**

Gather subsurface information for the project area with barge-mounted equipment. The activity is expected to occur over the summer in year one.

**Method and Data Collected**

Barge mounted sediment cores will be taken to provide soil profiles. Sediment soil composition (sand, silt, and clay) will be analyzed. The soil profiles will be evaluated for bearing and loading capacity of bio-engineered shoreline/habitat/sediment diversion structures. The sediment core locations will be strategically located at areas where structures are technically feasible (e.g. public access, locations to divert sediment and increase residence time, etc..). The physical characteristics and engineering properties of the soils in the project area will aid in the technical recommendations for the engineering design process.

**Deliverable/Outcomes**

Add Matrix

Sediment core reports will be provided. The outcome of the sediment cores will provide us with substrate composition to gain insight into habitat type and sediment stability for structure placement.

* 1. **Activity**

Perform hydrodynamic modeling and a sediment budget for Cherokee. The activity is expected to finish within one year from the start of the project.

**Method and Data Collected**

In the planning (Phase 1) several concept alternatives that are proposed by the community or stake holders will be evaluated using hydrodynamic modeling. The modeling results include water levels, water velocity (currents), sediment transport (erosion/deposition) under the varying alternatives. The modeling will provide a tool to evaluate concept plan alternatives and will be conveyed to the community and stakeholders. Data for modeling inputs will be gathered from existing USGS gaging stations that are currently funded by Dane County (matching funds).

**Deliverable/Outcomes**

Add Matrix

The results of the modeling will be provided in the final report. The outcome of the modeling will provide the community and stakeholders with additional information into deciding on concept alternatives leading to a rehabilitation plan.

* 1. **Activity**

Prepare final report of hydrodynamic modeling and analysis. A report will be provided after preparation of draft rehabilitation plan completed in phase 1.

**Method and Data Collected**

All results and evaluation of concept plans will be documented in a report.

**Deliverable/Outcomes**

Add Matrix

Report will be provided to the DNR.

1. **Role of Project in Planning/Management of Water Body ?**

The overall results of the project with input from the community and stakeholders will provide a vision for Cherokee. If future funding becomes available this work will deliver a guide for rehabilitation of Cherokee. The City of Madison has had many successes in recent years; however, these successes can be plagued with undesirable natural occurrences. These undesirable disturbances affecting vegetation survival can be attributed to inundation, discharge, wave impacts, and sediment concentration. Understanding these processes is critical to continue to maintain this resource and to continue with future restoration efforts. Therefore, a recent project funded by a DNR lake planning grant was aimed to study the movements of carp and evaluate sediment dynamics. Those studies have provided great insight into the role of carp, wind, water levels, and storm flows and their affects on turbidity affecting vegetation survival. The project is also located within a Total Maximum Daily Load (TMDL) where trapping sediment and associated phosphorus in Cherokee would provide a benefit not only to establishing vegetation in Cherokee but to improve water quality to downstream waters (Lake Mendota). Dane County currently cost shares with USGS to monitor water flow and nutrients upstream and downstream of the project site. The historic sediment/nutrient data with planned future monitoring cost share funds will be helpful to evaluate future progress. Furthermore, we have developed modeling tools (e.g. SWAT) for watershed loadings. Based on these past experiences and future priorities (TMDL), this proposed project will enhance our knowledge and commingle all (DNR, Dane County, local municipalities) efforts with input from the community to develop a community vision for Cherokee.

1. **Existing and Proposed Partnership ?**

It is essential that the project involve stakeholders up front. We have conducted meetings and established communication with City of Madison Parks, City of Madison Engineering, Town of Westport, and several sections within Wisconsin DNR prior to submitting this application. Once the project is funded, our first activity is to formally bring all stakeholders together and ask for representation at the Cherokee planning meetings. We have also been working to educate youth groups on work done in Cherokee. For example, there are 12 Floating Bog Interceptors and they are available for adoption. Several have been adopted by schools (Madison East), neighborhood, and Friends of Cherokee. The adoption process has been a great opportunity to get other groups involved that otherwise may never be exposed to Cherokee Lake. Last summer, Dane County provided public outreach by conducting two barge tours of Cherokee. Cherokee Marsh has been recognized as a Wetland Gem by the Wisconsin Wetlands Association and sharing in this recognition of Cherokee's important resource was the City of Madison and the Wisconsin Department of Natural Resources (WDNR).

For this project, the work will mainly be conducted by Chin Wu (UW Madison Civil & Environmental Engineering), Dick Lathrop (UW/DNR limnologist), Fred Klancnik (Retired President of JJR), and John Reimer (Dane County Land

& Water Resources).

1. **Plan for Sharing Results ?**

The results throughout the process will continuously be shared with stakeholders and the community through several meetings. We will organize at least three key meetings for the community to allow for input. All public meetings that occur throughout the process will be noticed either in the form of websites, email, friends and neighborhood newsletters, flyers, and/or press releases. The draft rehabilitation plan will be provided to the DNR and other stakeholders for comments. A final rehabilitation plan and report will be provided to the DNR to conclude the project.

1. **Other**

**?**