Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Carter Ferry FAS Fence, Irrigation and Tree Planting

Date: October 24, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

License Article 423 requires the development of a plan to monitor and enhance native plants and wildlife populations on the lands and waters associated with the project. The current 5-year plan (2017-2022) states restoration and enhancement of riparian lands and wetlands in the project area has been a primary goal of the wildlife and vegetation enhancement plan since the establishment of the program and the Wildlife TAC in 2000. The program has funded several projects to monitor and restore cottonwood forests along the Missouri River.

Provide justification for Priority 1, 2 or 3 (above) that you selected:

This is a priority 1 project dealing with wildlife habitat enhancement on the mainstem Missouri River.

Project Sponsor (submitted by): NorthWestern Energy and Montana FWP

Location of Proposed Project:

Narrative; The project is located at Carter Ferry FAS which is approximately 16 miles downstream from Morony Dam (Figure 1). Carter Ferry FAS is comprised of two areas. Area 1 is the upstream section that is comprised of 20.6 acres. In its present state it appears to be a relic farmstead on a relatively flat grassy bench with lilac shelterbelts, boxelder trees and ponderosa pine trees. Area 2 is the downstream section comprised of the boat ramp, latrine and parking area located immediately adjacent to the Carter Ferry. This area is not included in the proposed project.

Geocode (in decimal degrees ex 46.89743) Lat; 47.755782 Long: -110.898803

Total Project Cost: $86,517

- NWE has secured **$500** from Upper Missouri Breaks Chapter of Audubon to purchase trees.

- Montana FWP and NWE are discussing the potential to use **$5,000** from the Carter Ferry FAS recreational development funds from the NWE River Recreation Program for this project. Funds would be used for tree planting to promote recreation in the form of bird watching. If awarded to this project, the TAC contribution would be reduced by this amount.
- NWE has submitted an application for **$2,500** to the National Wild Turkey Federation. Funds from this program are awarded in Feb 2023. If awarded to this project, the TAC contribution would be reduced by this amount.

TAC Funds (Cost-Share) Requested for Project: $86,017

I. Introduction; brief statement of project to be completed with pertinent background information.

The natural development cycle of cottonwood trees along the Missouri River in central Montana has been disrupted by main stem dams that buffer high river flows that traditionally would distribute cottonwood seeds. In years when cottonwood seedlings develop along the river bank, they are generally sheared off by ice within a few years. Deer and cattle also impact new seedlings. Beavers can impact seedlings and mature trees. In 2021, NorthWestern Energy staff evaluated characteristics of large cottonwood forests along the Missouri River between Carter Ferry and Coal Banks Landing. The loss of mature trees (40 ft height) was mostly attributed to girdling or toppling by beavers, cut banks sloughing trees into the river and fire. Some of the stable cottonwood forests were located on river benches set back from the river where beavers, bank sloughing and ice shear were non factors.

NWE has funded six cottonwood tree restoration projects along the Missouri River. The strategy at most of those sites was to plant individual trees close to the river bank with intermittent manual watering systems and individual protective fences. In 2022 a different strategy was implemented that involved planting a large area (several acres), set back from the river bank, with reliable and consistent irrigation, and to protect trees with a large scale wildlife exclusion fence.

The Carter Ferry site is comprised of 20.6 acres. In its present state it appears to be a relic farmstead on a relatively flat grassy bench with lilac shelterbelts, boxelder trees and ponderosa pine trees. This area is a good candidate to develop a mixed tree cottonwood forest for riparian bird habitat because it is relatively close to the Missouri River, but is not vulnerable to ice shear and beavers impacting trees. In 2022 FWP and NWE investigated the feasibility of enhancing this area for wildlife habitat. We investigated an 8 acre parcel that could be fenced off to exclude people and deer while young trees are growing. Installing an irrigation system would improve survival and accelerates growth through for the first several years as root systems develop. Although primarily focused on growing cottonwood trees, this site would be planted with other native trees such as rocky mountain juniper, ponderosa pine and choke cherry that also provide habitat for birds. Approximately 80% of the trees planted would be cottonwood. Carter Ferry FAS offers a low level of public use that is generally associated with bank anglers. Once the site is developed with mature trees, recreation would increase. Activities such as hiking, bird watching and day use are expected and would be encouraged. Increased public use at this site would not interfere with a mature canopy riparian bird habitat.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Develop a large stand of viable cottonwood, choke cherry, juniper and ponderosa pine trees along the Missouri River for wildlife habitat.

III. Methods; description of how Project objectives will be accomplished.

Install an 8 acre exclusion fence to protect young trees for the first several years. To protect plants from browsing deer, an 8 acre enclosure fence would be installed with 8 foot high wire mesh, steel pipe driven corner posts, wood line posts every 100 feet and one gate. Fence will remain in place until trees are mature enough to withstand the influence of deer grazing. We estimate 7-10 years will be required for these trees to grow past the stage of vulnerability after which the fence will be removed.

Install an above ground irrigation system to water trees during the high stress months of June through September for the first several years. The irrigation system is comprised of 1.5 inch pvc pipe laid on the ground surface. A bubbler is tapped into the water line at each plant site to provide water at the base of the plant. This system would require a ~210 foot long below grade trench between the well and the power source for both water and power. An access road crosses this alignment so the trench serves to protect the water and power lines under the road grade. A power supply would be installed in the NE corner of the exclusion. The power company has reviewed the site and determined they would run an overhead line from the 3 phase pole located west of the Carter pumphouse. That line would run approximately 240 feet to a meter base on the FAS. The meter base would be installed by a certified electrician who would secure a state permit and supply a meter base, panel and 2 pole mounting base. The electrician would also run an underground power line to the pump in the well. A dug well would be installed along the river bank to provide water for irrigation. The dug well would consist of a 36 inch diameter x 14 ft long culvert buried vertical approximately 5 feet below the ground water elevation. A 240V ½ HP pump would be installed. Irrigation will allow trees to develop viable root systems and grow to a size that can survive

without supplemental watering. We estimate 7-10 years will be required for these trees to grow past the stage of vulnerability after which the irrigation could be removed.

Plant approximately 350 rooted cottonwood trees, choke cherry, Ponderosa pine and Rocky Mountain juniper to provide habitat for riparian birds. Chokecherry and juniper trees will be planted in clusters of ~10 trees each. Cottonwood and Ponderosa pine trees will be planted approximately 1 tree per 900 square feet (~30 ft separation). Trees will be planted by a contractor using a 12 inch hydrostatic auger to drill holes 18 inches deep. A planter will place the rooted tree in the hole, and fill with soil and water thoroughly to allow the soil to cover and bed the root system.

IV. Schedule; when the Project work will begin and end.

The power installation, well install, fencing, planting and irrigation install would begin in early 2023 and should take about 3 months to complete. The fencing and irrigation project is expected to last for about 7-10 years, after which the fence and irrigation could be removed. NWE is presently 22 years into its 40 year license and wildlife mitigation program. Obtaining TAC funds to remove this infrastructure is within the remaining license and mitigation time period.

Personnel; who will do the work? Identify Project leader or principal investigator.

FWP would conduct the necessary environmental review for projects on State property.
NWE has consulted with an archaeologist to fulfill obligations to the Antiquities Act where NWE funds are used. NorthWestern Energy would administer contracts for fencing, planting, electrical and irrigation install.
NWE will have the site added to the WildTAC Missouri-Madison bird monitoring program conducted by UofM Bird Ecology Lab.
NWE will assist FWP with securing a 124 permit for the well.
FWP will file for a DNRC Beneficial Water Use Permit
NWE will submit a request for utility locate prior to ground breaking activities

V. Project budget must include amounts for the following:

Estimates from 4 contractors for fence, irrigation, well/planting and electrical did not itemize by materials, labor and equipment due to the uncertainty of material and labor costs in the current economic arena. Specifically, two contractors remarked that PVC products are experiencing highly variable pricing at the time the estimates were given (October 2022). Fuel prices remain high and variably uncertain.

The estimated cost of materials, equipment and labor to install an 8 acre enclosure fence with 8 foot high wire mesh, steel driven corner posts, wood line posts every 100 feet and one gate is **$31,000**.
The estimated cost of materials, labor and equipment for an irrigation system for this project is **$35,500.**
The estimated cost of labor and equipment to install trees, dig the well, trench and bury lines is **$9,500**.
The estimated cost of labor, materials and permitting to install a 240V power service and well/pump line is **$3,100**.
The estimated cost of a 36 in x 14 ft steel culvert with lid is $1,445 plus $600 to perforate a ft 4 section = **$2,045**.
The estimated cost of electricity to run the irrigation pump for several years is based on a NWE non-demand irrigation service designation, which has a once a year payment of $43.40. With the pump specs of ½ HP, 10 gallon per minute at 60 psi, 6 amp draw at 230V the daily rate would be about $0.90 a day running at 3 hours per day. We plan to run it over 121 days from June 1 to Sept 30. Over that 121 day period it would run for 3 hrs on each of 53 days. Roughly 3 hrs per day on M, W, F each week. NWE electrical engineers estimate the operation cost would be about $140.00 per year ($43.40 + ($0.90 x 53) = $138.80). Over 7 years this cost would be **$980**.
The estimated cost of labor and materials to blow the irrigation system out each fall with high pressure air is approximately $200. Over 7 years this would be **$1400**.
The cost of trees is **$2,991.60.**

Availability of trees from the Montana Conservation Seedling Nursery in Missoula is limited for 2023. NWE was able to reserve the following;

Species	Size	Total
Daniels cottonwood	S-10	$181.44
Chokecherry	S-27	$277.44
RM Juniper	175 ci	$378.00
Black cottonwood	175 ci	$1,386.00

Daniels cottonwood	175 ci	$630.00
Ponderosa pine	S-27	$138.72
		$2,991.60

Total = **$86,516.60**

- Upper Missouri Breaks Chapter of Audubon has pledged $500 to this project to purchase trees.
- Montana FWP and NWE have agreed to pledge $5,000 from the Carter Ferry FAS recreational development funds from the NWE River Recreation Program to this project.
- NWE has submitted an application of $2,500 to the National Wild Turkey Federation. Funds from this program are awarded in Feb 2023. If awarded to this project, the TAC contribution would be reduced by this amount.

***NorthWestern Energy TAC funds will not be used for agency overhead on projects that do not fund personnel. Applications for materials and equipment should not contain overhead.**

VI. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Success will be measured by the growth of cottonwood, chokecherry, pine and juniper trees within the enclosure. Biennial bird monitoring by UofM Bird Ecology Lab staff will determine changes in bird community as habitat improves.

VII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

NWE consulting archaeologists have reviewed the files for this site. A report and recommendation prepared, and NWE will file a report with SHPO and obtain a letter of concurrence that will be provided to NWE and FWP.

VIII. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9 March 2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

There are two avenues for using water for irrigation. The primary method would be to use Missouri River surface water. As defined by DNRC Water Rights Guidelines, no water right is necessary for wildlife habitat projects because they are considered short term. Using surface water would involve simply adding an irrigation intake to the river. Given the amount of debris and algae in the river, this method would be a maintenance liability and unreliable. The second method would be to install an infiltration gallery or a dug well near the bank. This method uses surface water seepage into a piped intake or small container reservoir (culvert ~28 ft^3) to provide clean, debris free, water. The final method would be to drill/dig a well and within 60 days of operation apply for a DNRC Beneficial Water Use Permit. With this final method, groundwater use would be limited to 35 gallons per minute and 10 AF per year. This permit would be held by Montana FWP. Montana FWP Water Rights Specialist has been consulted and he recommends this method.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@NorthWestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to:

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Figure 1. Proposed tree planting site at Carter Ferry FAS.Missouri River, Montana.