

Recreation Management Plan

Pensacola Hydroelectric Project
FERC Project No. 1494

Revised July 2024

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List of Abbreviations

Commission	Federal Energy Regulatory Commission
Corps	United States Army Corps of Engineers
FERC	Federal Energy Regulatory Commission
Grand Lake	Grand Lake O' the Cherokees
GRDA	Grand River Dam Authority
Licensee	Grand River Dam Authority
NDA 2020	National Defense Authorization Act for Fiscal Year 2020
O&M	Operation and Maintenance
OTRD	Oklahoma Tourism and Recreation Department
PD	Pensacola Datum
Pensacola Project	Pensacola Hydroelectric Project
Project	Pensacola Hydroelectric Project
RMP	Recreational Management Plan
RM	River Mile
Study	Recreation Facilities Inventory and Use Study
USACE	United States Army Corps of Engineers
Wolf Creek	Wolf Creek Public Access

1. Introduction

The Grand River Dam Authority (GRDA, licensee) owns and operates the Pensacola Hydroelectric Project (Pensacola Project or Project) and is licensed by the Federal Energy Regulatory Commission (FERC or Commission) as Project No. 1494. As part of the Integrated Licensing Process being utilized to relicense the Project, the Licensee prepared a proposed study plan and subsequently a revised study plan that included a Recreation Facilities Inventory and Use Study (Study) to gather information as part of the relicensing process. The Commission issued a study plan determination approving the study on November 8, 2018.

This Recreational Management Plan (RMP) is being developed as part of the Final License Application and includes the following:

- 1) A description of the Project.
- 2) A detailed description of the FERC-approved recreation facilities.
- 3) A detailed description of the proposed recreation enhancement measures.
- 4) A discussion of the purpose of each measure as it relates to the Project effects.
- 5) The estimated capital and annual Operation and Maintenance (O&M) costs for each proposed recreation enhancement.
- 6) Current and additional O&M costs for implementing the RMP.

2. Project Description

GRDA is an agency of the state of Oklahoma, created by the Oklahoma Legislature in 1935 to be a “conservation and reclamation district for the waters of the Grand River.” GRDA fulfills its statutory responsibilities under state law by operating the Pensacola Project, as well as the downstream Markham Ferry Project (FERC No. 2183), and Salina Pumped Storage Project (FERC No. 2524). In addition, GRDA manages the three lakes formed by the three Project dams, which include Pensacola Project’s Grand Lake O’ the Cherokees (Grand Lake), Markham Ferry Project’s Lake Hudson, and Salina Pumped Storage Project’s W.R. Holway Reservoir. GRDA produces and sells electricity that reaches into 75 of the 77 counties in Oklahoma (Grand River Dam Authority, 2017).

The Pensacola Project was the first hydroelectric project constructed in Oklahoma. Construction began in 1938 and concluded when the spillway gates were closed in March 1940, forming Grand Lake. GRDA has operated and maintained the Project since August 1946 when, pursuant to an act of Congress, the United States returned the Project to GRDA following World War II (Grand River Dam Authority, 2008).

The Pensacola Project is located on the Neosho and Grand Rivers in northeastern Oklahoma. The Neosho River originates in Kansas and flows into Oklahoma where it joins the Spring River to form the Grand River. The Project is located within Craig, Delaware, Mayes, and Ottawa Counties. Pensacola Dam is located between the towns of Langley and Disney at river mile (RM) 77. The Grand River flows south from the Pensacola Dam past the GRDA’s Markham Ferry Project Dam and the United States Army Corps of Engineers’ (USACE or Corps) Fort Gibson Dam to its confluence with the Arkansas River near Muskogee, Oklahoma.

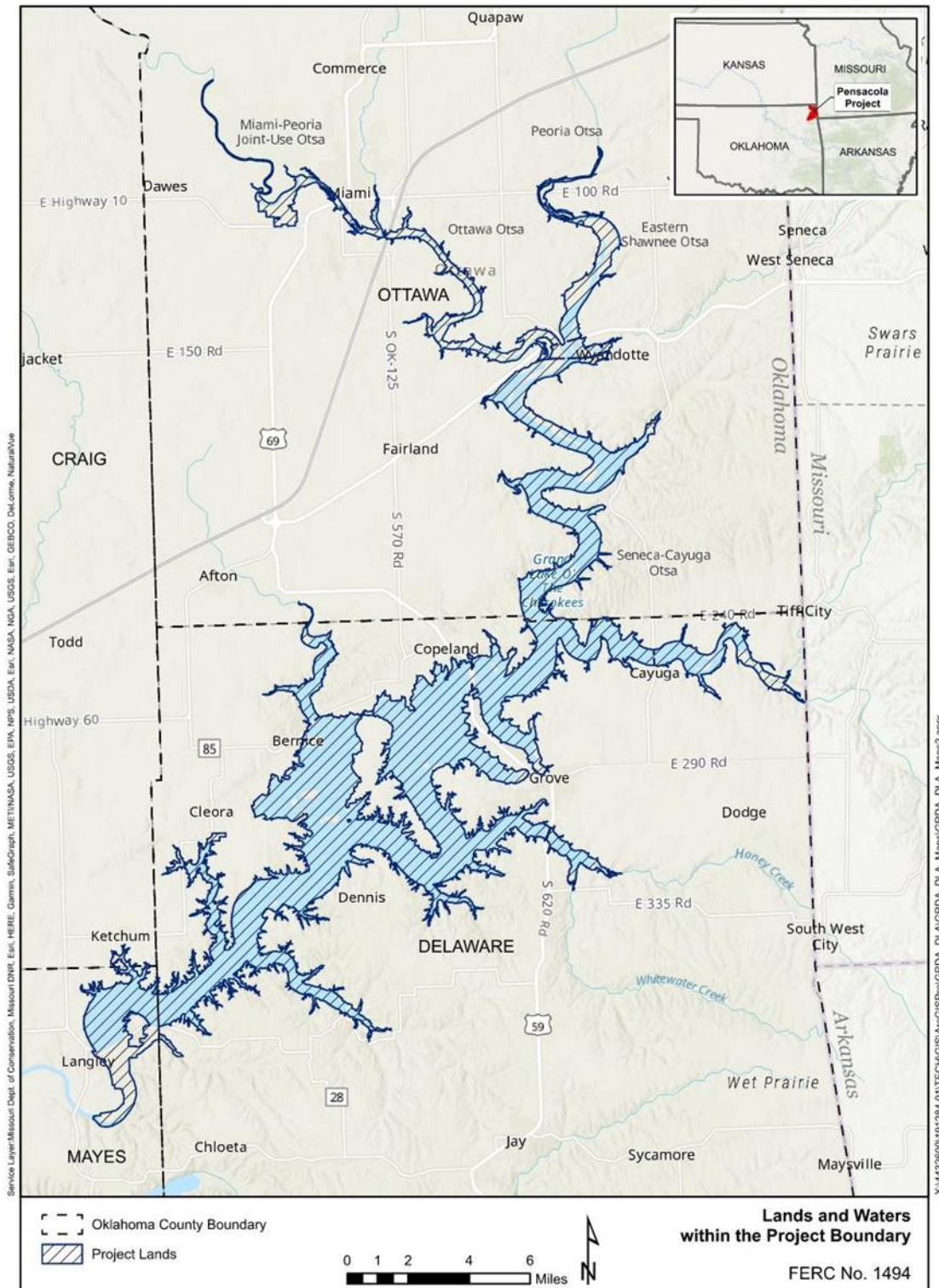
Unlike most other FERC-licensed hydropower projects, federal law establishes a Congressionally authorized regulatory structure at Grand Lake. Under section 7 of the Flood Control Act of 1944¹ and section 7612 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA 2020).² Congress conferred upon the Corps “exclusive jurisdiction and responsibility for management of the flood pool for flood control operations at Grand Lake O’ the Cherokees.” Pursuant to the Corps’ Water Control Manual for Grand Lake, when reservoir elevations are either above elevation 745 feet Pensacola Datum (PD) or projected to rise above 745 feet PD (the flood pool minimum elevation), the Corps directs water releases from the Pensacola Dam. Outside of flood control operations, i.e., when water surface elevations at Grand Lake are within the conservation pool and not projected to rise above 745 feet PD, GRDA controls Project operations with regard to water surface elevations at Grand Lake. The NDAA 2020 expressly prohibits any federal or state agency from imposing requirements related to the surface elevations of the conservation pool, except for the Commission’s project safety and human health regulations.

Grand Lake encompasses 41,581 acres at a reservoir elevation of 742 feet PD (the bottom of the anticipated operating range). At a reservoir elevation of 745 feet PD, the reservoir encompasses 45,056 acres. Figure 1 depicts the lands and waters of the Project.

¹ 33 U.S.C. § 709.

² Pub. L. No. 116-92 (2019).

Figure 1 – Lands and Waters of the Project



A review of lands adjacent to Grand Lake showed 66.8% of lands are either forested or contain woody wetlands, 14.6% are designated as agricultural or crop lands, and 9.6% are developed areas (Grand River Dam Authority, 2021a).

Grand Lake is the premier recreational lake in northeast Oklahoma (Grand River Dam Authority, 2017). There are numerous public recreation facilities on Grand Lake, which offer local residents and visitors' opportunities for fishing, camping, swimming, picnicking, and other outdoor and water activities. GRDA operates and maintains five FERC-approved public access sites for the Pensacola Project. Fifteen other non-Project sites occur on Grand Lake. They are owned, operated, and maintained by the State of Oklahoma, local cities, or private owners.

There are three main types of recreation facilities within the Project vicinity. There are FERC-approved recreation sites, State Park recreation sites, and other non-Project recreation sites. Recreation site information for the FERC-approved recreation sites, the State Park recreation sites, and the other non-Project recreation sites are displayed in Tables 1 through 3, respectively.

Table 1 – FERC-Approved Recreation Site Information

Recreation Site	Type	County	Owner	Operator
Wolf Creek Public Access	FERC Approved	Delaware	GRDA	City of Grove
Monkey Island Public Boat Ramp	FERC Approved	Delaware	GRDA	GRDA
Seaplane Base Public Access	FERC Approved	Delaware	GRDA	GRDA
Big Hollow Public Access	FERC Approved	Delaware	GRDA	GRDA
Duck Creek Bridge Access Area	FERC Approved	Delaware	GRDA	GRDA

Table 2 – State Park Recreation Site Information

Recreation Site	Type	County	Owner	Operator
Twin Bridges State Park (Upper)	State Park	Ottawa	OTRD ³	OTRD
Twin Bridges State Park (Lower)	State Park	Ottawa	OTRD	OTRD
Honey Creek State Park	State Park	Delaware	OTRD	OTRD
Bernice State Park	State Park	Delaware	OTRD	OTRD
Disney State Park	State Park	Mayes	OTRD	OTRD
Cherokee State Park (Main)	State Park	Mayes	OTRD	OTRD
Cherokee State Park (Lakeside)	State Park	Mayes	OTRD	OTRD
Little Blue State Park	State Park	Delaware, Mayes	OTRD	OTRD
Cherokee State Park (Riverside)	State Park	Mayes	OTRD	OTRD

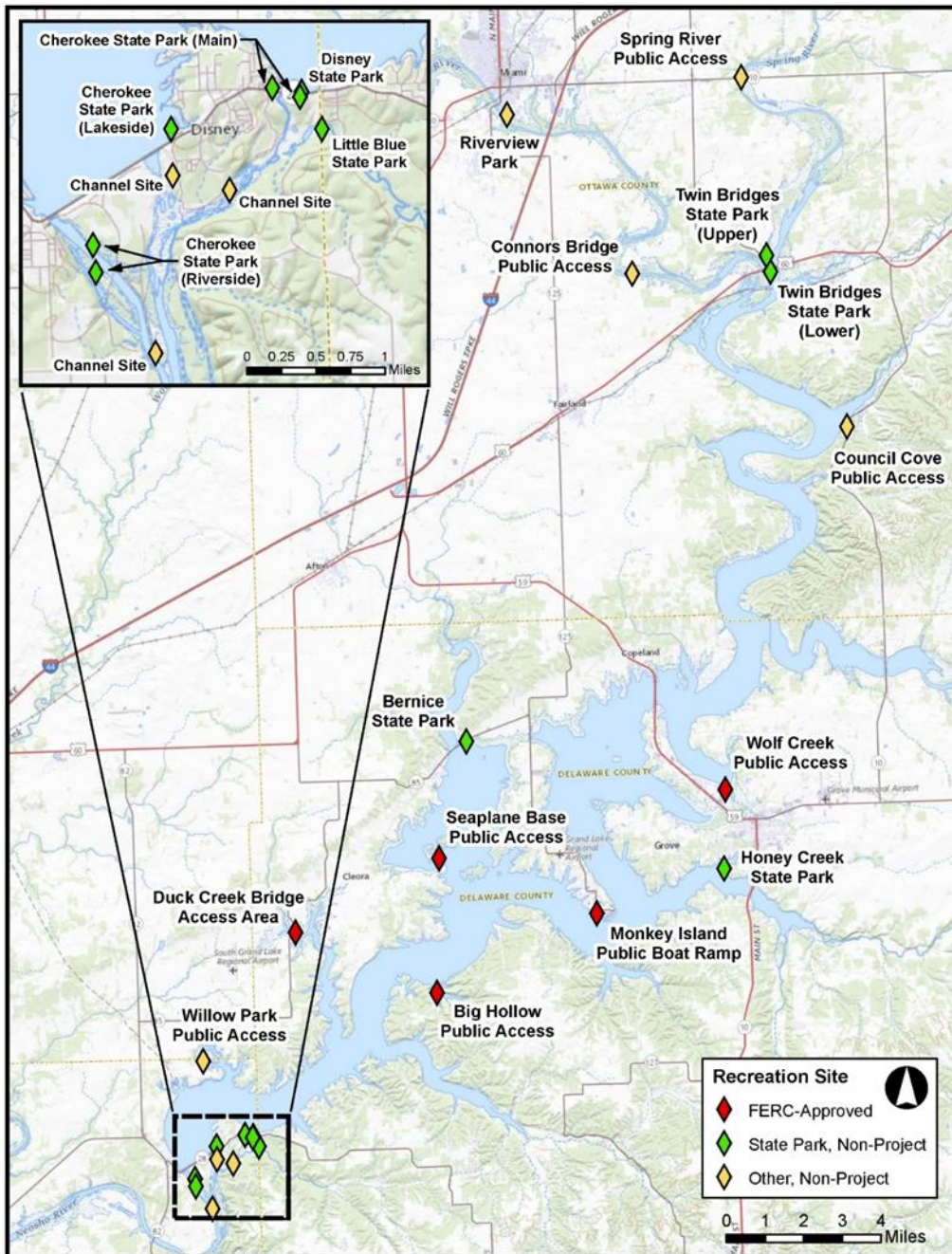
Table 3 – Other Non-Project Recreation Sites in the Project Vicinity Information

Recreation Site	Type	County	Owner	Operator
Spring River Public Access	Public Access Site	Ottawa	Ottawa County	Ottawa County
Riverview Park	Public Access Site	Ottawa	City of Miami	City of Miami
Connors Bridge Public Access	Public Access Site	Ottawa	Ottawa County	Ottawa County
Council Cove Public Access	Public Access Site	Ottawa	Ottawa County	OTRD
Willow Park Public Access	Public Access Site	Mayes	Town of Ketchum	Town of Ketchum
Channel Sites (Downstream)	Public Access Site	Mayes	GRDA	OTRD

³ Oklahoma Tourism and Recreation Department

The locations of each of the sites in the Project vicinity are shown in Figure 2.

Figure 2 – Location of the Recreation Sites in the Project Vicinity



A recreation facility inventory was completed at the recreation sites within the Project vicinity on September 22 or 23, 2020. Tables 4-6 display the facility amenities present as of 2020 at the FERC-approved, State Park, and other non-Project recreation sites respectively.

Table 4 – FERC-Approved Recreation Site Amenities

Grand Lake Area Recreation Site FERC-Approved	Number of Each Amenity Per Site						
	Boat Launch	Dock or Pier	Mooring Dock	Pavilion	Picnic Table	Restroom	Trash Receptacle
Wolf Creek Public Access	5	1	4	1	6	1	7
Monkey Island Public Boat Ramp	1	-	-	-	-	-	-
Seaplane Base Public Access	1	-	-	-	-	-	-
Big Hollow Public Access	1	-	-	-	-	-	-
Duck Creek Bridge Public Access	1	-	-	-	-	-	-

Table 5 – State Park Recreation Site Amenities

Grand Lake Area Recreation Site State Park (Non-Project)	Number of Each Amenity Per Site						
	Boat Launch	Dock or Pier	Mooring Dock	Pavilion	Picnic Table	Restroom	Trash Receptacle
Twin Bridges (Upper) State Park	-	-	-	5	Many	3	5
Twin Bridges (Lower) State Park	2	-	1	1	4	1	2
Honey Creek State Park	1	1	1	2	Many	3	5
Bernice State Park	2	1	-	-	2	-	-
Disney State Park	3	-	-	-	2	-	-
Cherokee Main State Park	-	-	-	1	4	1	2
Cherokee Lakeside State Park	1	-	-	1	3	1	3
Little Blue State Park	-	-	-	-	-	5	3
Cherokee Riverside State Park	-	-	-	1	1	3	4

Table 6 – Other Non-Project Recreation Sites in the Project Vicinity Amenities

Grand Lake Area Recreation Site State Park (Non-Project)	Number of Each Amenity Per Site						
	Boat Launch	Dock or Pier	Mooring Dock	Pavilion	Picnic Table	Restroom	Trash Receptacle
Twin Bridges (Upper) State Park	-	-	-	5	Many	3	5
Twin Bridges (Lower) State Park	2	-	1	1	4	1	2
Honey Creek State Park	1	1	1	2	Many	3	5
Bernice State Park	2	1	-	-	2	-	-
Disney State Park	3	-	-	-	2	-	-
Cherokee Main State Park	-	-	-	1	4	1	2
Cherokee Lakeside State Park	1	-	-	1	3	1	3
Little Blue State Park	-	-	-	-	-	5	3
Cherokee Riverside State Park	-	-	-	1	1	3	4

3. Recreation Plan Purpose

In addition to providing overall information on recreation opportunities within the Project vicinity, the purpose of the RMP is to provide a detailed description of the FERC-approved recreation facilities, a detailed description of the proposed recreation enhancement measures, a discussion of the purpose of each measure as it relates to the Project effects, the estimated capital and annual O&M costs for each proposed recreation enhancement, and the current and additional O&M costs for implementing the RMP.

A. Detailed Description of the FERC-Approved Recreation Facilities⁴

Wolf Creek Public Access

The Wolf Creek Public Access (Wolf Creek) is located on the northeastern portion of Grand Lake in the city of Grove and is maintained by the city. Site facilities include six concrete boat launch ramps, one dock/pier, four mooring docks, one pavilion with a weighing live tank, six picnic tables, one large restroom facility, and seven trash receptacles. This site includes three areas dominated by parking. The north area includes only parking. The south area includes parking, restrooms, and camping refuse depository. The area also includes parking sites, barrier-free ramps and docks, and a swimming area. The restrooms, trash receptacles, and one picnic table are also barrier-free.

The extensive parking areas are surfaced with both asphalt and concrete. There are a total of 413 parking spaces within the three areas. Most (353) of the parking spaces are double/trailer spaces; there are 51 standard parking spaces and 17 barrier-free parking spaces (standard and double sized). Signage at the site includes one Facility ID sign, six directional signs, and multiple regulation signs. Directional signs are also present along the major road (State Highway 59) outside the facility.

Photographs of the recreation site are shown in Figure 3.

Figure 3 – Photographs of the Wolf Creek Public Access



Wolf Creek was updated, with the amenities described above, in 2012 and is designed to handle recreation needs for large and small fishing tournaments.

The upper and lower elevation limits of usability for the boat ramp at this facility are 750 and 737 feet PD.

⁴ Detailed descriptions from the 2020 Recreation Facilities Inventory and Use Study (Grand River Dam Authority, 2021b).

Monkey Island Public Boat Ramp

The Monkey Island Public Boat Ramp is located along the shoreline of Grand Lake and is maintained by GRDA. The site is accessed through a housing development and is surrounded by private residences and a golf course. The access road is very narrow and in 2020 was in poor condition. The one facility at the site is a boat launch ramp which, in 2020, was rated as M and required maintenance. The parking area is paved with asphalt and unmarked with approximately 15 double/trailer parking spaces.

A photograph of the recreation site is shown in Figure 4.

Figure 4 – Photograph of the Monkey Island Public Boat Ramp



The upper and lower elevation limits of usability for the boat ramp at this facility are 751 and 734 feet PD.

Seaplane Base Public Access

The Seaplane Base Public Access is located on the west side of Grand Lake in a rural neighborhood northeast of the town of Cleora. A gravel access road leads to the GRDA-maintained site. The one facility at the site is a concrete boat launch ramp with a gravel approach. The parking area has a gravel surface with approximately nine unmarked double/trailer parking spaces.

A photograph of the recreation site is shown in Figure 5.

Figure 5 – Photograph of the Seaplane Base Public Access



The upper and lower elevation limits of usability for the boat ramp at this facility are 748 and 734 feet PD.

Big Hollow Public Access

The Big Hollow Public Access is located on the east side of Grand Lake in a rural and relatively remote area in Delaware County. The site is maintained by GRDA. The one facility at this site is a concrete boat launch ramp with a gravel approach. There is no parking at the site. There are no signs directing the public to the site or at the site.

Photographs of the recreation site are shown in Figure 6.

Figure 6 – Photographs of the Big Hollow Public Access



The upper and lower elevation limits of usability for the boat ramp at this facility are 755 and 738 feet PD.

Duck Creek Bridge Public Access

The Duck Creek Bridge Public Access is located north of the town of Ketchum and is maintained by GRDA. The one facility at the site is a concrete boat launch ramp which, in September 2020, was rated as G and was in good condition. The boat ramp was resurfaced in late 2020. The gravel parking lot has approximately six double/trailer parking spaces. Signage includes one wooden Facility ID sign, one regulation sign regarding deep water, and two directional signs along State Highway 85.

A photograph of the recreation site is shown in Figure 7.

Figure 7 – Photograph of the Duck Creek Bridge Public Access



The upper and lower elevation limits of usability for the boat ramp at this facility are 748 and 742 feet PD.

B. Detailed Description of Proposed Recreation Enhancement Measures

The proposed recreation enhancement measures are shown in Table 7.

Table 7 – Proposed Recreation Improvements by Site

Grand Lake Recreation Site	Proposed Improvements	
Wolf Creek Public Access	Install Part 8 Sign	
Monkey Island Public Boat Ramp	Install Part 8 Sign	
Seaplane Base Public Access	Install Part 8 Sign	
Big Hollow Public Access	Install Part 8 Sign	
Duck Creek Bridge Public Access	Install “Steep Drop-Off” Sign	Install Part 8 Sign

C. Purpose of Each Measure as it Relates to the Project Effects

The proposed enhancements consist of installation of new signage. As one of the stated Project purposes is the safe recreational access to the Project waters, the new signage will improve the safety of the recreational experience, make it clear to the recreationists that the site is open to the public without discrimination, and provide contact information to report problems with the recreation site at each of the FERC-approved recreation sites.

D. Estimated Capital and Annual Operation and Maintenance Costs

The additional estimated capital and O&M costs associated with the proposed recreational enhancements are outlined in Table 8.

Table 8 – Estimated Additional Capital and O&M Costs Associated with the Proposed Enhancements

Grand Lake Recreation Site	Additional Capital Cost (2023 dollars)	Additional Annual Operations and Maintenance Costs (2023 dollars) ⁵
Wolf Creek Public Access	\$2,000	\$7,000
Monkey Island Public Boat Ramp	\$2,000	\$7,000
Seaplane Base Public Access	\$2,000	\$7,000
Big Hollow Public Access	\$2,000	\$7,000
Duck Creek Bridge Public Access	\$2,000	\$7,000
Recreation Facilities Inventory and Use Study in Year 25 of the New License		\$125,000

E. Current and Additional Operation and Maintenance Costs for Implementing the Recreation Management Plan

The current and additional O&M Implementing the RMP are shown in Table 9.

Table 9 – Estimated Current and Additional Capital and O&M Costs Associated with Implementing the RMP⁶

Current Capital Cost (2023 dollars)	Current Annual Operations and Maintenance Costs (2023 dollars)	Additional Capital Cost (2023 dollars)	Additional Annual Operations and Maintenance Costs (2023 dollars)
\$30,000	\$625,000	\$10,000	\$160,000 ⁷

⁵ This figure includes new signage installation and additional recreation site maintenance or management measures.

⁶ This figure includes \$30,000 for the cost of developing the RMP.

⁷ This figure also includes both the annual additional cost of sign installation and additional recreation site management measures and a one-time payment of \$125,000 in year 25 of the new license to repeat the recreation facilities inventory and use study.

F. Schedule

Signage improvements at all sites will be completed by the end of the 2024 recreation season. The additional recreation site maintenance or management measures will be implemented following the approval of the RMP.

G. Recreational Site Operational Maintenance

GRDA will implement a system where maintenance activities at the five FERC-approved recreation sites are scheduled on a regular basis during the recreation season based upon site type, maintenance needs, and use. Operational maintenance activities ensure the sites remain in acceptable condition and will include repairs, regular disposal of trash that has been deposited in both designated and undesignated areas, sign replacement, mowing, vegetation management⁸, painting, surface repair and grading (if needed), and replacement of nonrepairable items. Operational maintenance excludes activities or improvements aimed at increasing the capacity of a site or upgrading it to serve needs different from its original intended use.

To monitor for improvements aimed at increasing the capacity of a site, in years 10, 20, 30, and 40 of the new license⁹, GRDA will collect visitor use data through a combination of in-person surveys that ask about general satisfaction with recreational facilities and areas (if any) that need improvement.

GRDA will rotate surveys between each of the recreation sites in random order and the interviewer will spend approximately 15 minutes at each site conducting interviews. Before rotating to the next site, relevant conditions, including observed recreational activities, estimated number of vehicles, and number of recreational users will be recorded. General information regarding date, time, and weather conditions will also be recorded.

Surveys will be conducted between the hours of 9:00 AM and 7:00 PM to capture a range of recreational activities throughout the day. GRDA will conduct the surveys pursuant to the schedule presented in Table 10.

Table 10 – Recreation Use Survey Schedule

Month	
May	Two weekend days (one within Memorial Day Weekend) One randomly selected weekday
June	Two weekend days One randomly selected weekday
July	Two weekend days (one within the weekend of July 4th) One randomly selected weekday
August	Two weekend days One randomly selected weekday
September	Two weekend days (one within Labor Day Weekend) One randomly selected weekday

⁸ Subject to any additional vegetation management restrictions outlined in the new license.

⁹ A ten-year schedule is reasonable for this Project because the majority of the recreational use is supported by recreation facilities that are not Project recreation sites.

GRDA will prepare a report summarizing the results of the Recreation Facilities Inventory and Use Survey to include information presenting the results of the field inventory, on-site interviews and field reconnaissance, and representative photographs of the recreation facilities. The Recreation Facilities Inventory and Use Survey Report will include, at a minimum, study results, discussion and use analysis, location maps and photographs, and any recreation enhancements that are reasonably necessary.

The draft report will be provided to the Commission by February 28th of the year following the collection of data.

Year Twenty-Five Recreation Facilities Inventory and Use Study Methodology

In year 25 of the new license issuance, GRDA will be implementing a Recreation Facilities Inventory and Use Study at the recreation sites listed in Table 4. The study is modeled after the 2020 study.

The specific objectives of the study are to:

- 1) Characterize current recreational use of the Project area;
- 2) Estimate future demand for public recreation use at the Project;
- 3) Gather information on the condition of GRDA's FERC-approved recreation facilities and identify any need for improvement.

The study methodology is outlined as follows:

Condition Assessment

GRDA will record the following information for each FERC-approved recreational facility including:

- 1) A description of the type and location of existing recreation facilities;
- 2) The type of recreation provided (boat access, angler access, picnicking, etc.);
- 3) Existing facilities and sanitation;
- 4) The type of vehicular access and parking (if any);
- 5) Suitability of facilities to provide recreational opportunities and access for persons with disabilities (i.e., compliance with current ADA standards for accessible design); and
- 6) Photographic documentation of recreation facilities.

Additionally, a qualitative assessment of the condition of the FERC-approved recreation facilities will be performed. Each FERC-approved recreation facility will be rated using the following criteria:

- 1) (N) Needs replacement (broken or missing components, or non-functional);
- 2) (R) Needs repair (structural damage or otherwise in obvious disrepair);
- 3) (M) Needs maintenance (ongoing maintenance issue, primarily cleaning); or
- 4) (G) Good condition (functional and well maintained).

If a facility is given a rating of "N", "R", or "M", an explanation for the rating will be provided. The age of the facilities and signs of overuse will also be noted.

The draft report will be provided to the Commission outlining any recommended changes based upon the results.

Works Cited

Grand River Dam Authority. (2008). *Pensacola Project FERC No. 1494, Shoreline Management Plan*. June 11, 2008.

Grand River Dam Authority. (2017). *Pensacola Hydropower Project (FERC No. 1494) Notice of Intent to File License Application and Pre-Application Document*. February 1, 2017. Prepared by HDR.

Grand River Dam Authority. (2021a). *Socioeconomic Study, The Grand River Dam Authority-Pensacola Project*. September 14, 2021. Prepared by Enercon.

Grand River Dam Authority. (2021b). *Pensacola Hydroelectric Project, FERC No. 1494, Recreation Facilities Inventory and Use Study*. September 2021. Prepared by Mead & Hunt, Inc.