MCNARY MASTER PLAN

2023

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Walla Walla District

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U.S. Army Corps of Engineers

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September 2023

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U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT
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WALLA WALLA, WA 99362-1876

CENWW-OD-T (1200A) 08 September 2023

MEMORANDUM FOR Commander, Walla Walla District

SUBJECT: McNary Lock and Dam Project Master Plan

1. Enclosed subject Master Plan is submitted for review and approval in accordance with ER/EP 1130-2-550.

2. Point of contact in Operations Division for this request is Mr. Brett Call, at 641-220-1554.

Encls

PAUL A. OCKER
Chief, Operations Division

Approved ☑ Dissapproved ☐

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SHAILIN Y. KINGSLACK
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Commanding

Child Fishing

Preface

The McNary Master Plan was first approved in 1964. There was one formal revision in 1982. Most of the changes in this updated Master Plan reflect new resource objectives, a new land classification system that updates 1982 classifications to existing conditions, and documentation of land classification changes between 1982 and present day. This plan also includes changes in land classification that were made in conjunction with a multidisciplinary team and input from the public.

The format for this plan is outlined in Engineer Pamphlet 1130-2-550 (Corps 1996), revised January 2013, which sets forth policy and procedure to be followed in preparation and revision of project master plans.

The Master Plan is intended to serve as a guide for the orderly and coordinated development, management, and stewardship of all recreational, natural, and cultural resources of McNary Lock and Dam (Project). This plan is an overarching framework for the more detailed Operational Management Plan (OMP), which is developed after the Master Plan is completed and then updated annually.

The 2023 Master Plan presents an inventory of land resources and how they are classified, existing park facilities, an analysis of resource use, anticipated influences on Project operation and management, and an evaluation of future needs. It presents data on changes from 1982 to present conditions, anticipated recreational use, and sensitive resources requiring protection.

Cargill Pond, Photo by Sam Davey

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Table of Acronyms

BPA	Bonneville Power Administration
BRZ	boat restricted zone
CFR	Code of Federal Regulation
CFS	cubic feet per second
Colville	Confederated Tribes of the Colville Reservation
Corps	U.S. Army Corps of Engineers
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
District	Walla Walla District
DM	Design Memorandum
DPS	distinct population segment
EA	Environmental Assessment
ENS	Environmental Stewardship
EO	Executive Order
EPA	Environmental Protections Agency
ER	Engineer Regulation
ESA	Environmentally Sensitive Area
ESU	evolutionarily signigicant unit
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Conservation Act
GIS	geographic information system
HEP	Habitat Evaluation Procedure
HMU	Habitat Management Unit
IPMP	Integrated Pest Management Plan
MASTER PLAN	McNary Lock and Dam Master Plan
MRM	Multiple Resource Management
MRM-FIRA	Multiple Resource Management-Future and Inactive Recreation Areas
MRM-LDR	Multiple Resource Management-Low Density Recreation
MRM-VM	Multiple Resource Management-Vegetation Management
MRM-WM	Multiple Resource Management-Wildlife Management

Table of Acronyms - continued

MSMP	McNary Shoreline Management Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NRM	Natural Resources Management
NWR	McNary National Wildlife Refuge
ODFW	Oregon Department of Fish and Wildlife
O&M	Operation and Maintenance
OMP	Operational Mnagement Plan
PIF	Partners-in-Flight
PIT	passive integrated transponder
PL	Public Law
Project	McNary Lock and Dam Operating Project
RM	River Mile
SCORP	State Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Officer
TCP	Traditional Cultural Properties
UDV	Unit Daily Value
USACE	U.S. Army Corps of Engineers
USDOE	U.S. Department of Energy
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WRDA	Water Resources Development Act
Yakama	The Confederated Tribes and Bands of the Yakama Nation

Cedar Waxwing, Photo by Morrie Carter

McNary Dewatered Lock Chamber

Chapter 1. Introduction

This document is the McNary Lock and Dam Master Plan (Master Plan) for management of the lands and associated recreational, natural, and cultural resources of McNary Lock and Dam operating project (also referred to as the Project throughout the rest of the document). Master Plans are required for civil works projects and other fee-owned lands for which the U.S. Army Corps of Engineers (USACE) Walla Walla District (District) has administrative and management responsibility. Chapter 1 identifies the authorized purposes and provides a description of the Project, and provides information about the scope, goals, and planning processes of this Master Plan. A Finding of No Significant Impact (FONSI) documents the findings of the Environmental Assessment (EA), which was conducted as an integral part of developing the 2023 Master Plan; the FONSI can be found in Appendix B and the EA in Appendix A.

1.1. Project Authorization

Construction of McNary Lock and Dam Project (Project) was authorized by Public Law (PL) No. 14, 79th Congress, First Session, approved March 2, 1945. The authorization specifies primary purposes of navigation, power development, and irrigation. This legislation includes no requirements for local cooperation. Other legislation provides that Federal water resource projects shall be developed and operated for public recreation, wildlife, and other collateral purposes. This other legislation does, in certain cases, require local cooperation in development and management of collateral resources. Authority is also included for appropriate transfer of properties for public port terminal and industrial use.

1.2. Authorized Purposes

The purposes of the Project, as originally authorized by Congress (River and Harbor Act of 1945 [PL79-14]), include hydroelectric power production (if warranted), navigation, and irrigation, with recreation and fish and wildlife conservation added later as additional purposes. The Master Plan does not address the authorized purposes of navigation, hydroelectric power production, or irrigation.

1.2.1. Recreation

Section 4 of the Flood Control Act of 1944, as amended in 1946 and 1954 and by Section 207 of the 1962 Flood Control Act (PL 87-874), is the basic authority for the initial recreation development on Lake Wallula.

USACE is the largest Federal provider of water-based outdoor recreation in the nation. With more than 400 lakes and river projects in 43 states where visitors exercise, spend time with their families or just enjoy a lazy afternoon, USACE plays a major role in meeting the nation's

outdoor recreation needs. Popular recreation activities around Lake Wallula include fishing, birdwatching, swimming, picnicking, boating, paddleboarding, hunting, and camping. There are several day-use areas, campsites, parks, habitat management units, boat ramps, and marinas.

1.2.2. Fish and Wildlife

The Fish and Wildlife Coordination Act (FWCA) of 1958 (PL 85-624) provides authority to incorporate project features or structures for conservation of fish and wildlife. Under the guidance of this law, the various proposals and concepts set forth in this Master Plan have been, and will continue to be, coordinated with the fish and wildlife agencies.

The fish and wildlife mission at the Project is managed under the environmental stewardship (ENS) authority as authorized under the Project's general operation and management (O&M) budget. There are unique challenges, especially funding challenges, due to the funding structure of ENS in the District.

Yearly funding of the ENS mission is a combination of appropriated funding by Congress plus matching funds from Bonneville Power Association (BPA) based on a pre-determined calculation; the District must receive both funding sources to execute the funds. In budgeting outyears, sometimes the District only receives the appropriated portion of the funding (without the BPA matching funds), which affects how much work can be done (e.g., habitat planting, invasive species management measures, boundary surveys).

1.3. PURPOSE AND SCOPE OF THE MASTER PLAN

The Master Plan is a strategic land use document that guides the comprehensive management and development of all Project recreational, natural, and cultural resources throughout the life of the Project. This Master Plan guides and articulates USACE responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources at the Project. It is dynamic and flexible, based on changing conditions, and intended to be effective for about 20 years. The Master Plan focuses on overarching management goals and objectives.

Details of design, management, administration, and implementation are addressed in other documents, such as a 5-year activity forecast or an Operational Management Plan (OMP). The OMP is an inclusive 5-year management plan that details information required to implement the concepts described in the Master Plan. Neither the OMP nor the Master Plan addresses regional water quality, water management, or the operation and maintenance of Project operations facilities such as McNary Lock and Dam or hydropower production at the dam. Actions identified in the OMP or other planning documents should be studied to identify upcoming actions needing review under the National Environmental Policy Act (NEPA) and other applicable environmental laws and regulations.

The Master Plan was developed with consideration of regional and local needs, resource capabilities and suitability, and expressed public interests consistent with authorized Project purposes and regulations. The previous Master Plan was written in 1982 (USACE 1982). A revision is warranted due to the age of the 1982 Master Plan, changes in USACE policy and guidance regarding master plans, land purchases, management changes, and changes in visitor use.

Because the previous Master Plan is 41 years old, it would be very difficult to document all the changes that have occurred. Attempts have been made to capture some of the most important and impactful changes, such as the addition of mitigation lands and the increasing challenges

of invasive species. The Master Plan is a future-facing document, so it is important to capture the history of the Project while anticipating what will continue to impact the Project in coming years.

An EA was conducted as an integral part of developing the 2023 Master Plan and can be found in Appendix B.

1.4. PROJECT DESCRIPTION

McNary Lock and Dam is located 292 miles above the mouth of the Columbia River, on the eastern border between the states of Washington and Oregon (Figure 1-1). The reservoir serves as the border between the two states from Umatilla, Oregon to just south of Port Kelley in Washington. The reservoir or lake created by the dam, Lake Wallula, extends 64 miles upstream on the Columbia River to the U.S. Department of Energy's Hanford Site. Lake Wallula also extends over 9 miles up the Snake River to Ice Harbor Lock and Dam. Portions of the Project lie in Umatilla County, Oregon, and in Walla Walla, Franklin, and Benton Counties, Washington.

1.5. CONCEPTUAL FRAMEWORK

The process of developing the Master Plan involved a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational, and socioeconomic conditions and trends. Within a generalized conceptual framework, the process focused on four primary

Cargil Pond, Photo by Sam Davey

components:

- Regional and ecosystem needs
- Project resource capabilities and suitability
- Expressed public interests that are compatible with the Project's authorized purposes
- Environmentally sustainable elements

USACE held two scoping meetings in support of the Master Plan to give the public opportunities to provide input and ideas. One was held in Kennewick, Washington, on May 10, 2022. The second was held in Umatilla, Oregon, on May 11, 2022. USACE also solicited comments during a 30-day scoping period through a website created for the Master Plan update, through U.S. mail, and via a specialized email address.

Recommendations received during scoping helped USACE planners identify opportunities for improved management of Project lands. Those recommendations were considered, along with previous visitor feedback and public use, during formulation and evaluation of the Master Plan.

Information gathered during the scoping period was combined with the detailed Project inventory to form a list of opportunities, constraints, and other influencing factors for future natural resource and recreation development and management at the Project.

From this inventory and input, updated land classifications were applied, and land classification maps were created (Appendix E, Land Classification Maps). These maps are used for guiding appropriate development and management actions that will be detailed in planning documents such as the McNary OMP.

1.6. REFERENCES AND DESIGN MEMORANDUMS

Document references can be found in Chapter 9, Bibliography, and a list of all design memoranda pertinent to the Project is furnished in Appendix D, McNary Project List of Design Memoranda.

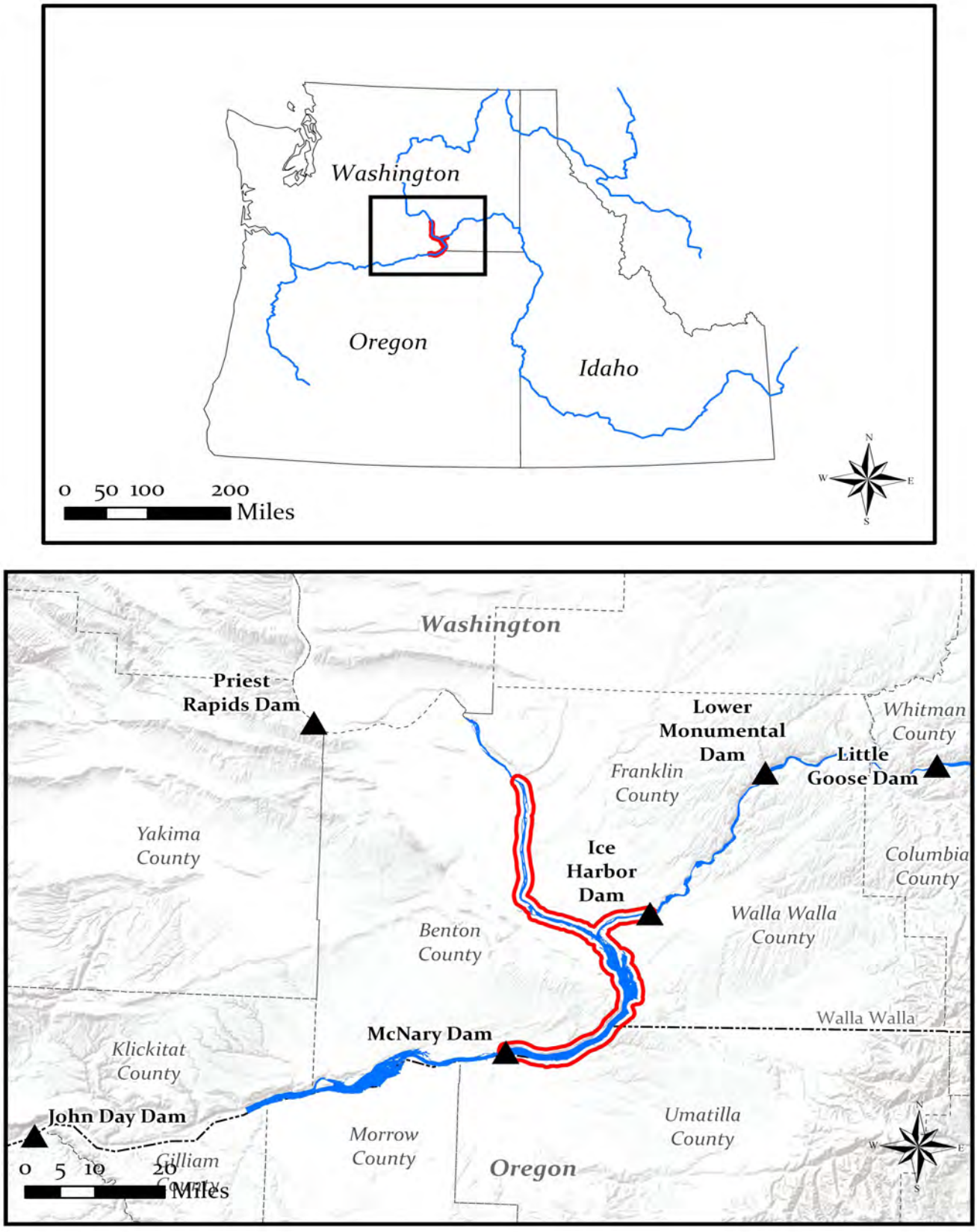

Figure 1-1. McNary Project Location

Lake Wallula - Winter

Chapter 2. Project Setting and Factors Influencing Management and Development

Chapter 2 is an overview of the key factors that influence and constrain present and future use, management, and development of land and water resources at the Project. These factors fall into three general and interrelated categories: natural resources, historical and social resources, and administration and policy. An analysis of these factors, as well as regional needs and public input, results in a framework to minimize adverse impacts to the environment and resolve competing and conflicting uses. Information presented in this chapter is used to develop Project-wide resource objectives, designate land classifications, and identify other needs.

2.1. Description of Reservoir, Navigation Pool, Islands, and Shorelines

The study area used to describe the existing conditions and assess the range of potential impacts for wildlife and habitat features includes the entire Lake Wallula, which begins roughly 40 miles below the U.S. Department of Energy's (USDOE) Hanford Site at Priest Lake Rapids Dam on the Columbia River and extends 64 miles downstream to McNary Dam (Figure 1-1). The lake also extends roughly 10 miles up the Snake River to Ice Harbor Lock and Dam and a small portion of the Yakima River. Lake Wallula has a water surface area of 38,800 acres with approximately 242 miles of shoreline (USACE 2012). The north side of the dam is in Benton County, WA and the south side is in Umatilla County, OR. Surrounding the lake are 16,908 acres of Project (Federal) lands that are used for recreation, wildlife habitat, and water-connected industrial development. Currently there are approximately 3,020 acres leased to either State or local park agencies for public park and recreational purposes. Port districts own about 1,500 acres for industrial development in the project area.

The Project is situated in the Columbia Plateau ecoregion. See Chapter 2.5.4 for a description of characteristic features of this ecoregion. Lake Wallula runs through the Tri-Cities (Kennewick, Pasco, and Richland) area and includes the confluences of the Yakima and Snake Rivers with the Columbia River in the Columbia Basin of Eastern Washington. Lands adjacent to the lake vary from relatively flat and heavily urbanized in the middle portions, to towering vertical basalt cliffs at the downstream end, and long gently sloping shelves in the upper reaches (USACE 2012).

USACE disposed of 12,233 acres to U.S. Fish and Wildlife Service (USFWS) in 2014 for inclusion in the McNary National Wildlife Refuge (NWR). The NWR covers over 15,000 acres along the west bank of Lake Wallula from the confluence

of the Snake River to the mouth of the Walla Walla River, and downstream into Oregon. The NWR includes sloughs, ponds, streams, islands, forested and herbaceous wetlands, and upland shrub-steppe and cliff-talus habitats. It serves as an anchor for biodiversity in the mid-Columbia Basin (USFWS 2018). NWR is managed as part of the Mid-Columbia River National Wildlife Refuge Complex.

Several named islands are located within Lake Wallula. Ownership and management of these islands can be found in Table 2-1.

Crescent Island is an artificial island created from dredged materials in 1985 as mitigation for waterfowl nesting habitat lost during construction of the Wallula pulp mill. Today Crescent Island is a 7.5-acre mix of dense upland shrub habitat and bare ground. Many California gulls' nest on Crescent Island. Black-crowned night-herons and great blue herons are also found nesting on the island.

Foundation Island, also located upstream of McNary Dam near the town of Burbank, WA, is the site of the largest double-crested cormorant colony on the mid-Columbia River. The cormorants in

Table 2-1. Named Islands of Lake Wallula

Island Name	Owned By	Managed By
Badger Island	USFWS	USFWS
Bateman Island	USACE	City of Richland
Borgans Island	USACE	USACE
Casey Island	USFWS	USFWS
Clover Island	Port of Kennewick	Port of Kennewick
Crescent Island	USFWS	USFWS
Foundation Island	USFWS	USFWS
Goat and Gull Island	USACE	USACE
Goose Island	USACE	USACE
Indian Island	USACE	USACE
Island 12 (Richland Island)	USFWS	USFWS
Island 19 (Fencepost Island)	USFWS	USFWS
Johnson Island	USFWS	USFWS
Martindale Island	USFWS	USFWS
Nelson Island	USACE	USACE
Peavine Island	USACE	USACE
Strawberry Island	USFWS	USFWS
Tanglefoot Island	USFWS	USFWS
Two Rivers Islands	USFWS	USFWS
Upper Nelson Island	USACE	USACE
Van Skinner Island	USACE	USACE
Wooded Island	USFWS	USFWS

this colony nest in trees along with black-crowned night-herons and great blue herons.

Island 20 (also called Fencepost Island) is colonized by well over 15,000 breeding pairs of California gulls. At one time, Island 19 supported a very large mixed colony of ring-billed gulls and California gulls but gulls no longer nest on this island. Gull declines on the Columbia Plateau are associated with human disturbance and predators (Adkins et al. 2014).

2.2. HYDROLOGY

The Columbia River is 1,243 miles long between its source at Columbia Lake, British Columbia, Canada; at an elevation of 2,690 feet above mean sea level and its confluence with the Pacific Ocean at an elevation of 0 feet mean sea level. The area of its drainage basin encompasses 258,000 square miles. The average discharge from McNary Dam is 265,000 cubic feet per second.

Lake Wallula, is 64 miles long between McNary Dam (Columbia River Mile [RM] 292) and the head of the reservoir (RM 353) adjacent to the Hanford Reach of the Columbia River. Lake Wallula is a run-of-the-river reservoir with water retention time averaging about 2 days.

Figure 2-1. Twin Sisters Rock Formation, Wallula Gap

2.3. CLIMATE

The climate in this general area is characterized by relatively low precipitation, wide temperature variations, low humidity, high evaporation, and abundant sunshine. Rainfall averages 7.49 inches per year, in which 1.92 inches or 26% falls from May through September (Figure 2-2).

Winter (December through February) temperatures average almost 36° F. Summer (June through September) months average about 70° F.

Average relative humidity in midafternoon is about 62%. Humidity is higher at night, and the average humidity at dawn is about 76%. The sun shines 79% of the time in the summer and 24% in winter. The prevailing wind is from the southwest (Figure 2-3). Average windspeed is 6.5 miles per hour.

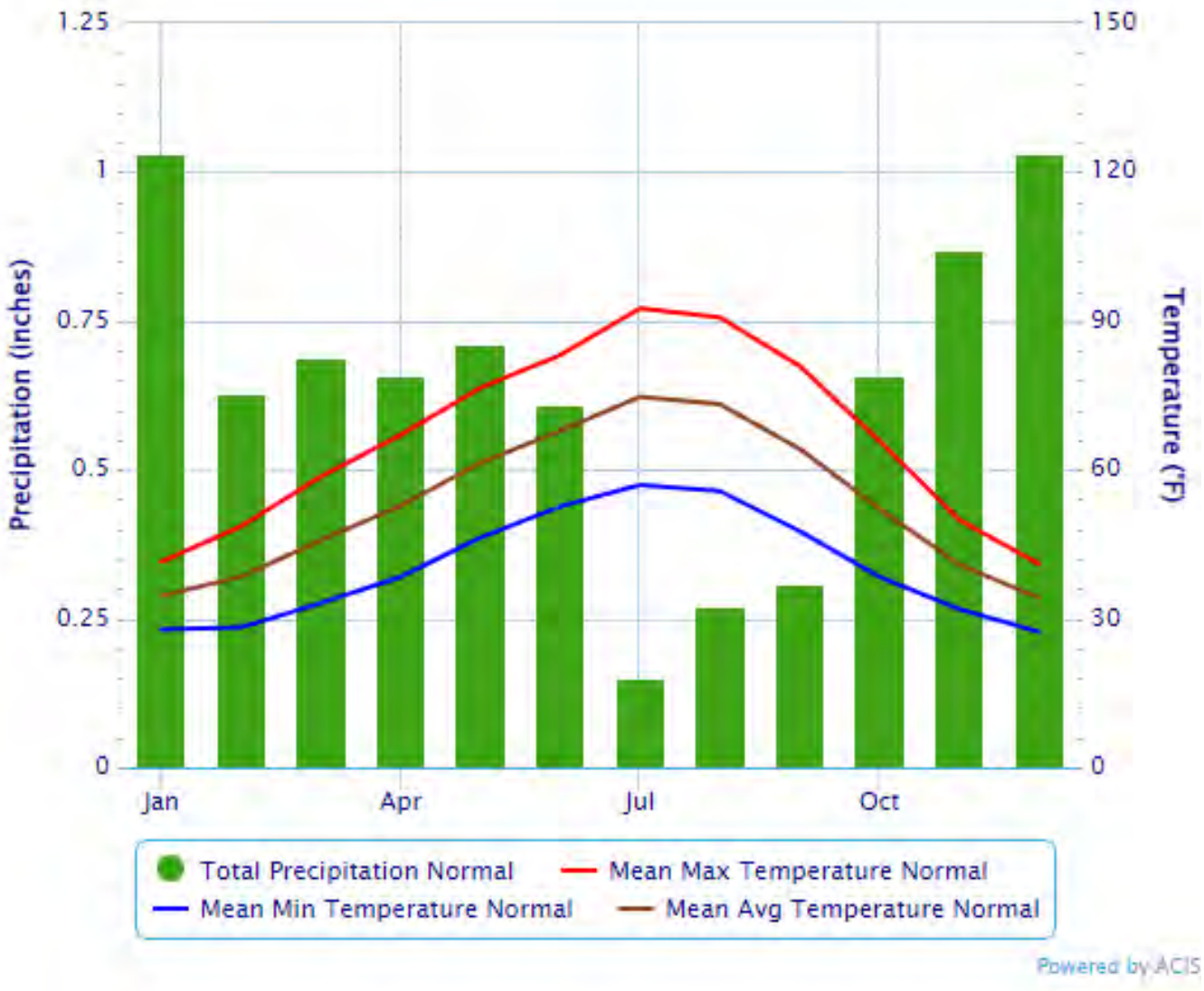

Figure 2-2. Average Precipitation and Temperature for Tri-Cities, WA[1]

[1] Source (nowdata.rcc-acis.org)

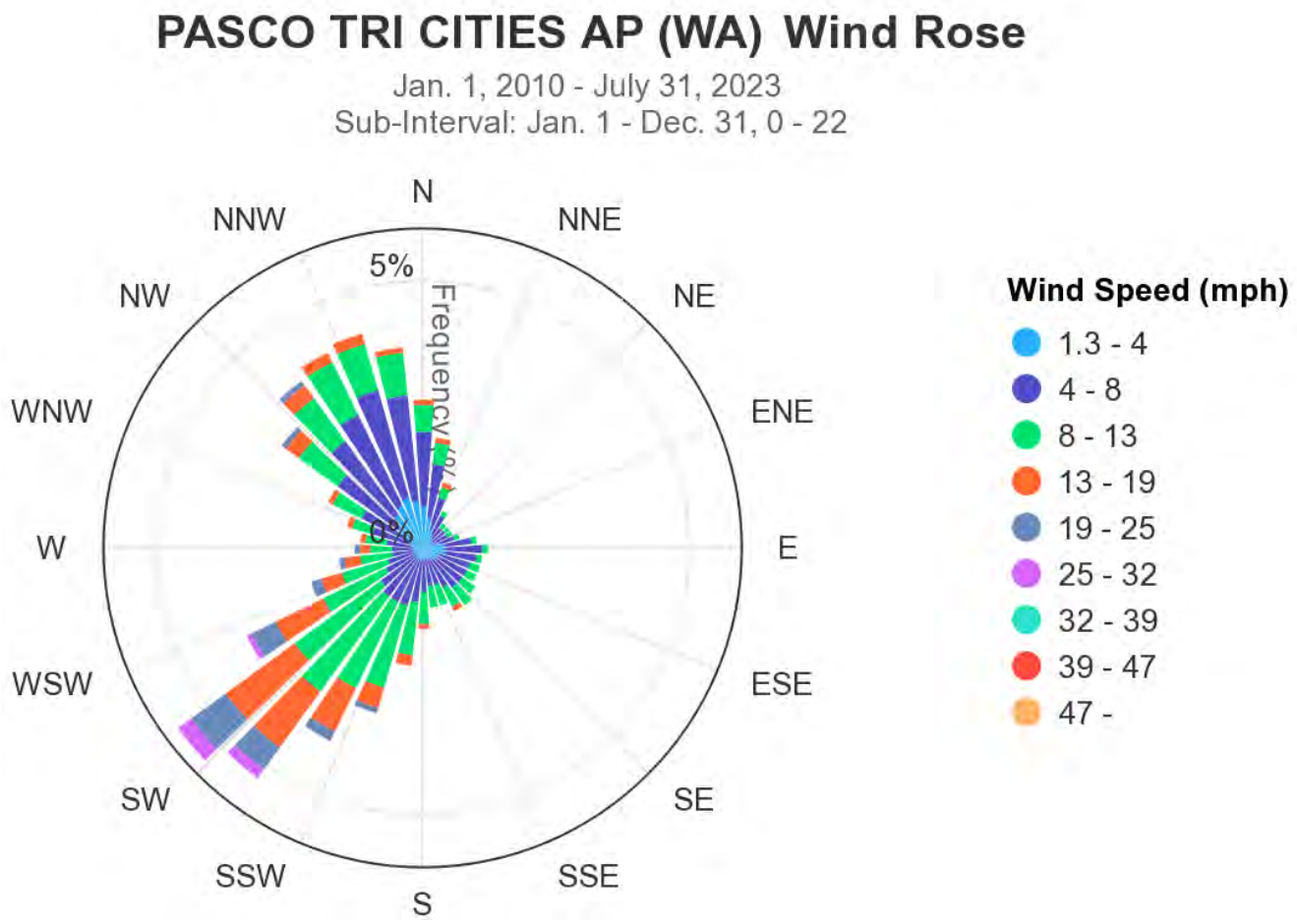

Figure 2-3. Wind Rose Showing Prevailing Winds for Tri-Cities, WA[2]

2.4. TOPOGRAPHY, GEOLOGY, AND SOILS

2.4.1. Topography

Much of the lower half of Lake Wallula is bordered by steep topography and riprap protecting Highway 730 on the south and east side and railroad on the north and west side. The shorelines bordering the upper half of the reservoir are relatively flat, especially on the east side between the mouths of the Snake and Walla Walla Rivers. This provides for the creation of extensive mudflats when the pool is operated at or near its minimum. Erosion and landslide potential is minimal throughout the reservoir.

2.4.2. Geology

Columbia River basalt underlies the area and is the most prominent rock formation in the Columbia Basin physiographic province. As part of a series of immense lava flows, mostly of a middle Miocene period, this formation covers over 250,000 square miles. The formation, ranging in total thickness to over 5,000 feet, is made up of numerous individual flows, commonly 25- to 100-feet thick, extending laterally for miles. The rock is typically fine-grained, dark gray, dense basalt in the massive parts of the flows, but may be scoriaceous (cindery lava) in the upper parts. The upper parts of the flow are weathered; thus, shades of red and brown are common. Vertical columnar structures of polygonal cross sections formed as

[2] Source: https://www.climate.gov/maps-data/dataset/wind-roses-charts-and-tabular-data

the lava cool.

Throughout the study area, much of the basalt bedrock is overlain by sedimentary deposits composed of several formations. These deposits, consisting of silt, sand, gravel, and volcanic ash of the Pliocene or Holocene periods, were deposited by the glacier-swollen Columbia River at the close of the Pleistocene epoch.

Recent alluvium, represented by narrow ribbons of river washed gravels and reworked loess of volcanic ash, border the Columbia River and many of the smaller streams in the study area. This alluvium covers many larger areas along the Columbia River. With a high ratio of silt to gravel, this material displays limited permeability.

The Columbia River basalt is generally associated with the later sedimentary deposits. Basalt provides a good building or foundation material and serves as a principal groundwater aquifer, due to the water-bearing ability of the upper flows. Much of the area is overlain in varying degrees by a veneer of loess. These Pleistocene to Holocene silts were derived in part by wind action.

2.4.3. Soils

The use of the soils in the Project vicinity is limited by their texture, depth, and the effect of climatic conditions on them. These soils may be grouped under three general headings according to physiographic areas: soils of the uplands, soils of escarpments and steep canyons, and soils of bottomlands and low terraces.

The soils of the uplands above the reservoir and outside of the project boundary are formed from loess and are mostly deep, well drained, and medium textured. Also included in this group of soils that contain enough volcanic ash to be highly susceptible to wind erosion. These soils often develop blowouts. Climatic conditions limit the use of these soils mainly to a winter wheat-summer fallow cropping system.

Soils found in escarpments and steep canyons are formed in a mixture of loess and fragments of basalt that overlay basalt bedrock. The surface is broken by numerous shallow, rocky outcrops. These soils are too rocky for cultivation and are used for pasture. Included in this group are the old terraces in the Snake River Canyon that have developed from alluvium over glacial outwash. The soils are well drained and have fair to good water-supplying capacity which makes them suitable for wheat in a winter wheat-summer fallow rotation.

Soils found in bottomlands and low terraces are formed from riverwash sediment that has washed from the uplands or from landslides. Some of the areas classified as riverwash and alluvial land are below the high-water line and are subject to flooding in the spring. They are also subject to shore erosion. Soils that occupy the broad, gently sloping terraces are excessively drained and coarse textured.

2.5. RESOURCE ANALYSIS (LEVEL ONE INVENTORY DATA)

The Columbia River and Snake River watersheds are some of the most altered in the Pacific Northwest. Along with the dams, USACE manages a network of protected lands called Habitat Management Units (HMUs) that are distributed along most of the shoreline of the Snake and Columbia Rivers. Traditionally these HMUs have been managed for hunting and fishing. However, the HMUs also support a vast array of wildlife and vegetation, and in more recent years, USACE biologists have been managing the HMUs with a focus on sustainability and biodiversity. USACE uses natural resource baseline data for making species and habitat management decisions on USACE lands. These assessments are organized into three basic levels of effort: land use classifications and rapid assessment of diversity (Level 1), multi-species detailed inventories (Level 2), adaptive management investigations (Level 3) (USACE 1996).

2.5.1. Fish and Wildlife Resources

Mammalian studies

In 2005, USACE and the Museum of Wildlife and Fish Biology at the University of California, Davis entered into a cooperative agreement to initiate Level 1 vertebrate inventories of small mammal diversity and abundance relative to Russian olive in the Walla Walla District, eastern Washington (Guilfoyle 2006).

Mule deer are present throughout the area. Fawning is associated with heavy cover available in palustrine and riverine forested and scrub-shrub wetlands. Islands are used to some extent. Mule deer are only partially dependent on lands near Lake Wallula for food, with increased dependence during winter for sources of browse.

Raccoon foraging and denning requirements are largely dependent on prey found in forest and scrub-shrub wetlands and adjacent shallow water areas.

Beaver and river otters are present in the area. Beaver is found in association with the forested and scrub-shrub wetlands, especially where there is a high proportion of young trees and suitable banks for denning. River otters use dens excavated by other species or riprap where they are located close to water are of suitable size. River otters depend on prey found in shallow waters and are also dependent on relatively dense bank cover of plants, woody debris, and large rocks.

Reptile and Amphibian Studies

Herpetofauna surveys began in 2008 and concluded in 2009. Surveys covered a 130-mile length of the Snake River (Tri-Cities, Washington to Lewiston, Idaho) and portions of the Columbia River from Umatilla, Oregon to Richland, Washington. No state sensitive species were detected during the inventory period. Species identified during these surveys are listed in Table 2-2.

Table 2-2. Reptile and Amphibian Species

Reptiles	Amphibians
Northern Pacific rattlesnake	Long-toed salamander
Painted turtle	American bullfrog
Western yellow-bellied racer	
Gopher snake	
Wandering garter snake	
Western skink	

Avian Studies

The Columbia River drainage provides habitat for a wide variety of resident and migratory birds, including upland game, waterfowl, raptors, and passerines. Approximately 150 different avian species have been observed.

Waterfowl and Waterbirds

Lake Wallula provides welcomed respite for migratory birds. This unique habitat in conjunction with the upland shrub-steppe and cliff-talus habitat nearby are important to migratory waterfowl, shorebirds, and songbirds. This provides rare waterfowl concentrations. For example, more than half of the mallards in the Pacific Flyway overwinter at some time in this portion of the Columbia Basin (USFWS 2023).

Approximately 20 breeding pairs of white pelicans began nesting on Badger Island in 1997. By 2018, an estimated 5,616 breeding American White Pelicans were documented on this island (Periodic Status Review for the American White Pelican 2022). Badger Island is currently the only known nesting area of American white pelicans in the State of Washington and is closed to the public for protection of the colony. Pelicans nest on the ground in at least three distinct areas of the island: the upstream tip, halfway down the island on the eastern shore, and the interior of the island. Pelicans have attempted to establish breeding colonies on Crescent Island as well but have been unsuccessful.

A substantial great blue heron rookery is located on Foundation Island. This rookery also contains black-crowned night herons. Great blue herons are commonly observed foraging along shallow shorelines, backwaters, and embayments. Double crested cormorants are also present.

Caspian terns have nested on Crescent Island. (Adkins, et al. 2014) reported that from 2004 to 2010, the number of breeding pairs has varied, ranging from a high of 530 breeding pairs in 2004 to a low of 349 pairs in 2009.

Shorebirds and waterfowl found along the shores of Lake Wallula include (Table 2-3):

Table 2-3. Shorebird and Waterfowl Species

Shorebirds	Waterfowl
American coot	Mallard
Black-bellied plover	Gadwall
Lesser golden plover	Norther shoveler
Snowy plover	Cinnamon teal
Baird's sandpiper	Blue-winged teal
Pectoral sandpiper	Green-winged teal
Killdeer	Redhead
Black-necked stilt	Canvasback
American avocet	Lesser scaup
Greater yellowlegs	Ruddy duck
Lesser yellowlegs	Ring-necked duck
Whimbrel	Bufflehead
Long-billed curlew	Common goldeneye
Marbled godwit	Wood duck
Sanderling	Pied-billed grebe
Dunlin	Red-necked grebe
Short-billed dowitcher	Western grebe
Long-billed dowitcher	Western grebe
Common snipe	Common loon
Wilson's phalarope	
Red-necked phalarope	
Virginia rail	

Lake Wallula supports a large population of nesting Canada geese. Number of wintering Canada geese on McNary NWR have been known to peak at about 50,000 with as many as 20,000 additional geese utilizing other areas of the reservoir. Wintering geese use the abundant corn and wheat fields provided on the refuge and surrounding agricultural lands. Most goose nesting occurs on seven islands with more than 50% of nests on Badger Island. USACE and the USFWS have erected nesting baskets in various locations to help eliminate predation. The baskets receive about 20 percent use. Adequate habitat for brooding pastures is thought to exist along naturally occurring habitat along Lake Wallula.

In addition to Canada geese, common waterfowl along Lake Wallula include the species listed in Table 2-3. Nine boxes have been added to goose structures for mallard use as well as 12 plastic nesting tubs. Some additional duck nesting likely occurs on the more heavily vegetated islands within the reservoir. Very limited brooding may also occur associated with the islands or along shallow backwaters along the reservoir. An attractive brooding area consisting of a complex of backwater ponds and wetlands occurs immediately below the mouth of the Snake River.

Raptors

A few bald eagles winter along Lake Wallula feeding primarily on waterfowl and to a lesser extent upland avian species, salmonid carcasses, and other wildlife. Osprey also migrate through the area and nest along the shores of Lake Wallula. This large bird of prey primarily feeds on fish species.

Burrowing owls are a candidate species of concern in the State of Washington. Burrowing owls inhabit open grassland and shrub-steppe habitats in eastern Washington. There are breeding records from most of the non-forested low elevation areas of eastern Washington, but historical information suggests that their range in Wash-

ington has undergone a significant contraction in recent decades. Burrowing owls have become uncommon to rare outside of Benton, Franklin, Grant, and western Adams counties. USACE has constructed artificial burrows to support the burrowing owl population at South Shore HMU near Ice Harbor Lock and Dam, near the Project.

Other Birds

Although the area is dominated by shrub and desert like habitat, the little wooded and riparian zones present host a wide variety of resident bird species such as the downy woodpecker (Picoides pubescens) and great horned owl (Bubo virginianus). There are also a vast amount of amazing migratory species such as the cedar waxwings (Bombycilla cedrorum) and the bullock's oriel (Icterus bullockii). But if you were to explore the dryer parts of the project you would find birds such as the american kestrel (Falco sparverius), the western kingbird (Tyrannus verticalis), or the rare California scrub-jay (Aphelocoma californica).

McNary's other great bird attraction is the miles of shoreline, that make seasonal homes for the

Table 2-4. Fish Species

Native Resident	Non-Native Resident	Anadromous
White sturgeon	Common carp	Upper Columbia R. spring run Chinook
Rainbow Trout	Grass carp	Snake R. spring/summer run Chinook
Mountain whitefish	Brown bullhead	Snake River fall run Chinook
Bull trout	Tadpole madtom	Upper Columbia River steelhead
Chiselmouth	Flathead catfish	Middle Columbia R. steelhead
Peamouth	Channel catfish	Upper Columbia R. sockeye
Norther pikeminow	Western mosquitofish	Snake River steelhead
Longnose dace	Pumpkinseed	Snake River Basin sockeye salmon
Speckled dace	Bluegill	Coho salmon
Leopard dace	Smallmouth bass	Atlantic salmon
Umatilla dace	Largemouth bass	American shad
Redside shiner	White crappie	Pacific lamprey
Bridgelip sucker	Black crappie	River lamprey
Largescale sucker	Yellow Perch	
Longnose sucker	Walleye	
Mountain sucker	Tench	
Sandroller	American shad	
Prickly sculpin	Atlantic salmon	
Mottled sculpin		
Torrent sculpin		
Threespine stickleback		
Western brook lamprey		
Banded killifish		

sanderling (Calidris alba) and spotted sandpiper (Actitis macularius), scattered with pockets of wetlands where you can see red-winged blackbirds (Agelaius phoeniceus) perched in the cattails or calling from atop the large cottonwoods.

Fish Studies

Lake Wallula fish and aquatic resources are diverse. Distribution maps in Wydoski and Whitney (2003) indicated that 46 species and 14 families of fishes occurred in Lake Wallula (Scholz et al. 2014, 2010). The USFWS conducted radio telemetry studies to understand bull trout use of Lake Wallula over winter, but the data were inconclusive (Barrows et al. 2016).

2.5.2. Vegetative Resources

There are approximately 50,000 acres of uplands within the general project area including lands not managed by USACE. Shrub-steppe communities dominate the uplands surrounding the Project. Gray rabbitbrush and green rabbitbrush are the dominant species. Some big sagebrush species are present. Limited associations of sagebrush and bitterbrush are present, usually on flat benches. Introduced cheatgrass has replaced most of the native bunch grasses.

Introduced plants are common in disturbed areas and in areas historically dominated by native grasses. Other common introduced plants include blackgrass, squirreltail, reed canarygrass, mustard, dock, and pigweed. The introduced invasive Russian olive has colonized the Yakima River delta.

Forested and scrub-shrub wetlands are found along the Lake Wallula shoreline, backwaters, sloughs, and tributaries. Approximately 4,000 acres of forested and scrub-shrub wetlands are found within the Project area. Most wetlands occur just below the mouth of the Snake River, in Burbank Slough. Typical wetland taxa include black cottonwoods and willows. The most extensive stand of cottonwood in the project area is located at the mouth of the Walla Walla River near Wallula Junction. Other common tree species include white alder, red alder, hackberry, and black locust. This vegetation provides critical cover and food for most of the wildlife species found in the Project area.

2.5.3. Invasive Species

Non-native and invasive plants are currently damaging biological diversity and ecosystem integrity across the Columbia Basin and within the Project. Invasive plants cause displacement of native plants; reduction of habitat and forage for wildlife; changes to plant composition in sensitive areas such as wetlands; loss of sensitive species; impaired water quality; reduced soil productivity and increased erosion; and changes in the intensity and frequency of fires. Invasive plants spread through the air and water; on vehicles, animals, and humans, and all lands are at risk of invasive plants. A few of the most common invasive plants in the Project area are cheatgrass, flowering rush, reed canary grass, and Eurasian watermilfoil.

Aquatic species are of particular concern since they spread rapidly and can quickly alter the function of an ecosystem. Flowering rush is a common invasive aquatic plant that is impacting juvenile salmon and steelhead rearing habitat in Lake Wallula. The District currently implements targeted flowering rush treatments to maintain and improve fish habitat.

Quagga mussels and zebra mussels are invasive, fingernail-sized mollusks that are native to fresh waters in Eurasia. They negatively impact ecosystems in many ways causing harm to the environment, the economy, or to human health. The Columbia River Basin is the last river system in the United States free of these mussels (Reilly 2018). Strict boating inspection and widespread educational materials and training are essential to keeping these species out of the system. Oregon Department of Fish and Wildlife (ODFW) and

Washington Department of Fish and Wildlife (WDFW) have both established rapid response plans for these mussels (WDFW 2014, ODFW 2013).

The following list of invasive fish and wildlife species describes all species that may be found within the study area (Table 2-5). If these species are present in the study area, they may require control measures. These species include:

Table 2-5. Invasive Specieas that Could Be Present at McNary Project

Amphibians & Reptiles	Terrestrial Vertebrates	Birds	Aqautic	Insects
American bullfrog	Black rat	Eurasian collared dove	Asellid isopod	Apple maggot
Common snapping turtle	Brown rat	European starling	Asian clam	Gypsy moth
Red-eared slider	Feral horse	House sparrow	Calanoid copepod	
	Feral sheep	Mute swan	Chinese mystery snail	
	Feral swine	Rock Pigeon	Common snail	
	Feral cattle		European ear snail	
	Nutria		Flathead minnow	
	Virginia opossum		Golden shiner	
			Goldfish	
			New Zealand mudsnail	
			Northerm crayfish	
			Red swamp crayfish	
			Siberian prawn	
			Western mosquitofish	

Species that have not yet become established in the Mid-Columbia River regional planning area but have the potential to be introduced include the Asian carp, emerald ash borer, European chafer, longhorned beetles, northern snakehead fish, Northern pike, and overbite clam. At this time zebra mussels and quagga mussels have not been reported in the Columbia River system. USACE conducts surveys (veliger sampling) in the study area. In addition, the USFWS and the WDFW conducts veliger sampling and solid substrate sampling, and the Idaho State Department of Agriculture conducts boat inspections to monitor for these species.

Introduced and invasive plants are present throughout the study area (Table 2-6). Terrestrial introduced and invasive species occur most often in disturbed lands. Aquatic introduced and invasive species can grow where native aquatic species do not, and once established, out-compete native species.

Cheatgrass is a widespread, non-native species that often invades areas following heavy grazing and/or fire and replaces native plant species. Other widespread invasive species include Dalmatian toadflax, knapweed species, Russian thistle, mullein, clover, and several species of the mustard family.

In forest and scrub-shrub wetlands common introduced plant species include Himalayan blackberry, St. John's wort, whitetop/hoary cress, reed canarygrass, Siberian elm, purple loosestrife, clover species, and kochia. Common introduced invasive trees often found near waterways, include Russian olive and black locust.

Table 2-6. Most Common Noxious and Invasive Species in the Columbia River System

Grasses and Forbes	Shrubs	Trees
Bull thistle	Himalayan blackberry	black locust
Canada thistle	Western false indigo	Russian olive
Cheatgrass		Tree of heaven
Common brassbuttons		
Dalmatian toadflax		
Diffuse knapweed		
Waterweed		
Eurasian watermilfoil		
Flowering rush		
Japanese knotweed		
Medusahead rye		
Puncturevine		
Purple loosestrife		
Reed canarygrass		
Russian knapweed		
Spotted knapweed		
Scotch broom		
Common st. johnswort		
Tansy ragwort		
Whitetop		
Yellow starthistle		

The most common noxious and invasive weed species are found in Table 2-6.

2.5.4. Ecological Setting

The Natural Resource Management Mission of USACE states the following:

The Army Corps of Engineers is the steward of the lands and waters at USACE water resources projects. Its Natural Resource Management Mission is to manage and conserve those natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations.

In all aspects of natural and cultural resources management, the Corps promotes awareness of environmental values and adheres to sound environmental stewardship, protection, compliance, and restoration practices.

The Corps manages for long-term public access to, and use of, the natural resources in cooperation with other Federal, State, and local agencies as well as the private sector.

The Corps integrates the management of diverse natural resource components such as fish, wildlife, forests, wetlands, grasslands, soil, air, and water with the provision of public recreation opportunities. The Corps conserves natural resources and provides public recreation opportunities that contribute to the quality of American life. (USACE 1996)

USACE is one of several federal agencies, state agencies, and non-governmental organizations that are responsible for managing resources in the same geographic area. To help achieve consistency with natural resource management across these organizations, the Environmental Protection Agency (EPA) delineated and designated ecoregions across the United States. Ecoregions are areas where ecosystems (and the type, quality, and quantity of environmental resources) are generally similar (EPA 2018). The Columbia Plateau ecoregion is a Level III ecoregion designated by the EPA encompassing approximately 35,000

square miles of land within Washington, Oregon, and Idaho (Wiken, Nava, and Griffith 2011). In support of USACE natural resource management mission, and to provide a larger-scale context of the resources managed in the region, the following paragraphs describe the Columbia Plateau ecoregion in which the Project area falls.

- Location. The Columbia Plateau ecoregion ranges between the Cascades to west and Rocky Mountains to the east. An ecoregion is a major ecosystem defined by distinctive geography and receiving uniform solar radiation and moisture. The Project area is in southeastern Washington.

- Climate. The ecoregion has a dry, mid-latitude desert and steppe climate. It is marked by hot, dry summers and cold winters. The mean annual temperature ranges from approximately 44°F to 53°F. The frost-free period ranges from 70 to 190 days. The mean annual precipitation ranges widely from about 6 to 23 inches with an average of about 13 inches.

- Vegetation. This ecoregion is characterized by shrub-steppe and grasslands, which consist of bluebunch wheatgrass, needle-and-thread grass, Sandberg bluegrass, and Idaho fescue. Basin big sagebrush, Wyoming big sagebrush, and antelope bitterbrush are also common. Invasive cheatgrass encroaches on some large areas, and common rye is also becoming quite a problem, with expanding monocultures displacing native vegetation.

- Hydrology. Streams originating in the area are generally ephemeral (temporary) and may only flow several days per year, if at all. Most summer precipitation is evaporated or transpired. Perennial streams and rivers originate in adjacent mountainous ecoregions. Some wetlands and marshes occur, but many have been drained for agriculture.

- Terrain. The terrain consists of tablelands of moderate to high relief and irregular plains with open hills. Elevations range from about 196 feet where the Columbia River exits the region to the west, to over 4,900 feet on some hills in the east. Episodic geologic events such as lava flows and massive floods shaped the topography. This region is one of the best examples of plateau flood basalts, and many areas are underlain by basalt over 5,800 feet thick. Deep loess soils covered much of the plateau. Pleistocene floods cut through the thick deposits of windblown soil, leaving islands of loess separated by scablands and bedrock channels.

- Wildlife. Common wildlife includes species such as Rocky Mountain elk, white-tail and mule deer, coyote, cougar, black-tailed jackrabbit, ground squirrels, American kestrel, bald and golden eagle, osprey, red-tailed hawk, great horned owl, western meadowlark, sage thrasher, savanna sparrow, and rattlesnake, among others.

- Land Use and Human Activities. This ecoregion includes cropland with dryland and irrigated agriculture, rangeland for livestock grazing, and wildlife habitat. Some areas are extensively cultivated for winter wheat, particularly in the eastern portions of the region where precipitation amounts are greater. Other crops include barley, alfalfa, potatoes, onions, hops, lentils, and dry peas. Fruit orchards and vineyards are extensive in some areas. Some areas are military and restricted government land. Some areas are tribal land. Larger cities include Yakima, Richland, Kennewick, Pasco, Walla Walla, Hermiston, Pendleton, and The Dalles.

2.5.5. Wetlands

Scrub-shrub wetlands are usually found adjacent to the high-water line along protected backwater areas and is dominated by willow species and western false indigo. Wetter shrub-scrub communities are dominated by black hawthorn, chokecherry, golden currant, and red-osier dogwood. Wood's rose can dominate drier areas.

Approximately 1,600 acres of emergent wetlands

within the McNary study area. Most wetlands occur just below the mouth of the Snake River and Burbank Slough and is found mostly on sandbars, mudflats, and subirrigated areas adjacent to the reservoir. Typical wetland taxa for the region include cattail, bulrush, and sedges. Representative grasses include blackgrass, squirreltail, and reed canarygrass. Forbs include mustards, docks, pigweeds, composites, and thistles. Common aquatic plants are flowering rush and Eurasian milfoil.

2.5.6. Threatened and Endangered Species

Species listed as threatened or endangered under the Federal Endangered Species Act that may occur in the Project area are listed in Table 2-7. Lake Wallula and its tributaries contain designated critical habitats for all Endangered Species Act fishes that may be present.

The Endangered Species Act allows the USFWS and the National Marine Fisheries Service (NMFS) to be highly specific in describing the species that is proposed for listing, as far as the distinct population segment (DPS), or a segment of the species' population that is discrete from other populations (genetically, behaviorally, physiologically, etc.) and significant to the species' survival. NMFS uses a similar distinction for Pacific salmonids, called the evolutionarily significant unit (ESU). There are three DPSs of steelhead in Lake Wallula and tributaries, three ESUs of Chinook salmon, and one ESU of sockeye salmon.

Table 2-7. Threatened and Endangered Species at McNary Project with Listing and Critical Habitat Status

Species	Listing Status	Critical Habitat
Steelhead		
Upper Columbia River DPS	Threatened	Yes
Middle Columbia River DPS	Threatened	Yes
Snake River DPS	Threatened	Yes
Chinook Salmon		
Upper Columbia spring run ESU	Endangered	Yes
Snake River spring/summer run ESU	Threatened	Yes
Snake River fall run ESU	Threatened	Yes
Sockeye Salmon		
Snake River Basin ESU	Endangered	Yes
Bull trout	Threatened	Yes
Western Yellow-billed cuckoo	Threatened	No
Gray Wolf	Endangered	No

Steelhead

Steelhead exhibit one of the most complex groups of life history traits of any species of Pacific salmonid. These fish can be anadromous (migratory) or freshwater residents. Steelhead can also spawn more than once (iteroparous), whereas most other anadromous salmonids spawn once and then die (semelparous).

Within the range of West Coast steelhead, spawning migrations occur throughout the year, with seasonal peaks of activity. In the Columbia River, summer steelhead enter freshwater between May and October and require several months to mature before spawning; winter steelhead enter freshwater between November and April and spawn shortly thereafter.

Steelhead spawn in clear, cool streams with suitable gravel size, depth, and current velocity. Productive steelhead habitat is characterized by complexity, primarily in the form of large and small woody structure. Steelhead may enter streams and arrive at spawning grounds weeks or even months before they spawn and are therefore vulnerable to disturbance and predation. They need cover, in the form of overhanging vegetation, undercut banks, submerged vegetation, submerged objects such as logs and rocks, floating debris, deep water, turbulence, and turbidity.

Young steelhead typically rear in streams for some time before migrating to the ocean as smolts. Steelhead smolts have been shown to migrate at ages ranging from 1 to 5 years throughout the Columbia Basin, but most steelhead generally smolt after 2 years in freshwater (Busby et al. 1996). Most steelhead spend 2 years in the ocean before migrating back to their natal streams. Adults rarely eat or grow upon returning to freshwater.

Steelhead use Lake Wallula mainly as a migration corridor. Habitat use in the mainstem Columbia River by steelhead is not well known. Unlike other salmonids, which tend to use a smaller portion of the available habitat at a higher density, steelhead tend to disperse widely throughout the available habitat.

Passage of adult and juvenile steelhead is monitored at Columbia and Snake River dams. There are also several other monitoring programs by other federal, state, and Tribal organizations throughout the watershed. Ten-year-average adult steelhead passage at McNary is approximately 226,000 fish passing in a given year, and these fish include the Upper Columbia River, Middle Columbia River, and Snake River DPSs.

Adult passage typically begins in earnest in early April and continues until October, although steelhead pass McNary in small numbers at all times of the year. Five–year median daily passive integrated transponder (PIT) tag observations of out-migrating juvenile Columbia River steelhead peak in late April with most smolts passing from April through early July.

Upper Columbia River Steelhead

Upper Columbia River steelhead were listed as endangered in August 1997, changed to threatened in January 2006, then changed back to endangered by court decision in June 2007, then changed back to threatened in 2009 (74 Federal Register 42605)

The Upper Columbia River steelhead DPS consists of naturally spawned anadromous steelhead produced in Columbia River tributary systems upstream of the Yakima River to the Canadian border. Also included are steelhead from several artificial propagation programs – the Wenatchee River, Wells Hatchery, Winthrop National Fish Hatchery, Omak Creek, and Ringold hatchery programs (NMFS 2016a).

Current pressures on Upper Columbia River steelhead include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and pas-

sage barriers is the main factor limiting recovery.

Middle Columbia River Steelhead

Middle Columbia River steelhead were listed as threatened under the Endangered Species Act in March 1999. As defined, the Middle Columbia River steelhead DPS does not include the resident form (rainbow trout), which co-occur with these steelhead.

Middle Columbia River steelhead include all naturally spawning populations of steelhead in drainages upstream of the Wind River, Washington, and the Hood River, Oregon, up to, and including, the Yakima River, Washington. Major drainages in this DPS are the Deschutes, John Day, Umatilla, Walla Walla, Yakima, and Klickitat River systems (NMFS 2016b). The Middle Columbia River steelhead DPS includes the only populations of inland winter steelhead in the United States.

Current pressures on Middle Columbia River steelhead include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Snake River Steelhead

Listing History

Snake River steelhead were listed as threatened in August 1997. This DPS includes all naturally spawned steelhead populations below natural and manmade impassable barriers in streams in the Snake River basin of southeast Washington, northeast Oregon, and Idaho, as well as six artificial propagation programs: the Tucannon River, Dworshak National Fish Hatchery, Lolo Creek, North Fork Clearwater River, East Fork Salmon River, and the Little Sheep Creek/Imnaha River Hatchery steelhead hatchery programs (NMFS 2016c). The Snake River steelhead DPS is distributed throughout the Snake River drainage system, including tributaries in southwest Washington, eastern Oregon, and north/central Idaho (Good et al. 2005). Snake River steelhead do not occur above Dworshak Dam.

Snake River steelhead migrate a substantial distance from the ocean (up to 940 miles) and use high elevation tributaries (up to 6,562 feet above sea level) for spawning and juvenile rearing. Snake River steelhead occupy habitat that is considerably warmer and drier (on an annual basis) than other steelhead distinct population segments.

Steelhead have generally been referred to as "A-run" and "B-run," based on two different ocean rearing strategies. A-run fish generally spend only 1 year in the ocean before returning, and they are smaller than B-run fish, which spend 2 to 3 years in the ocean before returning to freshwater. While A-run fish are also found throughout most of the Snake and Columbia River Basins, research has shown that B-run fish are strictly from the Clearwater and Salmon River Basins (NMFS 2017).

Chinook Salmon

Several different strains of Chinook salmon can be found in Lake Wallula during part of the year. Unlisted Upper Columbia River fall Chinook salmon are the most common. However, Upper Columbia River spring Chinook, Snake River spring/summer Chinook salmon, and Snake River fall Chinook salmon are also present. Migration timing and life stage development can be different between the strains as they migrate through and use the lake.

Passage of adult and juvenile Chinook salmon is monitored at the Columbia and Snake River dams. There are also several other monitoring programs by other federal, state, and Tribal organizations throughout the watershed.

Ten-year-average (2013-2022) annual adult Chinook salmon passage at McNary Dam is approximately 387,463 fish (Figure 2-4). Passage typically begins in May and goes through early October.

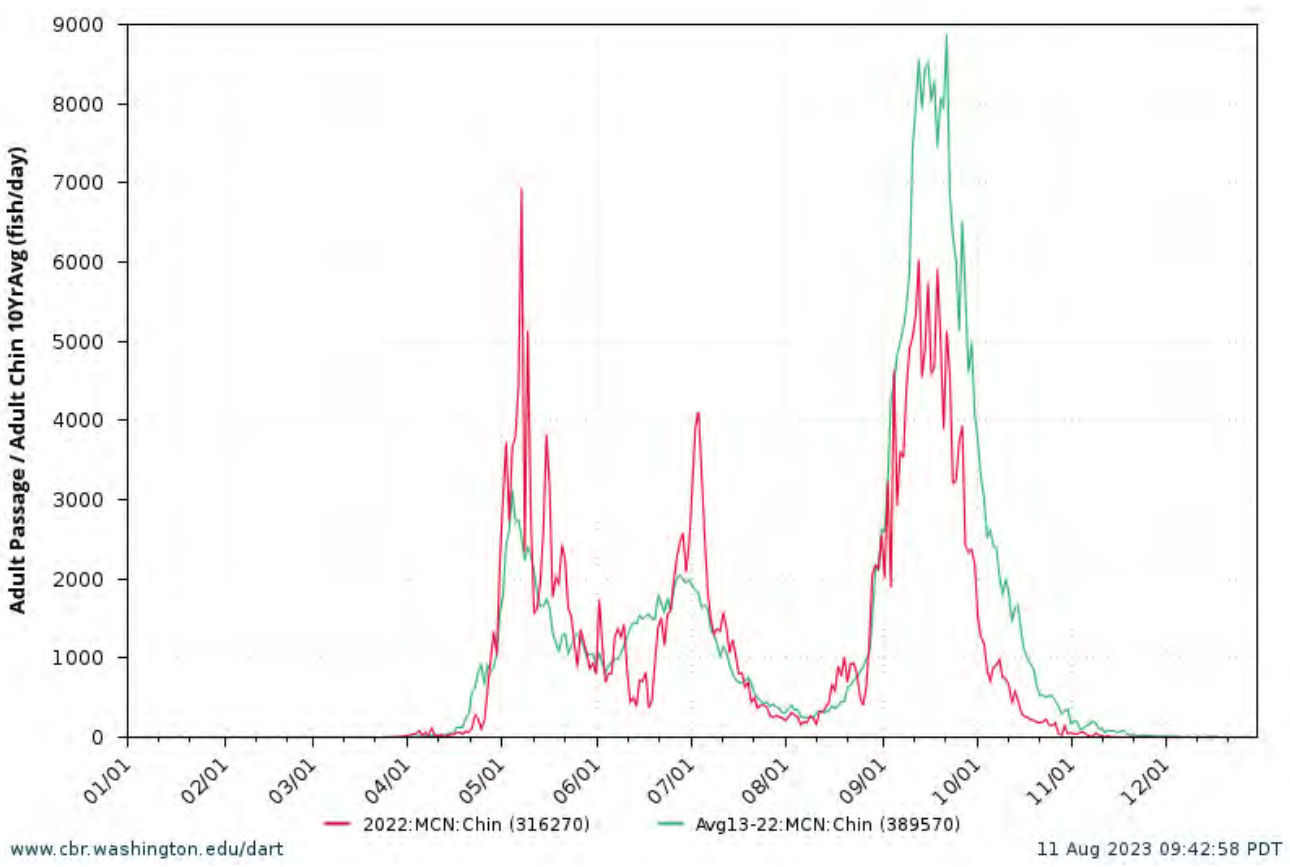

Figure 2-4. McNary Dam Adult Chinook Salmon Passage- 10 Year Average[3]

Upper Columbia River Spring Chinook

Listing History

The Upper Columbia River spring Chinook salmon were listed as endangered in March 1999. The Upper Columbia River spring Chinook ESU includes all natural-origin, stream-type Chinook salmon originating from Columbia River tributaries upstream of Rock Island Dam and downstream of Chief Joseph Dam, excluding the Okanogan River subbasin. Six artificial supplementation programs also contribute to the Upper Columbia River spring Chinook salmon ESU: the Twisp River Program; Chewuch River Program; Methow Program; Winthrop National Fish Hatchery Program; Chiwawa River Program; and the White River (NMFS 2016a).

Adults enter the rivers from mid-April through July, and hold in deep pools with cover until spawning, with spawning occurring from late July through September (Bugert et al. 1998). Adults would be passing through Lake Wallula from mid-April to mid-June (Chelan County PUD No. 1 1998).

Because there are multiple life history strategies for Upper Columbia River spring Chinook in different watersheds, juveniles could be in Lake Wallula from winter through June, although it is highly improbable that they would be in the area

[3] Source: DART Data Citation. Columbia River DART, Columbia Basin Research, University of Washington. (2023). Adult Passage Graphics & Text. Available from: https://www.cbr.washington.edu/dart/query/adult_graph_text Generated: 11 May 2023 08:39:24 PDT. Columbia River DART (Data Access in Real Time)

as pre-smolts.

Current pressures on Upper Columbia River spring Chinook salmon include loss of quality habitat, predation, poor ocean conditions, and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Most juvenile Upper Columbia River spring Chinook migrate downstream through Lake Wallula from late April through early June. Most adults migrate upstream through Lake Wallula during the same timeframe and generally take four to seven days to get through the lake. Three important spawning populations have been identified within this ESU: the Wenatchee, Entiat, and Methow populations.

Five –year median daily PIT tag observations of out-migrating juvenile Upper Columbia spring Chinook salmon peak in mid-May with most spring Chinook salmon passing April through June.

Snake River Spring/Summer Chinook

Listing History

The Snake River spring/summer Chinook salmon ESU was listed as threatened in April 1992. The Snake River spring/summer Chinook salmon ESU includes all natural-origin populations in the Tucannon, Grande Ronde, Imnaha, Salmon, and mainstem Snake Rivers. Fish returning to fifteen hatchery programs are also listed, including those returning to the Tucannon River, Imnaha, and Grande Ronde River hatcheries and to the Sawtooth, Pahsimeroi, and McCall hatcheries on the Salmon River (NMFS 2016b).

In the Snake River, spring and summer Chinook salmon share key life history traits. Both are stream-type fish, with juveniles that migrate swiftly to sea as yearling smolts. Depending primarily on location within the basin (and not on run-type), adults tend to return after either 2 or 3 years in the ocean. Both spawn and rear in small, high elevation streams (Chapman et al. 1991), although where the two forms co-exist, spring Chinook salmon spawn earlier and at higher elevations than summer Chinook salmon. Spring/summer Chinook salmon use smaller, higher elevation tributary systems for spawning and juvenile rearing compared to fall run fish, which spawn in the main stem of larger rivers.

Spring/summer Chinook salmon normally spawn in late July through September using gravel bars in smaller river and tributary streams. As with most salmon, adults die after spawning, providing a large nutrient source for juvenile fish. Juvenile spring/summer Chinook salmon behave differently than fall Chinook in that they remain in headwater streams for a year and out–migrate the following spring.

Current pressures on Snake River spring/summer Chinook salmon include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Local Population Information

Juvenile spring Chinook salmon have been documented as using the backwater areas of Lake Wallula for rearing. Although sampling has not occurred during the cooler water months in the lower Snake River, it is reasonable to assume that individuals of Snake River spring/summer Chinook salmon could use the backwater areas of lower Snake River reservoirs for periods of rearing or overwintering between July and March. Because this ESU is an upriver stock, no spawning habitat is present in the lower Snake River.

Ten-year-average adult Chinook salmon passage at Ice Harbor is approximately 72,000 fish passing in a given year and includes fall Chinook (Figure 2). Adult passage typically begins in early April

and continues until the August transition to fall salmon.

Five–year median daily PIT tag observations of out-migrating juvenile Upper Columbia spring Chinook salmon peak in mid-May with the majority of spring Chinook salmon passing April – June.

Ongoing Monitoring

Passage of adult and juvenile Chinook salmon is monitored at the Columbia and Snake River dams. There are also several other monitoring programs by other federal, state, and tribal organizations throughout the watershed.

Snake River Fall Run Chinook

Listing History

NMFS listed Snake River fall Chinook salmon as threatened in April 1992. The Snake River fall Chinook salmon ESU includes all natural-origin fall-run Chinook salmon from the mainstem Snake River below Hells Canyon Dam, and fall-run salmon from the Tucannon, Imnaha, Grande Ronde, Salmon, and Clearwater Rivers (NMFS 2016c).

Fall Chinook salmon in this ESU are ocean-type. Adults return to the Snake River at ages 2 through 5, with age 4 most common at spawning (Waples et al. 1991). Spawning, which takes place in October through November, occurs in the mainstem and in the lower parts of major tributaries. Juveniles emerge from the gravels in March and April of the following year, moving downstream from natal spawning and early rearing areas from June through early fall. Juvenile fall Chinook salmon move seaward slowly as subyearlings, typically within several weeks of emergence (Waples et al. 1991).

Snake River fall Chinook salmon spawning and rearing occurs only in larger, mainstem rivers such as the Salmon, Snake, and Clearwater Rivers. The vast majority of spawning today occurs upstream from the Lower Granite Dam, with the largest concentration of spawning sites in the Clearwater River, downstream from Lolo Creek. Currently, natural spawning is limited to the Snake River from the upper end of Lower Granite Reservoir to Hells Canyon Dam, the lower reaches of the Imnaha, Grande Ronde, Clearwater, Salmon, and Tucannon Rivers, and small areas in the tailraces of the lower Snake River hydroelectric dams (Good et al. 2005).

As a consequence of losing access to historic spawning and rearing sites in the upper Snake River, fall Chinook salmon now reside in waters that are generally cooler than most historic spawning areas. In addition, alteration of the lower Snake River by hydroelectric dams has created a series of low-velocity pools in the Snake River that did not exist historically. Both habitat alterations have created obstacles to fall Chinook survival.

Current pressures on Snake River fall Chinook salmon include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Local Population Information

The low velocity and relatively fine substrate along a high percentage of the reservoir shorelines of the Lower Snake River reservoirs preclude spawning in these areas. The limited spawning that does occur is in the tailrace areas below all the lower Snake River dams, where water velocity is high and substrate size is relatively large. Surveys conducted in the tailraces of Lower Granite and Lower Monumental dams in December of 2002 and 2003 revealed no redds in the navigation channels or in areas where redds were found in the mid- to late-1990s. No redds have been in other regions of the reservoirs, including shoreline areas that could be potentially affected by site development.

Ten-year-average (2013-2022) annual adult Chinook salmon passage at Ice Harbor Dam is 99,642

fish. Passage typically begins in May and goes through early October.

Five–year median daily PIT tag observations of out-migrating juvenile Snake River fall Chinook salmon show two peaks – one at mid-April corresponding to hatchery yearling production and a second in mid-June corresponding to hatchery subyearling production [Figure 2 (Smith et al. 2016)].

Snake River Sockeye

NMFS listed Snake River sockeye salmon as endangered in April 1992. The Snake River sockeye salmon ESU includes all anadromous and residual sockeye salmon from the Snake River basin, Idaho, as well as artificially propagated sockeye salmon from the Redfish Lake captive broodstock program (NMFS 2005).

Overall age of maturity in sockeye salmon ranges from 3 to 8 years.

Current pressures on Snake River sockeye salmon include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Local Population Information

The Snake River sockeye salmon ESU currently consists of Redfish Lake stock in the captive broodstock program at Eagle and Beef Creek hatcheries, and the hatchery fish released from this program into Redfish Lake, Pettit Lake, Pettit Creek, and Redfish Lake Creek; wild residual sockeye in Redfish Lake and their out-migrating progeny; any naturally-spawned progeny of broodstock adults released into Redfish Lake; and any adults returning to Redfish or Pettit Lake.

The population of Snake River sockeye salmon is extremely low but has shown a substantial increase recently. The latest 10-year average passing Lower Granite Dam (2008-2017) is 1,132. Adult passage typically begins in early June and continues until the August transition to fall salmon.

Five–year median daily PIT tag observations of out-migrating juvenile Snake River sockeye peak in late May with most sockeye juveniles passing from May through June.

Snake River sockeye salmon are counted at USACE Columbia and Snake River dams. Adults are counted as they move up through the ladders. Juveniles are sampled from the juvenile bypass systems and abundance estimates are made. Additional monitoring takes place in and near the lakes where sockeye spawn and rear.

Bull Trout

The USFWS issued a final rule listing the Columbia River population of bull trout as threatened in June 1998. Bull trout are currently listed throughout their range in the United States as a threatened species.

Historically, bull trout were found in about 60 percent of the Columbia River Basin. They now occur in less than half of their historic range. Populations remain in portions of Oregon, Washington, Idaho, Montana, and Nevada.

Bull trout exhibit four distinct life history patterns: anadromous, adfluvial, fluvial, and resident. Anadromous populations spend the early portion of their life in streams, grow to adulthood in the ocean, and eventually return to the tributaries in which they were born to spawn. Adfluvial populations spend between one and four years growing in their natal stream and then migrate to lakes. Fluvial populations spend about the same amount of time in their natal streams as their adfluvial siblings but migrate to larger rivers and streams instead of lakes (Fish 2004). Resident bull trout remain in the stream where they were spawned.

Bull trout eggs are buried in gravel. After 1 to

4 years in their natal stream, migratory smolt populations will travel downstream to the coast, a large river, or lake (depending on specific life history) to recruit to the adult stage. Adult individuals achieve sexual maturity at between four and seven years of age. Spawning is usually biennial, occurring only every other year or sometimes every three years, at which point the sexually mature adults fight the current back to the specific headwater in which they were produced to spawn. Several studies have shown a strong preference for spawning in small streams as opposed to larger rivers (Fish 2004).

Spawning typically occurs between August and November. As with many salmonids, bull trout exhibit varying degrees of sexual dimorphism. Females do not exhibit significant changes during the spawn, but the males will develop bright red or orange sides and a kype (hooking of the lower jaw), although these distinctions vary from population to population (Fish 2004).

The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices and the introduction of non-native species. Declining salmon and steelhead populations could also negatively impact bull trout populations by reducing the number of juvenile salmon and steelhead available to bull trout for prey.

The few remaining bull trout strongholds in the Columbia River Basin tend to be found in large areas of contiguous habitats in the Snake River basin of the central Idaho mountains, upper Clark Fork and Flathead Rivers in Montana, and several streams in the Blue Mountains in Washington and Oregon. Populations also exist in the Yakima and Methow River watersheds.

Recent studies have also shown Walla Walla River subbasin bull trout migration to, from, and through Lake Wallula above McNary Dam, but very little is known about how many bull trout may migrate into or through the mainstem Columbia and Snake River throughout the year. Anglin et al. (2010) reported that bull trout dispersed into the mainstem Columbia River from the Walla Walla River, and at times, this dispersal included a relatively long migration upstream to Priest Rapids Dam and downstream to John Day Dam. This data suggests that migratory bull trout from the Walla Walla River subbasin may also utilize the lower Snake River as bull trout of unknown origin are occasionally documented in the Ice Harbor south shore fishway (Barrows et al. 2015). While there is clear evidence that migratory bull trout utilize the Middle Columbia River and interact with Federal Columbia River Power System dams, little is known about the number of bull trout within the project area at any given time.

Fish passage including bull trout is monitored at Columbia and Lower Snake River dams between March and November, and for juveniles between April and October each year. Any bull trout observations are recorded, though few, if any, are generally seen in any year at McNary Dam.

Grey Wolf

The federally listed gray wolf is known to exist around Lake Wallula . As of December 2016, there were six established wolf packs and one estimated wolf use area totaling around 45 individual wolves in lands surrounding the project. One of the six wolf packs was newly discovered in 2016, the other five all showed growth since first being discovered between 2009 and 2014. Four of the six wolf packs had breeding pairs; a breeding pair is a male and a female that have produced at least two pups surviving to Dec 31 (ODFW 2018).

Gray wolves have two main life requisite requirements: an abundance of prey species and isolation from human disturbance. Wolves will take a variety of prey species, but the bulk of their prey is composed of ungulates, mainly deer, elk, and

moose (USFWS 1987). Gray wolves are sensitive to human disturbance, particularly near their denning and rendezvous sites. Factors such as road density have been shown to be important indices of levels of disturbance that wolves can tolerate (Mladenoff et al. 1995).

Yellow-Billed Cuckoo

The western distinct population segment (west of the continental divide) of the yellow-billed cuckoo was listed as threatened under the Endangered Species Act in October 2014. Critical habitat has been proposed; however, Project lands are not included in the critical habitat designation.

These birds prefer open woodlands with clearings with a dense shrub layer. They are often found in woodlands near streams, rivers, or lakes, but yellow-billed cuckoos occur most frequently and consistently in cottonwood forests with thick willow understory (Taylor 2000). They typically require an understory of 75 percent cover over a minimum of 10 acres. Individuals may be on breeding grounds between May and August.

In the Pacific Northwest, the species was formerly common in willow bottoms along the Willamette and Columbia Rivers in Oregon, and in the Puget Sound lowlands and along the lower Columbia River in Washington. The species was rare east of the Cascade Mountains. It may now be extirpated from Washington (USFWS 2008). Lands surrounding the Lake Wallula lack the required plant cover density to support yellow-billed cuckoos and no yellow-billed cuckoos have been documented in the around the area; given the lack of required habitat, none are expected.

2.6. CULTURAL RESOURCES AND CONTEXT

There is ample evidence that native people lived along the Columbia, Yakima, Walla Walla, and Snake Rivers in the Project area for thousands of years. Their ongoing presence is indicated through oral history provided by descendants of the Native American inhabitants, ethnographic research, museum collections, and from archaeological site investigations. The archaeological sites found on Project lands and throughout the region represent a full range of lifeways, including plant, animal, and toolstone procurement, food processing and storage, rock imagery, ceremonial aspects, and habitation sites ranging from small camps to large villages. These areas not only represent long ago activities, but they are also still of living importance today to several Tribes. A number of historic period sites are also present, including those related to agriculture, transportation, industry, and trade.

An overview and historic context for McNary Lock and Dam and other projects in the Federal Columbia River Power System (FCRPS, a subset of which is now known as the Columbia River System), is discussed in numerous documents and is not detailed in this summary (Historical Resource Associates, Inc., 2015, Reid 1995). A Cultural Resources Management Plan was prepared for the Project in 2000 and is in the process of being updated (Hicks 2000).

The Project area is part of the homeland of multiple Tribes, including The Confederated Tribes and Bands of the Yakama Nation (Yakama), the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Confederated Tribes of the Colville Reservation (Colville), the Nez Perce Tribe, and the Wanapum band. Important camps and village sites are found along the Columbia and Snake Rivers, as well as locations used for fishing, hunting, and gathering of food, medicines, toolstones, and other resources (Hunn et al. 2015, Scheuerman and Trafzer 2015, Nez Perce Tribe 2003). The river forms an important travel corridor, and trails lead through and across USACE land to the prairies and high country where resources were found at different times of the year. Salmon and other fish were and continue to be an important source of food to all these Tribes. Salmon were caught during different fish runs along

the major rivers and their tributaries, caught using a variety of fishing methods, including spears, leisters, nets, and often platforms. Tribal members lived along the rivers into the twentieth century. In and surrounding project lands, there are landscape features that have tribal stories associated with them, or in some cases, names that have been carried over into the modern lexicon. The names of nearby towns and rivers, like Walla Walla, Umatilla, Yakima, Kennewick, Wallula, etc. originate from languages spoken by the earliest inhabitants of the region.

The Tribes that reside on the reservation of the CTUIR today comprise three groups, the Umatilla and Walla Walla, who speak Sahaptin language dialects (Columbia River Sahaptin, Northeast Sahaptin), and the Cayuse, who spoke a different language altogether (Stern 1998:395; Hunn et al. 2015:18). The Umatilla people lived on both sides of the Columbia between the Tri-Cities in Washington and the Blue Mountains in Oregon, while the Walla Walla were located along the Columbia and lower Snake River near the Tri-Cities, extending to the mouth of the Walla Walla River. The Cayuse were largely along smaller rivers and creeks located inland from the Snake and Columbia Rivers, east into the Blue Mountains (Stern 1998:395-396). The original homeland for the CTUIR encompassed some 6.4 million acres, with a wider use area that roughly doubled that area, extending along the Columbia River downstream to major fishing centers, and after acquisition of the horse, east into Montana for bison hunting (Hunn et al. 2015:49).

The Yakama comprise 14 constituent tribes, including the Yakama, Palouse, Pisquouse, Wenatshapam, Klikitat, Klinquit, Kow-was-say-ee, Li-ay-was, Skin-pah, Wishram, Shyiks, Ochechotes, Kah-milt-pah, and the Se-ap-kat (Foster Wheeler et al. 1999:44). They are speakers of Sahaptin language dialects, and include tribes living in central Washington, largely bounded by the Columbia River to the south and the east, along the Yakama River, and into the grassy foothills and forested mountains on the east flank of the Cascade Range (Schuster 1998:328). People would also travel to the plains for bison hunts after acquisition of the horse. The people of the 14 tribes followed a seasonal round, living in large winter villages, then transitioning to summer camps to hunt, gather roots and other plant foods, and meet with neighbors.

The Colville comprise twelve tribes, including the Chelan, Chief Joseph Band of Nez Perce, Colville, Entiat, Lakes, Palus, Methow, Moses-Columbia, Nespelem, Okanogan, Sanpoil, and Wenatchee (George 2003:4). These tribes originate from an area during the precontact period covering northeastern Washington (Chelan, Colville, Entiat, Methow, Moses-Columbia, Nespelem, Sanpoil, Wenatchee), southeastern Washington (Palus), northeastern Oregon (Chief Joseph Band of Nez Perce), and northern Washington/south-central British Columbia (Lakes, Okanogan) (Miller 1998:254; Kennedy and Bouchard 1998:240). The Chief Joseph Band of Nez Perce are from northeastern Oregon, occupying valleys along major river corridors, and conducting hunting and gathering activities in the summer months at the higher elevations. The Palus people are from along the lower Snake River between its confluence with the Clearwater River, downstream to the Snake confluence with the Columbia River, as well as the grasslands to the north. The Nez Perce and Palus both speak Sahaptin language dialects.

The Nez Perce Tribe, or Nimiipuu, occupied a territory measuring over 13 million acres. Their territory extended east to the Bitterroot Mountains, and with forays into Montana for bison hunting; and south into the Clearwater River Basin and South and Middle forks of the Salmon River Basin in Idaho, and west along the Snake River in Ore¬gon and Washington, and forays to large fishing centers on the Columbia (Cannell 2000:14). The Nez Perce lived in camps and permanent villages along rivers and streams; named Nez Perce villages are found along the Snake to the confluence with the Columbia River, and as

far south as Weiser, Idaho. They speak a Sahaptian language, sharing language and cultural similarities to other Sahaptian speakers in Oregon and Washington (Walker 1998:420).

Horses were first acquired in the 1730s, which had a marked impact on tribal ways of life. Euro-American diseases began to spread in the region the 1700s, causing many deaths. On October 16-19, 1805, explorers with the Corps of Discovery, led by Lewis and Clark, traveled through what is now the Project. They camped near what is now Sacajawea State Park, and traveled up the Columbia River to the Yakima River, before heading downstream toward the Pacific (Plamondon II 2001:201-203; Plamondon II 2004:19-24). They met and traded with chiefs, observed numerous large Indian villages on both shores of the river and large islands, with mat lodges and racks with drying fish. They returned through the Project in April 27-29, 1806, then were guided overland along the Walla Walla and Touchet Rivers, then the along the Nez Perce Trail back to the Lewiston, Idaho area (Plamondon II 2004:79).

The explorers were soon followed by fur traders, explorers, missionaries, and white settlers. In 1818, Fort Nez Percés (renamed fort Walla Walla in 1821) was established by the Northwest Company at the confluence of the Walla Walla and Columbia Rivers (BPA and Corps 2022) (Figure 2-5). The fort operated until 1857. Whitman Mission was established in 1836 approximately 25 miles to the east of the Project, near what

Figure 2-5. 1853 Image of "Old Fort Walla Walla," by artist John Mix Stanly[4]

[4] Source: From the 1860 publication "Reports of Explorations and Surveys for Pacific Railroad," Vol. 12, Bk. 1. Available online at https://dc.ewu.edu/rrsurvey/41/

would become Walla Walla, Washington. In 1840 and 1847, two short-lived missions (Protestant and Catholic) were established near the mouth of the Yakima River. In the 1840s and 1850s, settlers traveling along the Oregon Trail settled in the Oregon, and later the Washington territories. Settlers established homesteads on the productive grasslands and river bottoms.

In 1855, three treaties were signed in Walla Walla, Washington between the U.S. and Tribal Nations. The boundaries for the three treaties converge upstream of the Project along the Palouse and Tucannon Rivers. The 1855 treaty with the CTUIR includes Project land along the south side of Snake River and surrounding the Columbia River from the dam and Tri-Cities area, extending east to the Tucannon River, which at the Project are in Benton, Walla Walla, and Umatilla Counties in Washington and Oregon. The treaty with the Yakama includes lands on the north side of the Columbia and Snake Rivers, which at the Project are in Franklin County. The 1855 treaty with the Nez Perce includes lands in the tribe's usual and accustomed treaty area. It took many years for tribal people to move to reservations and receive the resources promised in the treaties. In the meantime, settlers continued to encroach on tribal lands, reservation boundaries were revised in subsequent treaties, and wars, skirmishes, and resources that were important for tribal people were severely depleted or claimed and access restricted.

During the late nineteenth and early twentieth centuries, agriculture was a major driver in the Project area. Kennewick and Pasco were established in the late 1800s. Irrigation canals, ports, and railroads were constructed, which helped with the transportation crops. In the 1930s, the Hanford Engineering Works was established to the north of Richland, Washington. USACE awarded the first construction contract for McNary Dam on the Columbia River at Umatilla in 1947, and the dam was constructed between 1948 and 1954 (Preston 1970). Small communities at Attalia, Wallula, and Hover were to be affected by the rising reservoir waters, as were numerous homesteads, ranches, and farms. Railroads and roads were relocated, levees were constructed in populated areas, and dozens of known archaeological sites (and more likely hundreds of

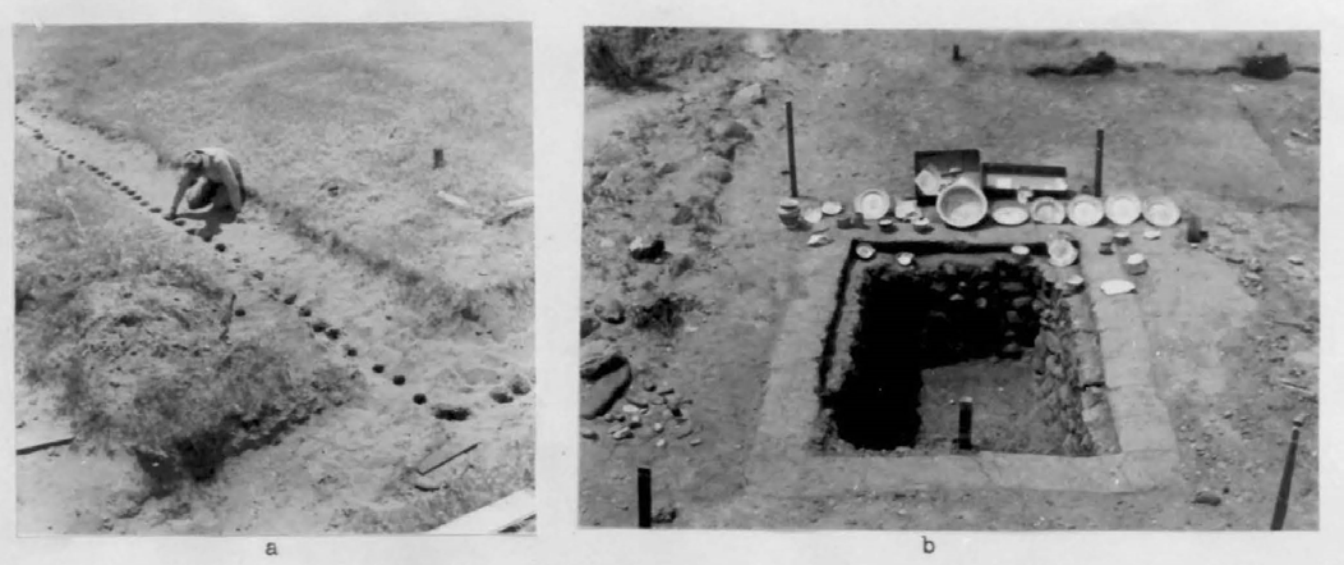

Figure 2-6. Photos taken during the excavations at Fort Walla Walla, showing (a) "Northeast corner of wooden fort showing the post holes for the stockade" and (b) "Cellar B showing some of the china which it contained."[5]

[5] Source: (Garth 1951:Plate II).

unrecorded archaeological sites) were inundated by the rising waters.

2.6.1. Early Cultural Resources Surveys

Euro-American explorers, missionaries, and ethnographers reported on their interactions with the Cayuse, Umatilla, Yakama, Nez Perce, and Palus people living in the Project area throughout the 1800s, and into the 1900s. The Smithsonian Institute's River Basin Surveys program in the 1940s kicked off cultural resources management at the Project with an archaeological survey. The surveyors noted that extensive looting had already taken place at many sites. They recorded 120 archaeological sites and recommended further work at 21 sites (Drucker 1948). The archaeologists during that survey relied on local informants who helped to identify the most well-known archaeological sites. Additional excavations were then funded by the National Park Service, mostly conducted by the Smithsonian River Basin Institution and Whitman College in the late 1940s and early 1950s. Eighteen precontact sites were tested prior to flooding of project lands by Lake Wallula. The archaeological studies revealed thousands of years of occupation of the area.

Following passage of the National Historic Preservation Act (NHPA) in 1966, archaeological investigations began anew in the Project area. In the mid-1970s, archaeological surveys were conducted at along the shoreline to see if the sites mentioned in the older reports were still present, or if they had totally been inundated by the rising waters. Many sites were relocated along the shorelines, and as the project lands were inventoried additional sites were documented. Large excavations were conducted by archaeologists from local universities, often with the assistance of volunteer archaeological groups. Huge archaeological collections were made from these sites, and often the recovery of artifacts was deemed more important than the study of said artifacts, therefore some of the archaeological reports for these collections are being written in the present day.

Several National Register listings were completed in the 1970s and 1980s, including for the Tri-Cities Archaeological District (TCAD) and Lower Snake River Archaeological District (LSRAD) (Western Heritage, Inc. 1983a; 1983b). Many of the important precontact village and burial sites are in areas that are now managed as parks in the Tri-Cities. One of the best-known sites in the Tri-Cities is "Kennewick Man" (or the Ancient One) who was discovered in 1997 when his remains were found having eroded from a cutbank. Following lengthy litigation and scientific study, he was repatriated to the five claimant Tribes and reburied in 2017.

In 1997, funding was made available for McNary cultural resources management under the FCRPS Cultural Resources Management Program. Cultural resources have been affect¬ed by ongoing effects related to operation and maintenance of the dams, as formally acknowledged by USACE in the FCRPS Programmatic Agreement (BPA, et al. 2009). Examples of these ongoing effects include erosion, sediment deposition, development, and recreational activities. Sites have also been affected by unauthorized actions, such as vandalism, looting, and cattle encroachments. Program accomplishments include completion of the 2000 Cultural Resources Management Plan (Hicks 2000), ongoing surveys of USACE-managed lands to document archaeological sites and Traditional Cultural Properties (TCPs), site condition monitoring, evaluation of sites to determine eligibility for the National Register of Historic Places (NRHP), management and analysis of archaeological collections and records, and shoreline stabilization.

The Payos Kuus Cuukwe Cooperating group was formed to exchange views, technical information, and planning advice to achieve compliance with the NHPA. Membership includes representatives from Federal agencies (USACE, BPA), Tribes (the Colville, CTUIR, Yakama, the Nez Perce Tribe, the

Wanapum Band), and State Historic Preservation Officers (SHPO) in Idaho, Washington, and Oregon.

Most of the Project land located above high water was archaeologically surveyed or resurveyed during two surveys conducted by the CTUIR Cultural Resources Protection Program in 1998 and 2010, with smaller surveys conducted by agency staff and contractors (Dickson 1999, Dickson 2011). Remaining unsurveyed areas are being surveyed on a case-by-case basis, as many of the remaining areas still identified for survey are highly developed, inaccessible, or the ground surface is not routinely visible due to vegetation and other limiting factors. Underwater surveys have not been prioritized at this time due to poor underwater visibility, high cost, and the ongoing needs for work on lands and sites that are not inundated. Other surveys, documentation, and excavations have been conducted prior to proposed development, maintenance, or habitat management projects. Archaeological sites are visited on a regular basis to determine if they have been harmed by natural, visitor, or USACE actions. USACE has archaeologists on staff that conduct cultural archaeological surveys, write reports, and contract with private or Tribal cultural resources management firms as needed to comply with federal law regarding agency cultural resources responsibilities under NHPA.

2.6.2. Historical and Archaeological Site Identification and Documentation

The NHPA requires that USACE identify and evaluate historic properties for listing on the NRHP, and that the agency consider the effects to historic properties from activities (also called undertakings). Historic properties include districts, sites, buildings, structures, and objects. Eligible properties would typically be greater than 50 years old and have an association with an important event, person, interesting architecture, or in the case of archaeological sites, have the potential for further study. Numerous historic properties have been identified at McNary, including archaeological sites, an archaeological district, TCPs or Historic Properties of Religious and Cultural Significance to Indian Tribes, several structures, and objects.

There are two Archaeological Districts on Project lands that have been listed on the NRHP. They are the Lower Snake River Archaeological District and the Tri-Cities Archaeological District. There are also two Archaeological Districts that have been concurred eligible but not formally listed; these are the Hanford South Archaeological District and the Wooded Island Archaeological District. These Districts represent a continuum of Native American occupation of the area, from the Windust phase to the contact period. There are 135 documented archaeological sites and 15 isolated finds located on Project lands. These include 123 precontact sites, 10 historic sites, and 2 multicomponent sites that date to the precontact and historic periods. The precontact sites include over 60 camp and village sites, over a dozen lithic scatters, and rock imagery sites, and burial sites. The historic sites represent mainly remnants of agricultural sites and trash scatters. Several historic towns and railroad sidings including Wallula, Attalia, and Hover were relocated as the reservoirs filled. While reservoir clearing and relocation activities meant most above ground buildings and structures were removed, remnants of those resources may still be present under the reservoirs.

Under the NHPA, USACE is responsible for examining the sites on its land and seeing if they are significant and meet criteria for listing on the NRHP. Twenty-three archaeological sites at McNary have been formally listed on the NRHP, and another 20 archaeological sites have been found eligible through in agreement with the SHPO but have not been formally nominated to the NRHP. Thirteen archaeological sites have been found not eligible for the NRHP, and 80 sites have not been evaluated. Many of the unevaluated sites are inundated and have not been evaluated because

only limited information is available since they cannot be physically visited.

TCPs, which includes Historic Properties of Religious and Cultural Significance to Indian Tribes, are areas tied to beliefs, customs, and practices of a living community. They may coincide with the boundaries of archaeological sites or be comprised of a number of landscape features. TCPs have been identified at McNary by the CTUIR, the Yakama, the Wanapum band, and the Colville. The CTUIR, Yakama, and Colville all prepared at least one study discussing TCPs at McNary, and some of the Tribes have prepared forms and conducted preliminary eligibility review, while others will be evaluated for NRHP eligibility in the future.

Historic built resource, including buildings, structures, and objects, have been documented to a limited extent on project lands. McNary Lock and Dam was concurred eligible for listing on the NRHP by the DAHP in 2011 and the Oregon SHPO in 2004. Other structures have also been documented, including levees, well houses, substations, pumping plants, a campground, and park buildings. Several bridges are also present within the Project, but they are managed by other entities.

USACE has a responsibility to care for collections and records resulting from cultural resources studies. 36 Code of Federal Regulations (CFR) § 79, "Curation of Federally Owned and Administered Archaeological Collections," outlines minimum standards for appropriate, long-term care of federal archaeological collections. Nearly all the artifacts, samples, records, and reports associated with studies at McNary are curated at the Washington State University in Pullman, Washington. Currently, there are 691 cubic feet of artifacts and 84 linear feet of records at WSU, and approximately 36 cubic feet of collections at University of Oregon. The collections are available for study by qualified researchers.

In summary, evidence of thousands of years of human prehistory and history are represented at the Project. The area contains great cultural significance to numerous Tribes. USACE will continue to document historic properties as they are found and evaluate them for effects from ongoing and proposed activities in consultation with the Washington Department of Archaeology and Historic Preservation, the Oregon State Historic Preservation Office, and the Tribes.

2.7. RECREATIONAL FACILITIES AND ACTIVITIES

The Project provides a variety of water-related and land-based recreation opportunities (Table 2-8), and it is expected that the demand for recreation activities in the future will increase. Future recreation activities and increased usage without facility expansion will change the current user experience and could negatively impact the resources.

Table 2-8. McNary Lock and Dam Recreation Facilities, 2021

Facilities as of 2021
24 recreation areas
423 picnic sites
87 camping sites
16 playgrounds
8 swimming areas
21 trails
70 trail miles
13 fishing docks and piers
20 boat ramps
284 marina slips

2.7.1. Regional Accessibility

McNary Dam is located approximately 1 mile east of the town of Umatilla, Oregon, and 8 miles north of Hermiston, Oregon. Interstate Highway 82 lies west of the Project by roughly 2 miles. It lies just north of State Route 730 where visitors can get near the Project. There are a limited number of state and county roads offering local access along the Project; most access routes are on rural roads, winding and indirect routes, and some gravel roads.

Closest commercial air transportation services within the vicinity of McNary Dam include the Tri-Cities Airport and Pendleton Regional Airport. Private planes use the Hermiston Municipal Airport. Closest railroad train depot is the Amtrak Pasco Station in Pasco, Washington.

2.7.2. Recreation Use

USACE is one of the nation's leading Federal providers of outdoor recreation. As host to more than 250 million visitors per year, USACE plays a major role in meeting the Nation's outdoor recreation needs. McNary Lock and Dam impounds the Columbia River along the state border of Washington and Oregon and forms Lake Wallula. Popular recreation activities around Lake Wallula include fishing, swimming, hiking, picnicking, boating, hunting, and camping. There are several day-use areas, campsites, parks, HMUs, boat launch facilities, RV parks, and marinas.

Visitation in relation to recreation varies throughout the year, as well as by Reservoir.

Table 2-9. Distribution of Recreation Use by Month for Snake and Columbia River Reservoirs and Reaches

Reservoir/River Reach	2018 Monthly Recreational Visitation as a Percentage of Total Site Visitation*											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Clearwater R. and Dworshak Dam and Reservoir	2%	3%	5%	7%	12%	16%	20%	13%	8%	8%	4%	2%
Lower Granite Dam and Lake	5%	5%	6%	9%	11%	10%	11%	13%	7%	12%	6%	4%
Little Goose Dam and Lake Bryan	3%	3%	5%	4%	10%	13%	17%	13%	10%	15%	5%	3%
Lower Monumental Dam and Lake Herbert G. West	1%	2%	3%	9%	15%	16%	17%	14%	11%	8%	2%	1%
Ice Harbor Dam and Lake Sacajawea	3%	3%	4%	6%	12%	15%	21%	17%	9%	6%	3%	3%
McNary Dam and Lake Wallula	**4%**	**5%**	**7%**	**9%**	**12%**	**12%**	**15%**	**10%**	**10%**	**6%**	**4%**	**4%**
John Day Dam and Lake Umatilla	2%	3%	5%	9%	12%	14%	14%	11%	18%	6%	3%	2%
The Dalles Dam and Lake Celilo	4%	4%	6%	8%	13%	11%	14%	13%	13%	8%	4%	3%
Bonneville Dam and Lake	5%	4%	6%	8%	9%	12%	14%	13%	10%	8%	5%	6%
Below Bonneville Dam	5%	5%	6%	8%	14%	14%	14%	9%	59%	7%	5%	3%

[3] Source: MFWP 2017-2018 and email communication; NPS 2019; other visitation data provided through personal communication with BLM, Corps, USFWS, USFS, IDPR, OPRD, and WSPRC. Totals and percentages presented in this table combine fiscal and calendar year data across agencies. Data from BLM, Corps, and USFWS reflect fiscal years while all other agencies provide data by calendar year.

* Percentages are based on available monthly data from Federal and state agencies. Some agencies only report annual data.

Water-Based Recreation

Primary activity on Lake Wallula includes boating. Much of the boating is related to fishing; however, waterskiing, tubing, wake boarding, jet skiing, paddle boarding, sailing, kayaking, canoeing, and more are also important water-based activities. Virtually the entire length of the reservoir is designated as part of the Northwest Discovery Water Trail, a 367-mile recreational boating route on the region's defining waterways. It begins at Canoe Camp on the Clearwater River in Idaho, follows the Snake River down to the Columbia River and ends at Bonneville Dam in the Columbia River Gorge, connecting nearly 150 sites to launch your boat, picnic, or camp along these rivers when you travel by motorboat, canoe, sailboat, or kayak. The Water Follies in Tri-Cities – boat races, air show, and other events – bring nearly 100,000 visitors in a single weekend in July. The area has also seen an increase in the number of visitors coming to this area to compete in fishing tournaments.

Additionally, boating provides an efficient means of transportation and allows hunters to gain access to more remote wildlife habitat areas.

Access to the 64-mile-long lake is gained through 20 boat ramps along Lake Wallula. Boat ramps are located at McNary Yacht Club, Oregon Boat Ramp, Washington Boat Ramp, Walla Walla Yacht Club, Clover Island, Columbia Park, Chiawana Park, Wade Park Rd 54, Snyder, Columbia Point Marina, Howard Amon Park, Hood Park, Two Rivers Park, and more.

Fishing draws the greatest number of visitors to Lake Wallula. Most anglers fish for steelhead, hatchery spring/summer Chinook salmon, coho salmon, smallmouth bass, sturgeon, walleye, catfish, trout, and when a season is allowed by State agencies, hatchery fall Chinook salmon.

During the hot summer months, swimming is a popular activity. There are swim beaches available at Leslie Groves Park, Hood Park, Two Rivers Park, McNary Beach, Howard Amon Park, Sand Station, Sacajawea State Park, and Warehouse Beach.

Camping

Developed camping sites nearby include those within Hat Rock Campground and primitive camping at Sand Station, Warehouse Beach, and Hood Park. Respectively, there are 66 and 67 family sites. Hat Rock sites are along the banks of Lake Wallula and Hood Park near the confluence of the Columbia and Snake Rivers – all with amenities such as electricity, restrooms, water hookup. Individual sites are typically available on a 6-month rolling basis, and group sites operate on a 12-month rolling basis. Peak season lasts from end of May until beginning of September. Regarding Hood Park, demand for camping sites has consistently filled all sites months prior to use, with occasionally all sites filled 6 months in advance.

Hunting

Hunting in Washington state grows more difficult as half of the state's land is private ownership. There are several hunting locations and opportunities surrounding the Project area, the largest being the NWR. According to the USFWS, goose, duck, coot, snipe, dove, all upland game birds (excluding turkey), and deer are open to hunting. Closed to hunting are all other species of wildlife not listed and are protected: elk, bear, snakes, raven, crow, coyote, porcupine, turkey, squirrels, and rabbits. Outside the refuge, there are hunting grounds just north of McNary Lock and Dam along McNary Road as well as throughout the surrounding Columbia River area. White-tailed and mule deer are the primary big game species. Upland game bird hunters target pheasant, chukar,

California quail, and mourning dove. Waterfowl hunting is common and takes place in December and January. Over 7,780 acres of Project lands are open to public hunting. Excluding operations lands, recreation lands, and lands near populated areas, most USACE lands are available to hunters.

Picnicking

Day-use group picnic shelters are available for rent with electric hookup at parks such as Howard Amon, Leslie Groves, Wye Park, Columbia Point Marina, Jefferson, and more. Picnic tables are dispersed throughout various parks and available on a first-come, first-served basis.

Trails

With wetlands and riparian areas providing refuge for many wildlife species, there are many birdwatching and local fauna nature spots and trails. Animals include birds, beavers, river otters, jack rabbits, and deer. The Audubon Nature Trail provides a paved loop with amenities such as nature ponds for birding enthusiasts. Other nearby trails include the McNary Wildlife Nature Loop, McNary Dam Tunnel Hike, Bateman Island, Sacagawea Heritage Trail and more.

The Tapteal Greenway Trail runs along the lower Yakima River to Bateman Island. Attracting visitors to the Yakima Delta area, Badger Mountain is another well-known, popular hike in the Tri-Cities area with several varying trails such as the Canyon Trail, Langdon Trail, Sagebrush Trail, and more. 574 acres on Badger Mountain has been set aside as protected land, preserving vegetation, and restoring wildlife and wildflower areas. An 800-foot gain in elevation allows for views of the Tri-Cities valley.

2.7.3. Zones of Influence

The concentration and distribution of the population surrounding the Project are major influences on land classification and recreation development. This is illustrated with zones of influence. Figure 2-7 identifies the Project zones of influence.

The upstream end of Lake Wallula is on the edge of the second largest metropolitan area in eastern Washington. The nearest large communities comprise the Tri-Cities: Pasco, Kennewick, and Richland, which are approximately 20 miles, 23 miles, and 25 miles from McNary Lock and Dam, respectively. Large metropolitan cities such as Seattle, Portland, Yakima, and Spokane also draw in visitors, all being within a 200-mile radius of the Project.

Primary

The primary area of influence encompasses the area within 25 miles of the Project. This area is within 45 minutes traveling time from the Project, and includes the Tri-Cities communities of Pasco, Richland, and Kennewick, Washington – according to the U.S. Census Bureau 2021 American Community Survey 5-Year Estimate, a combined metropolitan population of around 225,000. Within the primary area of influence also includes the cities of Hermiston and Pendleton, Oregon, with respective populations of 19,000 and 17,000.

Secondary

The secondary zone of influence for the Project is the area within a 50-mile radius of the Project that is not included as part of the primary zone of influence. This area is within 1-hour traveling time from the Project. It does not include an additional metropolitan area, but towns of note are Walla Walla (including nearby communities Milton-Freewater and College Place), Moses Lake, and Grandview – with populations of approximately 51,000, 25,000, and 11,000 respectively.

Tertiary

The tertiary zone of influence is outside of the 50-mile radius, up to 200 miles from the Project. Some visitors will travel up to 3 hours to the Project. They are from the tertiary zone. Towns of

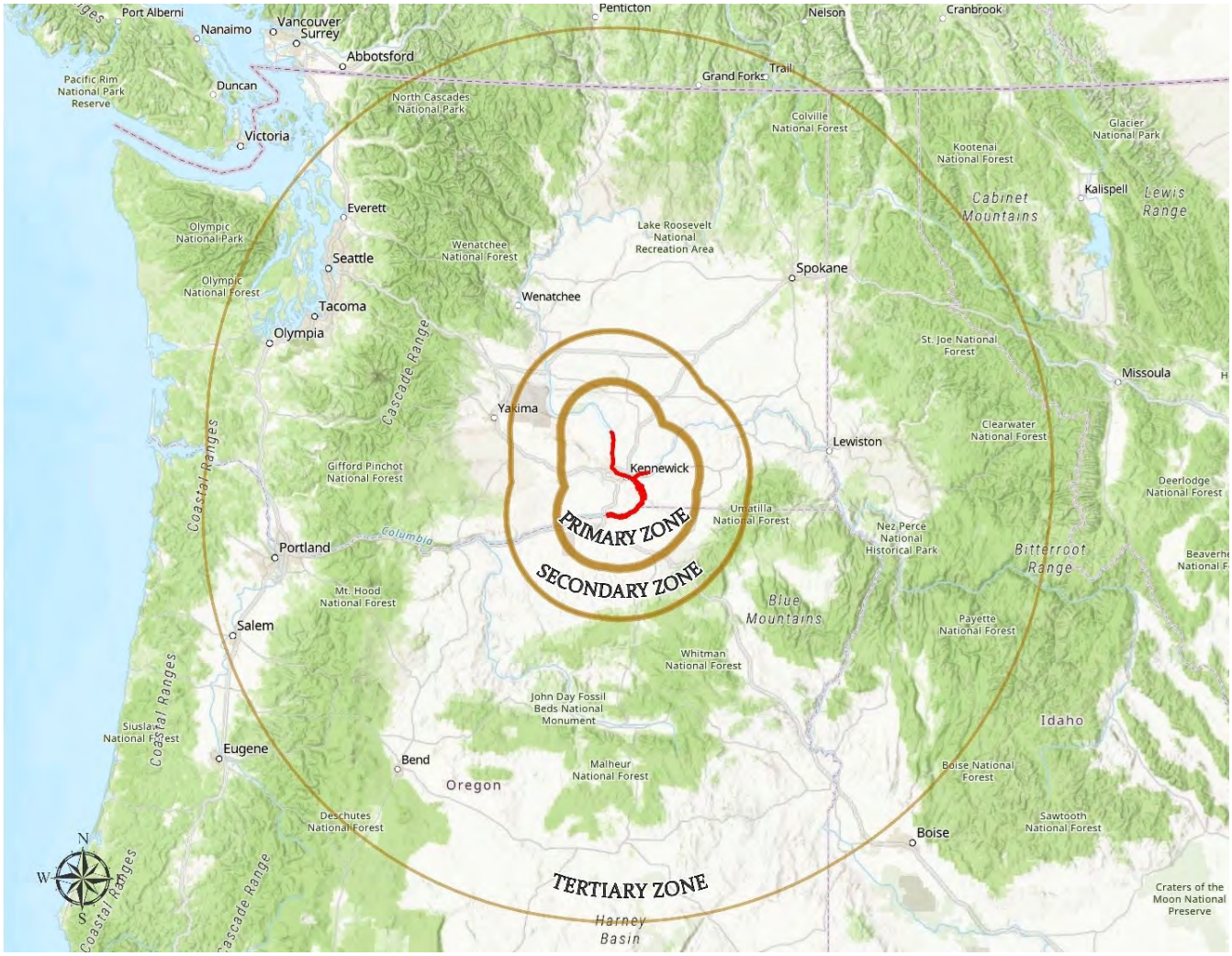

Figure 2-7. McNary Project Zones of Influence for Project Visitation

note within this zone include Pullman, Moscow, Yakima, Ellensburg, and Coeur d'Alene – with populations of approximately 33,000, 26,000, 97,000, 20,000, and 56,000 respectively. Larger metropolitan cities include Portland, Spokane/ Spokane Valley, and Seattle with populations of 641,000, 335,000, and 734,000. The consistent warm weather in the summer and water features at the Project area bring visitors from the Puget Sound area in Washington and from western Oregon.

2.7.4. Project Visitation Profile

Following 2016, the method at which visitation was calculated and/or tracked had been updated and the Project changed visitor counting equipment. Data the following year increased by nearly 60%, which can be attributed to a methodology update rather than a true 60% increase in visitation from 2016 to 2017. Consequently, visitation data for the years following the methodology update are displayed in Figure 2-8. With the exception of 2018, visitation data from 2017 to 2021 show a gradual increase year-by-year. Overnight visitation remains fairly stable around 20,000 visitors each year. As population in the surrounding area increases, total visitation is expected to continue to increase.

Recreation activities and sites around Lake Wallula are varied. Recreation activities are relatively

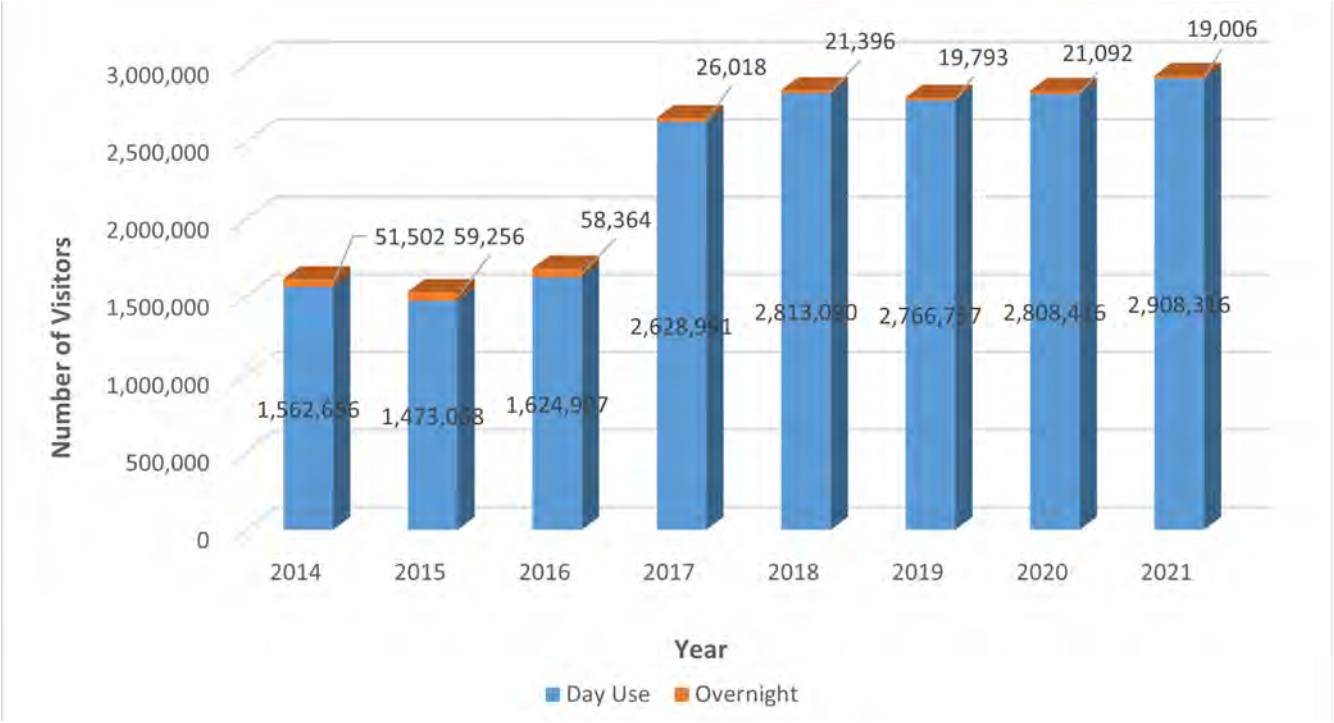

Figure 2-8. McNary Lock and Dam Recreation Visitation 2014 - 2021

balanced among FY19 activities – with swimming, sightseeing, and picnicking bringing in the top visitation at 1.08 million, 722,261, and 705,488 people respectively. For FY21, Columbia Park, Leslie Groves Park, and Howard Amon Park received the highest visitation (Table 2-10).

Seasonal Visitation

From FY18 Day Use Monthly Visitation data, seasonal visitation is strongest from May through July, with a peak visitation in July totaling over 375,000 visitors across all sites (Figure 2-9). Winter visitation is low primarily in November through January, with total December visitation just under 100,000 visitors. The three most popular sites include Columbia Park, Leslie Groves Park, and Howard Amon Park.

When compared to FY14, peak total visitation more than doubled in FY18 . The summer seasonal visitation lasted longer – from May through August, with peak visitation also in July with over 155,000 visitors across all sites. Winter visitation totalled just under 50,000 visitors.

Table 2-10. McNary Annual Visitation FY21

Recreation Area	Visits
Columbia Park	745,337
Leslie Groves Park	307,714
Howard Amon Park	208,143
McNary Wildlife Nature Area	198,254
Spillway Park	166,009
Hat Rock State Park	137,531
Hood Park	109,444
Chiawana Park	108,196
McNary Beach	105,306
Two Rivers Park	101,440
Sacajawea State Park	88,520
Warehouse Beach	50,070
Oregon Boat Ramp	48,185
Sand Station Recreation Area	44,082
Yakima Delta	43,738
West Park	32,545
Washington Boat Ramp	15,253
Pasco Boat Basin and Marina	13,134
Walla Walla Yacht Club	12,149
McNary Yacht Club	10,609
Wye Park	8,503
Total	2,554,162

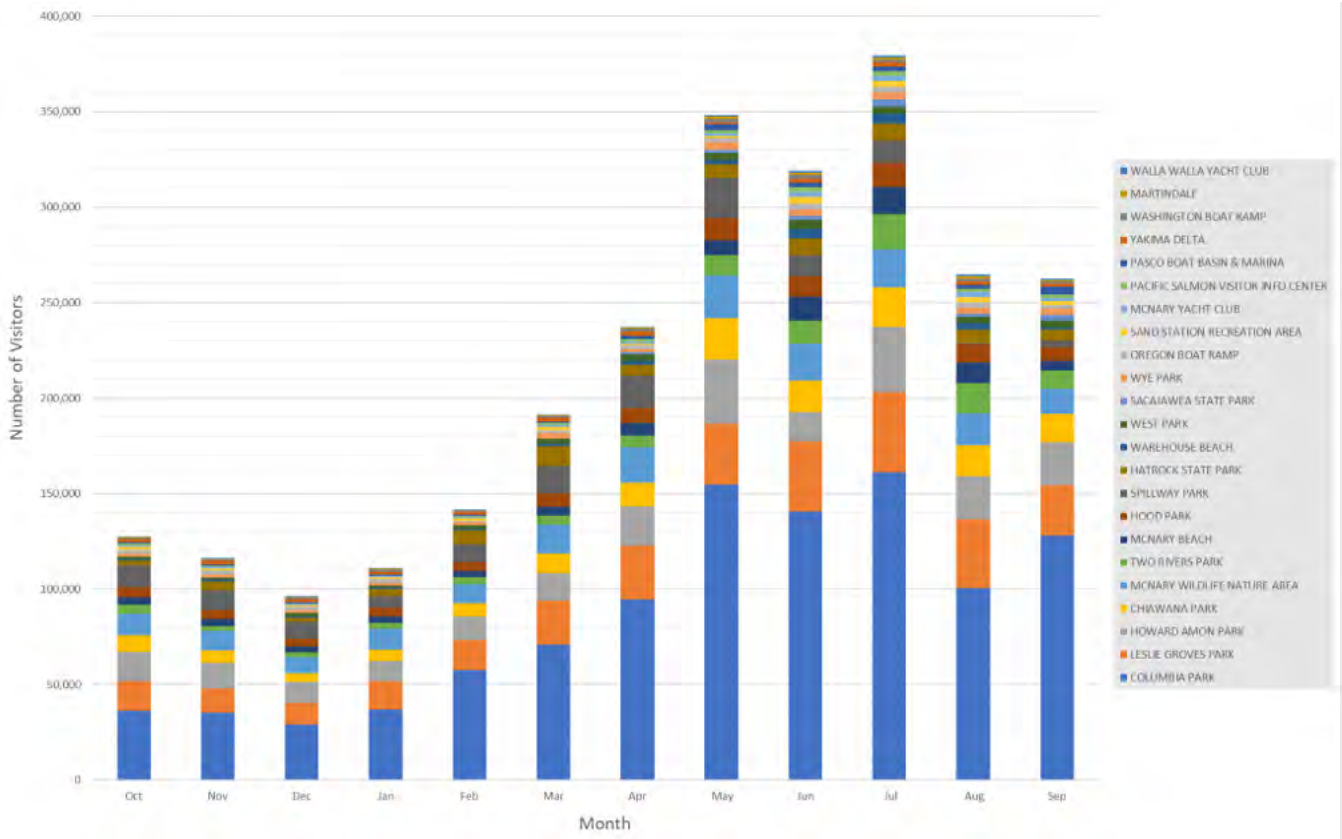

Figure 2-9. FY18 Day Use Monthly Visitation by Site

2.7.5. Recreation Analysis

Washington State Comprehensive Outdoor Recreation Plan (SCORP)

According to the Washington State Recreation and Conservation Office, the SCORP "sets priorities for funding outdoor recreation and public lands conservation" while reflecting the needs of Washington residents, providing a common vision and how to implement that vision. Each state must prepare a SCORP every five years to remain qualified for stateside Land and Water Conservation Fund. The current Washington SCORP, also known as the Washington State Recreation and Conversation Plan, expired in 2022. Plan development for an update began in summer 2022 with the Board and Governor set to adopt the updated plan in 2023. Pertinent information in regard to the Master Plan are:

- Washington State population in April 2022 was estimated to be 7,864,000 residents. The state's population has increased by 14.2 percent since the 2010 census and is increasing on average approximately 1.32 percent every year. Five Washington counties (Clark, King, Pierce, Snohomish, and Spokane counties) absorbed nearly 65 percent of the state's population growth over the last decade. None of these counties are within the Master Plan primary or secondary zone of influence.

- Washington's population is expected to grow faster than previously predicted. By 2050, it is estimated to increase by nearly 2,000,000 residents.

- Outdoor recreation employed nearly 5.2 million people in 2019 and contributed $459.8 billion to the US economy, representing 2.1 percent of GDP. Investments in outdoor recreation directly result in visitor spending that supports jobs, businesses, and industries across the country.

- Washington State direct spending on outdoor recreation exceeds $26.5 billion annually, supporting more than 264,000 jobs.

- COVID-19 pandemic-induced participation and demand for outdoor recreation: 7 million more people participated in some form of outdoor recreation in 2020 than in 2019.

- The Washington State Legislature created the Planning for Recreation Access program to fund planning projects in communities that lack adequate access to outdoor recreation opportunities

Oregon State Comprehensive Outdoor Recreation Plan (SCORP)

While the majority of the Project primary and secondary zones of influence are contained within Washington State, there is influence coming from Oregon and Idaho States. Similar to the purposes of the above Washington SCORP, pertinent information in regard to the Master Plan from the 2019-2023 Oregon SCORP are:

- Families with children had the highest proportion of their population participating in some outdoor recreation activity, and middle old and low income the lowest.

- Survey results show that close-to-home activities dominate the total user occasions for Oregon residents since these activities can occur on a daily basis with limited travel time. High public priority for dirt and other soft surfaced walking trails and paths and off-street bicycle trails and pathways.

- Strong public desire for more public access to Oregon's waterways.

- Drive-in tent sites had the highest likelihood of use and the highest priority need for overnight camping facilities in the state. An analysis of current demand and supply shows that 31.5 percent of the Oregon population participates in car camping with a tent with 7.5 million user occasions. Findings indicate that park planners should consider the need for additional tent campsites in campgrounds within their jurisdictions.

- As reported by non-participants, health issues, being too old, and disabled were top reasons why they did not participate in outdoor recreation activities in Oregon in 2017. In Oregon, and nationally, the percentage of people aged 60 and older is increasing. Individuals 60 and over currently represent approximately 23% of the Oregon population. Consider accommodations such as more accessible recreation facilities, more handicapped parking, more benches along trails, more paved trails, accessible restrooms, safe walking areas (free of fall risk), more benches / places to sit, public transportation to parks, and allowing electric mobility devices on trails.

Idaho State Comprehensive Outdoor Recreation Plan (SCORP)

The Idaho SCORP expired in 2022, with the 2023-2027 plan submitted to the National Park Service after a period of public review and comment. The approved plan allows Idaho's continuing participation in the Land and Water Conservation Fund and other grants programs, which fund $10-12 million in trail, playground, parks and other recreational amenities around Idaho each year. Pertinent information in regard to the Master Plan are:

- Accounting for more than 34.4 million acres, nearly 65 percent of land in Idaho is federally owned, making the federal government an essential provider of outdoor recreation.

- Maintaining and upgrading facilities proved the highest priority for survey respondents. Respondents said they desired more trails, campgrounds, paved pathways, fishing docks, and trailhead parking.

- The demand for recreation from 2020 to 2022 exploded, likely due to COVID-19. The surge in interest in the outdoors resulted in historic visitation to Idaho State Parks (a record 7.7 million visitors in 2020) and shortages in recreational

equipment, including bicycles, boats, RVs, and other gear.

- Study additionally found that travelers on overnight trips are more likely to use a camper/RV as a transportation mode when compared to the national average.

- Idaho's population increased by 17.3 percent (271,524 people) from 2010 to 2020, far surpassing the national growth rate of 7.4 percent and ranking second behind Utah.

Social Welfare Effects of Recreation

Social welfare effects are evaluated by estimating the economic value (i.e., consumer surplus) resulting from average annual recreational visitation at near-river sites across the basin (water- and land-based use at reservoirs and river reaches). Social welfare effects are evaluated by estimating the change in economic value resulting from estimated changes in water-based visitation at reservoirs.

Social welfare effects are estimated using a unit day value (UDV) approach (Corps 2019a; Water Resources Council 1983), a standard USACE approach to evaluate recreation consumer surplus benefits. The UDV method relies on expert and informed opinion to assign relative values to recreational visits based on the quality of recreational opportunities supported by individual recreation areas. The social welfare analysis is done in two steps. First, recreational visits are

Table 2-11. Unit Day Values for Snake and Columbia River Basin Reservoirs and Reaches

Reservoir/River Reach	UDV (2019)
Kootenai River between the US-Canada border and Libby Dam and Lake Koocanusa	$9.87
Flathead River above Flathead Lake and Hungry Horse Dam and Reservoir	9.87
Clark Fork River, Flathead River below Flathead Lake, and Flathead Lake	9.87
Pend Oreille River and Lake Pend Oreille	8.97
Grand Coulee Dam and Lake Roosevelt	9.05
Chief Joseph Dam and Lake Rufus Woods	7.95
Wanapum Dam and Lake	8.61
Priest Rapids Dam and Lake	No Data
The Hanford Reach below Priest Rapids Dam	No Data
Clearwater River and Dwarshak Dam and Reservoir	9.87
Lower Granite Dam and Lake	9.10
Little Goose Dam and Lake Bryan	9.17
Lower Monumental Dam and Lake Herbert G. West	9.85
Ice Harbor Dam and Lake Sacajawea	8.66
McNary Dam and Lake Wallula	**8.61**
John Day Dam and Lake Umatilla	8.50
The Dalles Dam and Lake Celilo	8.93
Bonneville Dam and Lake	9.14
Below Bonneville Dam	9.14

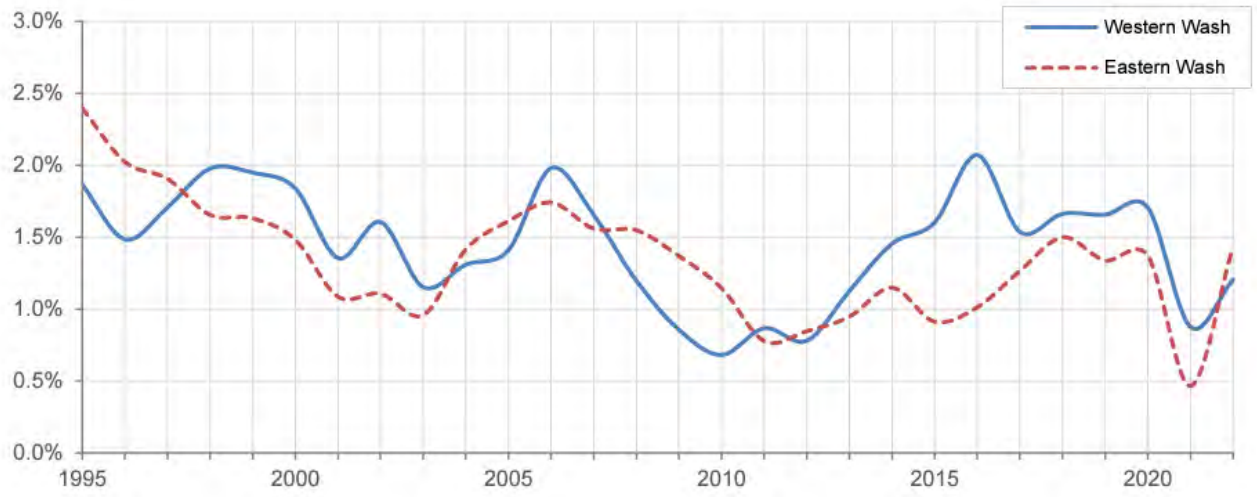

Figure 2-10. Percentage Change in Population by Region in 2022[7]

converted to recreational visitor days to account for the fact that overnight trips are longer than 1 day. Second, UDVs are applied to the estimated recreational visitor days. Table 2-11 provides UDVs for area reservoirs in comparison to the McNary Project.

Recreation Benefits from McNary Lock and Dam and Lake Wallula

There are multiple methods of measuring recreation benefit to capture the differences in benefit gained to recreators, supporters of recreation, and jobs and income to the region. The money spent by visitors to USACE lakes on trip expenses adds to the local and national economies by supporting jobs and generating income. Visitor spending represents a sizable component of the economy in many communities around USACE lakes.

McNary Lock and Dam total annual recreation visitation in FY 2019 was 2,786,550 visitors. Expenditures – estimated amount of money that those visitors spend recreating – was $116.7 million. This generated $22.2 million in National Economic Development Benefits. With multiplier effects, visitor trip spending within 30 miles of the USACE lake resulted in the regional effects of 1,058 jobs, $33.9 million in labor income, and $50.4 million in value added (wages and salaries, payroll benefits, profits, rents, and indirect business taxes).

2.7.6. Recreational Carrying Capacity

Tri-Rivers Natural Resources Management Office Park Rangers have experienced a steady growth in visitation Project-wide. Most reserved camp sites are filled online months prior to the camping season, leaving very few available sites during the season. Within the last 5 years, Rangers have also observed a large increase in the number of stand-up paddleboards and other inflatable and easily transported watercraft, reflecting expanded water recreation opportunities. The cities of Richland, Pasco, and Kennewick have also seen increases in visitation. The City of Kennewick Parks and Recreation Department reports a 10 to 20 percent increase in visitation at their parks, and the City of Richland estimates the increase is closer to 20 percent.

[7] Source: Washington State Office of Financial Management, Forecasting and Research Division, November 2022, 2022 Population Trends report.

The majority of the Project primary zone of influence is contained within Benton, Franklin, and Walla Walla, Washington counties. Figure 2-10 indicates that Eastern Washington typically experiences a slightly slower increase in population change compared to Western Washington. In 2022, however, Eastern Washington grew by 1.4% and Western Washington by 1.2%. Figure 2-11 indicates that the Project primary zone of influence experienced a higher percentage population change than King County, the most populated Washington county.

Figure 2-12 shows historical Washington State population statistics from 1970-2020 and population projections for 2030-2050, provided by the Washington State Office of Financial Management, Forecasting and Research Division. Future recreation visitation for the Project assumes the current rate of recreation participation in the general population will continue, and that carrying capacity at all sites can provide the same level of recreation experience. Within these assumptions are other assumptions. Some of these include that the cost of recreation will remain constant relative to other cost, quality will remain constant, and that recreation opportunity will be relatively constant. Any major societal changes

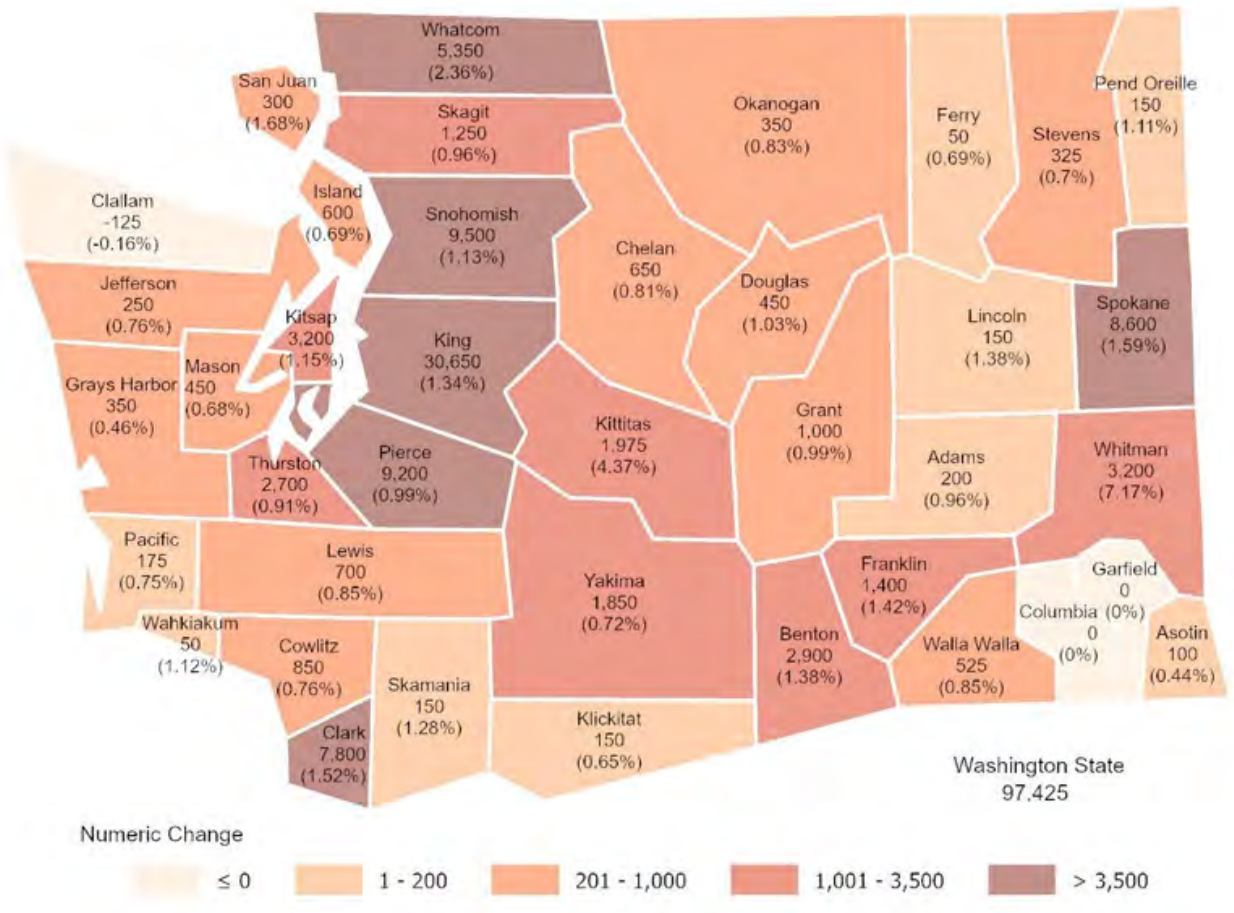

Figure 2-11. Distribution of Population Change by County in 2022[8]

[8] Source: Washington State Office of Financial Management, Forecasting and Research Division, November 2022, 2022 Population Trends report.

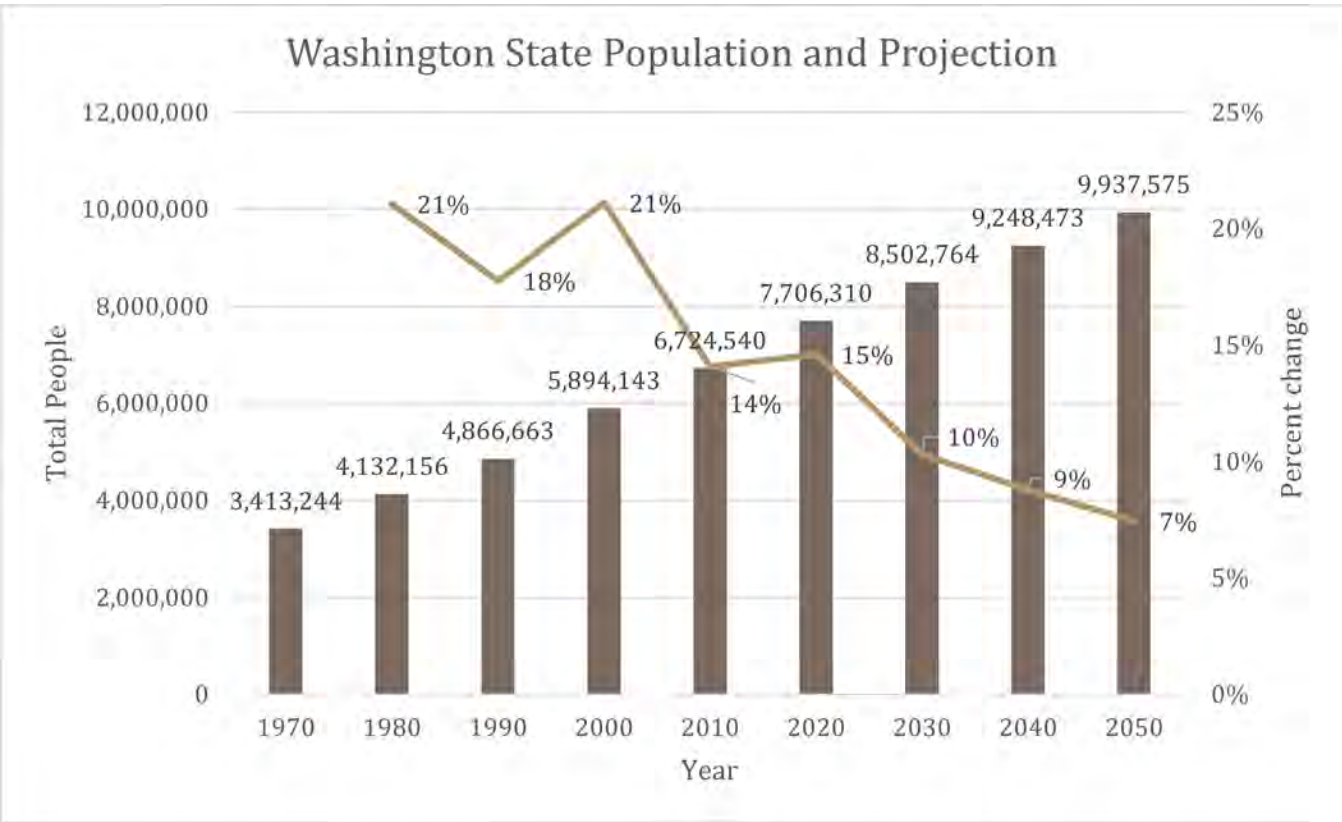

Figure 2-12. Washington State Population and Projection[9]

could have dramatic effects that could skew the estimated population higher or lower. As the population estimate is extended beyond the current year the estimation range will grow.

The overall conclusion is that recreation demand will increase as population increases. Rural areas of eastern Washington are growing at increasing rates, and it would be expected that recreation demand will increase as population increases. Continued investment in recreation will be necessary to maintain the quality and meet the increasing demand. Future recreation activities and increased usage without facility expansion will change the current user experience and could negatively impact the resources.

2.8. REAL ESTATE AND ACQUISITION POLICY

2.8.1. Land Acquisition History

Under PL 79-14, Congress authorized the government to originally purchase acres in 1945 for the primary purposes of navigation, power development, and irrigation. Since that time, subsequent legislation has authorized other project purposes, including recreation, and fish and wildlife management. Over the life of the project, USACE analyzes lands for its needs in relation to the project, and approximately 26,430 acres of land that had been designated as no longer needed for the project has been disposed.

The U.S. Government currently owns fee title in 14,190 acres within the project boundary

[9] Source: Washington State Office of Financial Management, Forecasting and Research Division, November 2022.

and has easements and reserved rights on 14,627 acres. Most of the project lands are centered along the shorelines of the Snake and Columbia Rivers, with some large parcels of land that stretch inland. USACE has management rights and responsibilities on these U.S. Government owned lands and in lands where it has limited easement and reserved interests.

2.8.2. Leases, Easements, and Outgrants

The purpose of an outgrant is to allow other entities use of project lands. These outgrants are issued by easement, permit, license, or lease. They may be issued if the land is available, and if the proposed use is consistent with operational needs and resource management objectives and there is no other viable alternative to the activity being placed on project lands. Any changes to land use classifications may influence existing activities that have already been outgranted and may allow or prohibit certain types of use in future requests for outgrants. Other outgrants may be issued and existing ones terminated or amended, as circumstances warrant. There are currently 397 outgrants on Project lands. When some properties were originally purchased for construction of the Project, the deeds of acquisition may have contained reserved rights for the individual selling the property. These reservations are usually valid in perpetuity.

The Real Estate Division of the USACE, Walla Walla District maintains all current information on outgrants and reservations.

2.9. PERTINENT PUBLIC LAWS, REGULATIONS, AND POLICIES

Rules and regulations governing the public use of water resources development projects administered by USACE are contained in 36 CFR § 327. Other authorities specifically related to the management of recreation and public access are found in PLs; Executive Orders; and USACE Engineer Regulations, Engineer Manuals, and Engineer Pamphlets. They include, but are not necessarily limited to, those listed in Appendix C. A list of applicable Federal statutes is included in Appendix B.

2.10. ENVIRONMENTAL CONSIDERATIONS

The Master Plan is intended to deal in concepts, not in details of design or administration. Detailed management and administration functions are addressed in the OMP, which implements the concepts of the Master Plan into operational actions. Implementation of individual actions from the OMP may require separate environmental compliance evaluations. The EA conducted as part of the development of the 2023 Master Plan is included in Appendix B, which will likewise focus on potential impacts associated with changes to Project land use classifications.

Asclepias speciosa, showy milkweed

Hood Pond Fire

Chapter 3. Resource Objectives

Resource use goals provide the overall framework that guides the use of resources administered by USACE at a project site. The goals and objectives in the Master Plan are specific to the Project and its individual areas and specify attainable options for resource development and management. These goals have been developed through study and analysis of regional and local needs, public input, resource capabilities, and resource potential, and they are formulated to guide and direct the overall resource management program.

3.1. Resource Goals

The resource goals are included within four categories, as indicated below:

Project Operations

- Continue to provide benefits to the public safely, effectively, and efficiently, consistent with the authorized Project purposes.

Natural and Cultural Resources Management

- Allow public access and use of USACE-managed land, as appropriate.
- Protect and preserve archeological and historical sites.
- Protect and enhance fish and wildlife habitat.
- Promote biological diversity and ecological system function.
- Control noxious weeds and other undesirable weed species.

Recreation and Interpretation

- Provide high quality, safe recreational facilities year-round to a wide segment of the public, including individuals with disabilities and underserved communities.
- Minimize conflicts between user groups and USACE operational requirements.

Coordination

- Maintain communication and coordination with appropriate Indian Tribes; Federal, State, and local agencies; and citizen groups and organizations for management of the manmade and natural resources at the Project.

3.2. Resource Objectives

Resource objectives are clearly written statements that respond to identified issues and specify measurable and attainable activities for

resource development and/or management of the lands and waters under jurisdiction of the Walla Walla District at the Project. The objectives stated in this Master Plan support the goals of the Master Plan and the following Environmental Operating Principles:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all USACE activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by USACE, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic, and social knowledge to understand the environmental context and effects of USACE actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in USACE activities.

The objectives are consistent with authorized Project purposes, Federal laws and directives, and they take into consideration regional needs, resource capabilities, the Washington and Oregon SCORPs, cultural and natural resources significant to regional Tribes, and public input. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this Master Plan.

To address specific management needs, the Resource Objectives discussed in this chapter are divided into three categories—General, Recreation, and Environmental Stewardship.

3.3. GENERAL RESOURCE OBJECTIVES

3.3.1. Safety and Security

Objective: Provide use areas and facilities that are safe and provide the public with safe and healthful recreational opportunities.

Discussion: Developed areas designated for recreation use will be evaluated regularly for safety. Any conditions that have been determined unsafe will be evaluated, and feasible corrective actions will be implemented in accordance with Engineer Manual 385-1-1, Safety and Health Requirements.

3.3.2. Aesthetic Resources

Objective: Plan all management actions with consideration given to landscape quality and aesthetics.

Discussion: USACE regulations and guidance requires that USACE considers and provides an aesthetically pleasing environment for the public. Visitors are attracted to the vistas, rolling topography, and water bodies that create high visual quality at the Project. Lush green parks with mature trees and landscaping are also attractive and encourage use by the public. In order to create a quality recreation experience, it is important that planned improvements be designed and maintained so that visual resources associated with the Project will be protected, preserved, and maintained to the maximum extent possible.

3.3.3. Facility Management

Objective: Ensure all current and future facilities are maintained and meet applicable design standards.

Discussion: All new or remodeled facilities will meet current standards. Upgrade and replace-

ment of existing facilities will comply with USACE policy.

3.3.4. Real Estate Management

Objective: Prevent trespass and negative impacts associated with encroachments on Government property while allowing State, County, municipal, and private entities opportunities to provide public recreation services.

Discussion: Periodic boundary inspections will be conducted, and encroachments and trespasses resolved at the lowest level possible. Unmarked monument boundaries and fence monument boundaries will be surveyed where feasible. Addressing encroachments will be prioritized in budget and staffing allocations. Real estate proposals and requests will be compatible with Project purposes and minimize impacts to environmental and cultural resources. Outgrants require compliance with certain terms and conditions, including but not limited to: USACE policies, federal and state laws, health and safety codes, and environmental protections.

3.3.5. Cultural Resources Management

Objective: Inventory, record, and evaluate cultural resources per legal requirements of the NHPA. Preserve resources as per the Archaeological Resources Protection Act of 1979 (PL 96-95), Native American Graves Protection and Repatriation Act (PL 101-601), and applicable Treaty responsibilities. Seek to avoid harm to cultural resources using all tools available, including education, discussion, Title 36 citation, and federal and local law enforcement, as appropriate (36 CFR § 327.14).

Discussion: Planning and development will include considerations to protect and preserve culturally sensitive sites. Archaeological collections and records will be preserved for future generations and managed for study by qualified researchers. Cultural resource review will be coordinated with District specialists, who will follow laws and guidelines for cultural review according to Federal law and consult with the State Historic Preservation Officer and Tribal Historic Preservation Offices/Tribes as required. Convey importance of cultural resources and proactive planning to Project staff through planning documents and the Historic Properties Management Plan (Hicks 2000) and update those documents as appropriate.

3.4. RECREATION RESOURCE OBJECTIVES

3.4.1. Land and Water Universal Access

Objective: Provide use areas and facilities that are accessible for all Project visitors.

Discussion: Developed areas designated for recreation use will be evaluated regularly for accessibility. When developing new or rehabilitating existing recreation facilities/opportunities, effort will be made to comply with the Americans with Disabilities Act (PL 101-336). In addition, special emphasis should be placed on programs that increase participation in outdoor activities for people with physical, developmental, and sensory disabilities. Efforts will be made to ensure Project lands are accessible to marginalized and underserved communities and that these communities are aware of recreational opportunities on Project lands, in alignment with the environmental justice mission outlined in EO 14008.

3.4.2. Interpretive Services and Outreach Program

Objective: Interpretive service will focus on agency, District, and Project missions, benefits, and opportunities. Interpretive services at the Project will be used to enhance public education and safety through promoting public awareness, understanding, and appreciation of the Project and its resources.

Discussion: The McNary Interpretive Services and Outreach Program includes the management of public affairs, community relations, marketing, publications, tourism, and special events. Opportunities exist to partner with local Tribes and other groups in the development of these displays and programs. See Chapter 6 for more information.

3.4.3. Recreation Optimization and Sustainability

Objective: Use leveraged resources, when possible, to maintain and improve recreation facilities that reduce operations and maintenance costs while meeting public demand.

Discussion: Project staff will promote community involvement through stakeholder meetings, social media, and participation in local public events and relevant organizations. Challenge cost share and cooperative agreements will be used to leverage additional resources. Partnerships and a robust volunteer program will be developed and maintained to accomplish additional work.

3.4.4. Quality Outdoor Recreation in Urban Settings (Intensive Use)

Objective: Operate and maintain day-use and limited camping facilities, as well as develop new facilities that meet public demand, to provide opportunities for multiple user groups in an urban setting.

Discussion: Day-use activities that occur in the urban areas of the Project account for about two-thirds of the 2.5 million visitors each year. Day-use activities include picnicking, fishing, birdwatching, nature study, cycling, jogging, dog walking, boating, hiking, swimming, and large group events. Camping occurs at Hood Park. To meet current and future need, Project staff will need to maintain and improve existing facilities, as well as manage the special events) which requires a special use permit in a manner consistent with Engineering Regulations and USACE Headquarters guidance. Many of the parks in the Tri-Cities area are outgranted to city parks departments. Fostering good relationships with these parks departments is critical to maintaining high-quality recreational opportunities in outgranted parks.

3.4.5. Quality Outdoor Recreation in Rural Settings (Intensive Use)

Objective: Operate and maintain day-use facilities, as well as develop new facilities that meet public demand, to provide opportunities for multiple user groups in a rural setting.

Discussion: Day-use activities that occur in the rural areas of the Project account for about one-third of the 2.5 million visitors each year. Day-use activities include picnicking, fishing, hunting, hiking, birdwatching, nature study, cycling, jogging, dog walking, boating, swimming, and group events. To meet current and future need, Project staff will need to maintain and improve existing facilities, as well as manage the special events (which require a special use permit) in a manner consistent with Engineering Regulations and USACE Headquarters guidance.

3.4.6. Quality Outdoor Recreation in Rural Settings (Low Density Use)

Objective: Operate and maintain multipurpose facilities, as well as develop new facilities, that meet public demand and provide opportunities for multiple user groups in a rural setting.

Discussion: Continue efforts to provide dispersed recreation allowing visitors to participate in activities such as boating, camping, fishing, hunting, horseback riding, hiking, nature study, bird watching, and wildlife photography. Managing user expectations and developing creative solutions in low density recreation areas will remain important as visitor use continues to increase. To enhance the quality of recreation opportunities, Project staff will continue to enforce camping

limits to prevent habitation per 36 CFR § 327. The Northwest Discovery Water Trail runs through most of Lake Wallula, including the Bateman Spur which runs from the confluence of the Snake and Columbia Rivers to Bateman Island, the farthest point upstream on the Columbia River that Lewis and Clark ventured. Campsites are distributed along the length of the Project for the Northwest Discovery Water Trail.

3.5. ENVIRONMENTAL STEWARDSHIP RESOURCE OBJECTIVES

3.5.1. Riparian and Wetland Protection

Objective: Protect and limit impacts to wetlands and riparian corridors on the Project in conjunction with Project missions, water quality, and fish and wildlife benefits.

Discussion: Wetlands and riparian habitat are of high ecological importance within the watershed. The USACE ENS mission has always focused a lot of effort on habitat development and maintenance of riparian species and habitat types. This can be seen in areas on Lake Wallula such as Yakima Delta, Richland Bend, Burbank Heights, and Toothaker HMUs. Additionally, riparian and wetland areas are often the subject of targeted nuisance species control under the District's Integrated Pest Management Plan (IPMP), to maintain and enhance these habitats. No unnecessary removal or alteration of the systems will be promoted.

3.5.2. Fish and Wildlife Habitat Management

Objective: Conserve, protect, restore, and enhance habitat and habitat components important to the survival and proliferation of threatened, endangered, special status, and regionally important habitat and species on Project lands.

Discussion: Over the life of the Project, improvements have been made to enhance fish and wildlife habitat. Maintenance of existing and future habitats is critical to sustain a healthy ecosystem now and in the future. This includes extensive effort for invasive and nuisance species management along with other habitat enhancement USACE has performed, to improve and increase fish and wildlife sustainability. Sustainable populations can secondarily support all forms of recreation. Emphasis will be placed on integration and use of native plant species whenever possible.

3.5.3. Integrated Pest Management

Objective: Minimize negative impacts to native flora and fauna and damage to Government facilities by reducing and/or eradicating invasive and nuisance species on Project lands.

Discussion: Reducing and restricting the spread of invasive and nuisance species will be achieved by monitoring, assessment, and an integrated pest management approach to treatment according to the District's IPMP and Aquatic Pest Management Plan. This includes the use of chemical, mechanical, and biological control methods, as well as reseeding and planting with native plant species. Aquatic invasives are a serious problem in Lake Wallula, and focused efforts for flowering rush control are planned for upcoming years. See Chapter 6 for more information on invasive species efforts in the Project.

3.5.4. Fire Management

Objective: Minimize the negative effects of wildfires, including impacts to Federal property and the recreating public.

Discussion: Invasive species like cheatgrass and Russian olive have shortened the natural fire cycle on USACE habitat lands. Native plant communities, which are less conducive to burning, are diminished by more frequent fires. Wildfires are a serious threat to property and public safety in more populated areas of the Project.

USACE will seek to minimize the threat of wildland fire by enforcing the fire ban from June 1st to October 10th, reducing fuel load through mowing, and establishing native grasslands to offset the change in fire cycle due to invasive plant species. Efforts will be made to restore lands damaged by wildland fire back to native grasslands. Project personnel will be working on a prescribed burning plan that can be used as a tool to enhance wildlife habitat using methods such as prescribed burning and mowing.

Figure 3-1. Aftermath of Fire in Hood Park, 2018

The Tall Ship *Lady Washington* at McNary Lock, 2015

Recreation

Chapter 4. Land Allocation, Land Classification, and Project Easement Lands

This chapter identifies and describes the land allocation categories and the land classifications at the Project under this 2023 Master Plan, including the number of acres and the primary and secondary uses for each classification. It also contains a summary of changes to land classifications since the 1982 Master Plan.

4.1. Land Allocation

Land allocation refers to categorizing lands according to the congressionally authorized purposes for which Project lands were acquired. Chapter 3 of Engineer Pamphlet 1130-2-550 defines these categories as Operations, Recreation, Fish and Wildlife, and Mitigation, as described below:
Project Operations – These are lands acquired for the congressionally authorized purpose of constructing and operating the Federal Project for the purposes of hydropower, navigation, and incidental irrigation.

- Recreation – These are lands acquired specifically for the purpose of recreation.

- Fish and Wildlife – These are lands acquired specifically for the purpose of managing or protecting fish and wildlife.

- Mitigation – These are lands acquired or designated specifically for the congressionally authorized purpose of offsetting losses associated with development of the Project.

Lands associated with McNary Lock and Dam were originally purchased under the Project Operations allocation. In subsequent years, property was also purchased and allocated under Mitigation, and Fish and Wildlife.

4.2. Land Classification

All lands acquired for the Project are further classified to provide for development and resource management consistent with authorized purposes and other federal laws. Land classification designates the primary use for which Project lands are managed. The classification process considers public input, regional and Project specific resource requirements, and suitability. Land classifications established in EP 1130-2-550 include the following six categories:

- Project Operations.

- High Density Recreation.
- Mitigation.
- Environmentally Sensitive Areas.
- Multiple Resource Managed Lands.
- Water Surface.

Chapter 4.2.1 provides a brief overview of the land classification changes that have occurred from 1982 to 2023 under the old land classification nomenclature. Chapter 4.2.2 shows how the Project land is classified under the 2023 Master Plan using the new land classification nomenclature. It also discusses the management and use of the lands assigned to each land classification, in connection with the appropriate resource objectives identified in Chapter 3.

4.2.1. Land Classification Changes from 1982 to 2023

The Project lands have undergone several changes since the original Master Plan was developed in 1952. The Master Plan was revised and updated in 1964 and 1982. Table 4-1 identifies the total acres for each classification that has changed between 1982 and 2023, under the old land classification nomenclature. Figure 4-1 is a visual representation of the information provided in Table 4-1. Ideally, the changes in land ownership and use over 40 years throughout the Project, along with the nomenclature changes, would have been documented in a Master Plan revision or supplement before now. However, funding for Master Plan updates is difficult to obtain, especially under the District's unique joint funding arrangement that requires BPA matching funds for appropriated dollars.

There are no supplements to the 1982 Master Plan. Some land acquisitions, disposals, and reclassifications through the years of operation were never documented in an approved Master Plan or supplement.

For instance, lands now associated with the McNary National Wildlife Refuge were transferred to USFWS as authorized by the 1999 WRDA. The transfer included lands at Burbank Slough near the confluence of the Columbia and Snake Rivers,

Table 4-1. Land Classification Changes from 1982 to 2023

Land Classification	1982 Acres	2023 Acres
Not Classified	21.4	---
Project Operations	1143.4	617.9
High Density Recreation	1286.0	1360.4
Environmentally Sensitive Area	159.5	1148.6
MRM - Wildlife Management	2631.3	3600.6
MRM - Vegetative Management	0.0	115.0
MRM - Low Density Recreation	1160.6	678.4
MRM - Future or Inactive Recreation Area	544.7	57.2
TOTAL	**6946.9**	**7578.0**

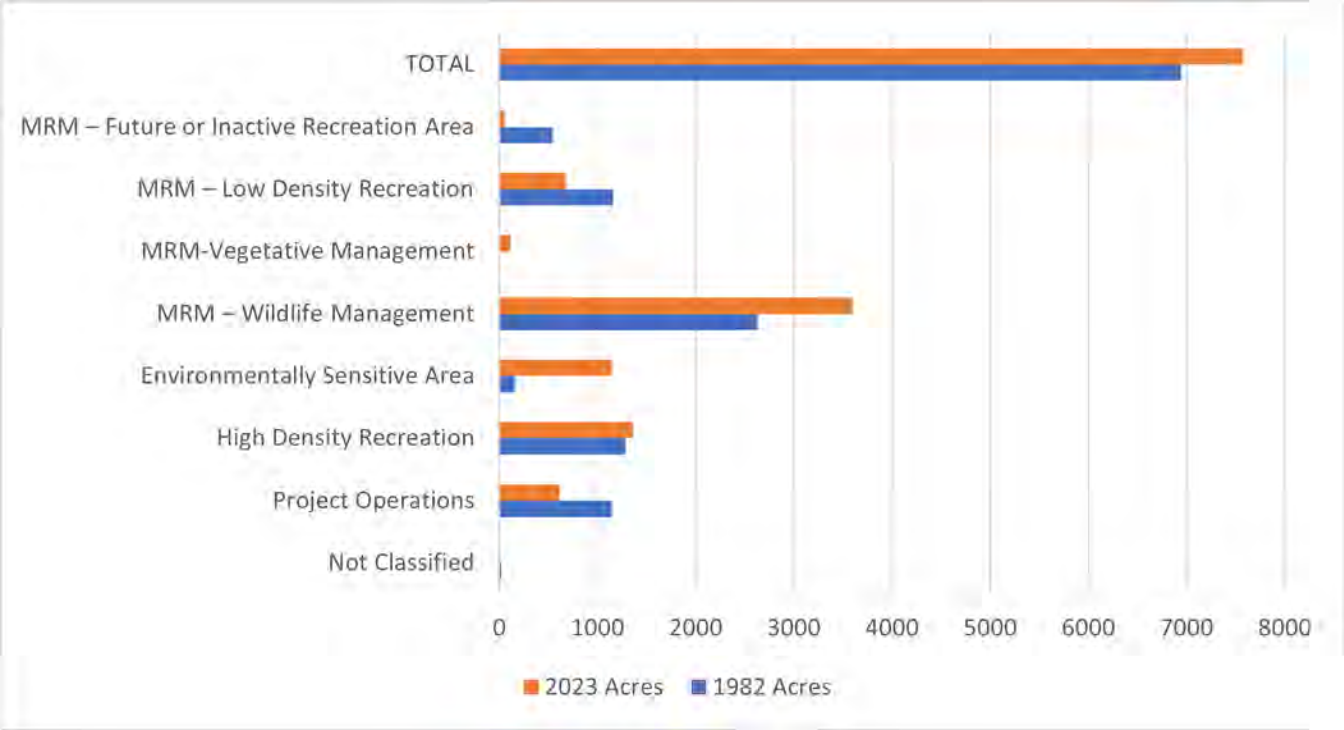

Figure 4-1. Land Classification Changes from 1982 to 2023

the Strawberry Islands in the Snake River, and a series of mostly unnamed islands, to include Johnson and Wooded Islands, in the Hanford Reach of the Columbia River. Another notable disposal to the USFWS included lands near the confluence of the Walla Walla River with the Columbia River, and Madame Dorian Park. These lands are managed as part of the McNary National Wildlife Refuge.

During the preparation of the draft 2023 Master Plan, USACE identified lands on the east bank of the Columbia River near Wooded Island in the northern portion of the Hanford Reach as lands that should be under USACE management. The 2023 Master Plan is an opportunity to document these changes and to ensure that the public record accurately reflects the management of lands in the Project.

4.2.2. Proposed Land Classifications for the 2023 Master Plan

An interdisciplinary team evaluated the Project operations, resource capabilities, and public input to determine the land classifications for the Project. To revise the Master Plan, the team needed to translate the old land classifications to the currently authorized land classifications under EP 1130-2-550 (Corps 1996). Table 4-2 below is a rough translation between the two different classification nomenclatures.

Using the information in Table 4-2 and current management strategies for each land management unit, the team classified lands for the 2023 Master Plan using the currently authorized land classification nomenclature.

This chapter identifies how lands are classified under the 2023 Master Plan under the new land classification nomenclature and provides an explanation for each of the land classifications, including the applicable primary and secondary uses. Table 4-3 identifies each of the land classifications and the number of acres at the Project. Appendix D contains the maps for these classifications.

Table 4-2. Old Land Classification Nomenclature and New Land Classification Nomenclature

Old Land Classifications	New Land Classifications
Project Operations • Project Structures • Port Terminal • Industrial Use and Access	Project Operations
Recreation: Intensive Use - Initial	High Density Recreation
----- Recreation: Low Density Use Recreation: Intensive Use - Future Wildlife Management: Intensive Wildlife Management: Moderate	Multiple Resource Management • Low Density Recreation • Future and Inactive Recreation Areas • Wildlife Management
Natural Area	Environmentally Sensitive Area
-----	Mitigation
Not Classified	-----

Table 4-3. Land Classifications for the 2023 Master Plan

Land Classification	Acres
Project Operations	617.9
High Density Recreation	1360.4
Environmentally Sensitive Area	1148.6
MRM - Low Density Recreation	678.4
MRM - Wildlife Management	3600.6
MRM - Vegetative Management	115.0
MRM - Future or Inactive Recreation Area	57.2
Total Acres	**7578.0**

Table 4-4. Project Operations, 617.9 Acres

Primary Use	Secondary Uses
Manage land required for the operation and maintenance of the dam and reservoir.	*Wildlife Management* • Ecological restoration projects • Other similar activities *Low Density Recreation* • Hunting / Fishing • Hiking • Bicycling • Picknicking • Sightseeing and nature observation • Other recreation activities of a primitive nature *High Density Recreation* • Sports/Other

4.2.3. Project Operations

Lands required for the operation and maintenance of the dam and reservoir, associated structures, administrative offices, maintenance compounds, and other areas are classified as Project Operations. Where compatible with the operational requirements, this land may be used for wildlife habitat management and low-density recreational uses. Licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with operational requirements. Some Project Operations lands are closed to public access for safety or security reasons, while other areas may be subject to closure for operational requirements or other purposes. Table 4-4 contains a listing of primary and secondary uses on lands classified under Project Operations.

4.2.4. High Density Recreation

Lands developed for intensive recreational activities by the visiting public are included in the High-Density Recreation land classification. Low density recreation and wildlife management activities that are compatible with intensive recreation use are acceptable. No agricultural uses are permitted on these lands except on an interim basis for the maintenance of scenic or open space values. Licenses, permits, easements,

Table 4-5. High Density Recreation, 1360.4 Acres

Primary Uses*	Secondary Uses*
Manage land for developed recreation sites. • Picknicking • Swimming • Fishing • Sightseeing and nature observation • Nature / Interpretive trails • Hiking • Bicycling • Horseback riding • Playgrounds / Games / Sports / Other • Boat Ramps	*Wildlife Management* • Ecological restoration projects *Low Density Recreation* • Non-motorized trails • Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

Table 4-6. Environmentally Sensitive Areas, 1148.6

Primary Use	Secondary Uses
Manage land to protect unique and sensitive resources. • Scientific • Cultural • Ecological • Aesthetic	*Wildlife Management* • Ecological restoration projects • Other similar activites *Low Density Recreation* • Nature observation • Education / Interpretation

or other outgrants are issued only for uses that do not conflict with recreation use. Hunting is not allowed on land classified as High Density Recreation, although fishing is an appropriate non-conflict recreational activity. Table 4-5 contains a listing of primary and secondary uses on lands classified under High Density Recreation.

4.2.5. Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are areas identified with scientific, ecological, cultural, or aesthetic features, or that are otherwise protected by laws; this classification is not limited to just land. Manmade intrusions (power lines, non-Project roads, and water and sewer pipelines) are not permitted on lands classified as ESAs. If development for public or private use occurs by exception, project proponents will be required to offset impacts through onsite or offsite mitigation efforts for the duration of that use. Activities designed to promote and improve special features identified in the area are allowed, along with education and interpretation. Development of recreation facilities in ESAs may be limited or prohibited to ensure that the lands are not adversely impacted. Table 4-6 contains a listing of primary and secondary uses on lands classified under ESA.

4.2.6. Multiple Resource Management Lands

The Multiple Resource Management (MRM) Lands classification allows for designation of a

Table 4-7. MRM - Low Density Recreation, 678.4 Acres

Primary Uses*	Secondary Uses*
Manage land for low density, low impact recreation opportunities. • Hunting / Fishing • Hiking • Bicycling • Horseback riding • Campgrounds < 15 sites • Primitive camping (designated sites) • Picknicking • Swimming • Sightseeing and nature observation • Motorized access trails and roads • Boat ramps • Non-motorized trails • Other recreation activities of a primitive nature	*Wildlife Management* • Ecological restoration projects • Other similar activites

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

predominant use with the understanding that other compatible uses may also occur in the classification. Total acreage under MRM Lands classification for the Project is approximately 4451.2 acres and is divided into subclassifications of Low-Density Recreation, Wildlife Management, Vegetation Management, and Future or Inactive Recreation Areas.

MRM–Low Density Recreation

Land in the MRM–Low Density Recreation subclassification provides opportunities for dispersed and/or low-impact recreation. Emphasis is on minimal development of infrastructure that might support sightseeing, wildlife viewing, nature study, hiking, biking, horseback riding, and picnicking. Consumptive uses of wildlife (i.e., hunting, fishing) are allowed when compatible with the wildlife objectives for a given area and with Federal, State, and Tribal fish and wildlife laws and regulations.

Facilities may include boat ramps, boat docks, trails, parking areas, vault toilets, picnic tables, and fire rings. Manmade intrusions (power lines, non-Project roads, and water and sewer pipelines) may be permitted under conditions that minimize adverse effects on the natural environment. Project proponents of these intrusions should expect to be required to offset impacts through onsite or offsite mitigation efforts for the duration of the use. Vegetation management that does not greatly alter the natural character of the environment is permitted for a variety of purposes, including erosion control, retention and improvement of scenic qualities, and wildlife management. Table 4-7 contains a listing of primary and secondary uses on lands classified under MRM–Low Density Recreation.

MRM–Wildlife Management

Land in the MRM–Wildlife Management (MRM-WM) subclassification is designated for stewardship of fish and wildlife resources in conjunction with other land uses. Habitat maintenance and/or improvements are for a designated species, group of species, and/or a diversity of species. These areas may be administered by other public agencies under a lease, license, permit, or formal agreement. Licenses, permits, and easements are normally not allowed for manmade intrusions such as pumping plants, pipelines, cables, transmission lines, or for non-USACE maintenance or access roads. Exceptions to this policy are allowable where necessary to serve a demonstrated public need in those instances where no reasonable alternative is available, or other reasons deemed important by USACE. When exceptions

Table 4-8. MRM - Wildlife Management, 3600.6 Acres

Primary Uses*	Secondary Uses*
Manage land for stewardship of fish and wildlife resources. • General forest health • Habitat enhancement projects • Ecological restoration projects • Protection of specific habitat areas / components (e.g., denning sites, calving sites, nests, wallows) • Other similar activities	*Low Density Recreation* • Hunting / Fishing • Hiking • Horseback riding • Campgrounds < 15 sites • Primitive camping (designated sites) • Picknicking • Swimming • Sightseeing and nature observation • Motorized access trails and roads • Boat ramps • Non-motorized trails • Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

to this policy are allowed, Project proponents should expect to be required to offset impacts through onsite or offsite mitigation efforts for the duration of the use.

MRM-WM land is available for sightseeing, wildlife viewing, nature study, hiking, biking, horseback riding, and primitive camping. Consumptive uses of wildlife (hunting, fishing, and trapping) are allowed when compatible with the wildlife objectives for a given area, as well as with Federal, State, and Tribal fish and wildlife laws and regulations. Table 4-8 contains a listing of primary and secondary uses on lands classified under MRM–WM.

MRM–Vegetation Management

Activities in areas under the MRM–Vegetation Management (VM) subclassification focus on the protection and development of vegetative cover and habitat types, such as prairie, shrub-steppe, and other native vegetation. All Project land is managed to protect and develop vegetative cover in conjunction with other land uses within the MRM Lands classification. For the Project, lands classified as MRM-VM are used primarily to enhance and maintain riparian habitat as required to mitigate the effects of private use of the Lake Wallula shoreline under the McNary Shoreline Management Plan (MSMP).

Licenses, permits, and easements are normally not allowed for manmade intrusions such as pumping plants, pipelines, cables, transmission lines, or for non-USACE maintenance or access roads. The primary emphasis in managing these lands is invasive species control and boundary monitoring. Vegetative management land is available for sightseeing, wildlife viewing, nature study, and hiking. Consumptive uses of wildlife (i.e., hunting, fishing, and trapping) are also allowed when compatible with the wildlife objectives for a given area, as well as with Federal, tribal, and/or state fish and wildlife laws and regulations. Table 4-9 contains a listing of primary and secondary uses on lands classified under MRM–VM.

Table 4-9. MRM - Vegetation Management, 115.0 Acres

Primary Uses*	Secondary Uses*
Protection and development of vegetative cover and habitat types.	*Wildlife Management* • General forest health • Ecological restoration projects • Other similar activities *Low Density Recreation* • Hunting / Fishing • Hiking • Horseback riding • Campgrounds < 15 sites • Primitive camping (designated sites) • Picknicking • Swimming • Sightseeing and nature observation • Motorized access trails and roads • Boat ramps • Non-motorized trails • Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

MRM–Future or Inactive Recreation Areas

The Future or Inactive Recreation Areas subclassification consists of lands for which future recreation areas are planned or lands that contain existing recreation areas that have been temporarily closed. Table 4-10 contains a listing of primary and secondary uses on lands classified under MRM–Future or Inactive Recreation Areas.

Table 4-10. MRM - Future or Inactive Recreation Areas, 57.2 Acres

Primary Use*	Secondary Uses*
Manage land in such a way that will not limit the ability to develop or maintain the area as a recreation area.	*Wildlife Management* • General forest health • Ecological restoration projects • Other similar activities *Low Density Recreation* • Hunting / Fishing • Hiking • Bicycling • Horseback riding • Campgrounds < 15 sites • Primitive camping (designated sites) • Picknicking • Swimming • Sightseeing and nature observation • Motorized access trails and roads • Non-motorized trails • Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

4.2.7. Water Surface

The Project manages 38,800 acres of surface water. The water surface acreage at the Project is divided into the following zones to support public safety and security:

- Restricted – Water areas restricted for Project operations, safety, and security purposes.
- Designated No-Wake – To protect environmentally sensitive shoreline areas, recreational water access areas from disturbance, and/or public safety.
- Fish and Wildlife Sanctuary – Annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.
- Open Recreation – Those waters available for year-round or seasonal water-based recreational use.

4.3. PROJECT EASEMENT LANDS

USACE holds an easement or permit interest, but not the fee title to this land, and has the right to enter the property in connection with the operation of the project. In most cases, USACE has the right to occasionally flood these properties. Planned use and management is in strict accordance with the terms and conditions of the easement estate acquired for the project. USACE has acquired approximately 14,627 acres of easement and 71 acres of permit land adjacent to the Project.

4.3.1. Operations Easement

Operations easements and permits were acquired by USACE for the purpose of project operations. 204 acres were acquired for activities to include water drainage, levees, roads, and pipeline rights-of-way.

4.3.2. Flowage Easement

These are easements acquired by USACE or reserved as part of Corps of Engineers disposal of fee lands, giving the right to flood private land during flood risk management operations. There are 14,423 acres of flowage easement land located near the project. These easements are most commonly found near the river shores.

4.4. LAND CLASSIFICATION SUMMARY

Table 4-11 summarizes the land classification changes from the 1982 acreage to the acreage for the 2023 Master Plan, converting the 2022 classifications to the new land classification nomenclature in EP 1130-2-550. The difference in acreage can be attributed to rounding. Appendix D, Land Classification Maps, provides the new land classification maps for the 2023 Master Plan.

Table 4-11. Land Classification Changes from 2022 to 2023

Land Classification	2022 Acres	2023 Acres
Not Classified	21.4	---
Project Operations	1143.4	617.9
High Density Recreation	1286.0	1360.4
Environmentally Sensitive Area	159.5	1148.6
MRM - Wildlife Management	2631.3	3600.6
MRM - Vegetative Management	0.0	115.0
MRM - Low Density Recreation	1160.6	678.4
MRM - Future or Inactive Recreation Area	544.7	57.2
TOTAL	**6946.9**	**7578.0**

Nature Area Trail

Sunrise on Lake Wallula

Chapter 5. Resource Plan

Building on Chapter 4, which provided more general land classification descriptions and acreage for each of the classifications at the Project, Chapter 5 provides information on how the management areas (e.g., parks, HMUs) within each of the land classifications will be managed. The management areas identified are presented in broad terms. A more descriptive plan for managing these lands will be refined in the McNary OMP or similar planning documents. Management tasks must support the resource objectives, land classifications, and resource plan set forth in this Master Plan. Numbers of acres listed under land classification categories were summarized using USACE geographic information system (GIS) database and may be off by several tenths of an acre at each site.

5.1. PROJECT OPERATIONS

Project Operations lands are managed to support the operation and maintenance of the dam and reservoir, associated structures, administrative offices, maintenance compounds, and other areas that are classified as Project Operations. There are a total of 588.2 acres designated under the Project Operations land classification. This is a reduction in acreage from 1143.4 to 617.9 acres in the 2023 Master Plan. Management of the Project after construction of McNary Lock and Dam requires fewer lands in this category, so lands were moved to more appropriate classifications based on the resource needs of the areas. The management areas in this land classification are shown in Table 5-1.

Table 5-1. Project Operations Lands

Management Area	Acres
McNary North Shore	17.1
McNary South Shore	303.2
Cold Springs Quarry	22.5
Finley Port Site	3.9
Confluence Port Area	24.3
Tri-Cities Levees	214.6
Total	272.3

McNary North Shore

This area consists mostly of the navigation lock area and staging for the navigation lock and other dam operations. Also attached is the Washington fish ladder.

McNary South Shore

A 30-acre project maintenance and storage facility occupy the largest portion of this area. Other spaces include the main employee parking lot, McNary Dam powerhouse viewing gallery and in-

terpretive displays that demonstrate importance of hydropower to the area. Devore Road takes visitors and employees from Highway 730 to the dam area, traversing through a natural area. Devore Overlook offers a picnic shelter where visitors can overlook the mighty flowing Columbia River and the majestic McNary Dam. Also within this area is the Willamette Overlook which gives visitors a bird's eye view of Lake Wallula behind McNary Dam.

Cold Springs Quarry

This was historically used for construction activities at McNary Dam. No public access is allowed for safety reasons.

Finley Port Site

This area includes the levees north along the shoreline and areas of heavy industrial development. Shoreline plantings for mitigation for the MSMP are located between Straightbank and Cochran Roads.

Tri-Cities Levees

The Tri-Cities levee and drainage ditch system winds along the shoreline of the Columbia River (Figure 5 1). The 17 miles of levees, 21 miles of drainage ditch, and 11 pump plants help protect Pasco, Richland, Kennewick and Finley from high water events and feature. The Sacagawea Heritage Trail is also featured along the levee system and is used by the public for walking, jogging, and biking.

The trail is paved from the bridge at Highway 240 adjacent to Yakima Delta HMU, through Columbia Park, all the way east to the Ed Hendler bridge (also known as the cable bridge or Highway 397). From Ed Hendler bridge, the levees and associated trail follow the Columbia River south shore down to Two Rivers Park, though the trail is unpaved. On the west side of these levees, the trail connects to an extensive trail system that branches out into Richland, WA and is maintained by the City of Richland (Figure 5-2).

Figure 5-1. Tri-Cities Levee System

Figure 5-2. Tri-Cities Levee Trails[10]

5.2. HIGH DENSITY RECREATION

There are 1360.4 acres managed under the High Density Recreation land classification (Table 5-2). USACE does not provide any maintenance within any of these leased locations, but there are times when USACE provides support to the managing agency by reviewing requests for modifications to ensure they meet applicable laws and regulation for proposed activities. The goal is to work with USACE partners to ensure recreation areas are being managed in accordance with resource objectives identified in Chapter 3, Resource Objectives.

The acreage for the High Density Recreation land classification was increased from 1,286.0 to 1360.4 in the 2023 Master Plan. The management areas in this land classification are shown in Table 5-2.

Washington Boat Ramp

This single lane boat ramp extends from a gravel parking lot. It provides the only river access for roughly 20 miles on the north shore of the Columbia River in the area. The vault toilet in the parking lot also serves visitors in the adjacent Horse Heaven HMU.

[10] Source: hiketricities.com/wp-content/uploads/2013/02/Riverside-Trail.jpg

Table 5-2. High Density Recreation Areas and Area Managing Agencies

Management Area	Acres	Management Agency
Washington Boat Ramp	2.8	USACE
Spillway Park	12.4	USACE
Oregon Boat Ramp	7.8	USACE
West Park	10.7	USACE
Pacific Salmon Visitor Information Center	0.2	USACE
McNary Beach	11.2	USACE
Hat Rock State Park	173.7	Oregon Parks and Recreation Department
McNary Yacht Club	10.2	McNary Yacht Club
Warehouse Beach	2.3	USACE
Sand Station	5.3	USACE
Two Rivers Park	72.9	Benton County
Sacajawea State Park	100.4	WA State Parks & Recreation Commission
Sacagawea Heritage Trail	7.7	City of Kennewick, City of Richland, City of Pasco
Hood Park & Hood Park Boat Basin	122.6	USACE
Sacagawea Heritage Trail Access Park	1.5	City of Pasco
Wade Park Boat Ramp	1.3	City of Pasco
Chiawana Park	91.4	City of Pasco
Leslie R. Groves Park	154.0	City of Richland
Howard Amon Park	19.7	City of Richland
Columbia Point Marina Park	10.2	City of Richland
Wye Park	9.1	City of Kennewick
Columbia Park	418.6	City of Kennewick
Duffy's Pond	2.9	City of Kennewick
Total	315.9	

Spillway Park

Spillway Park is a heavily used park near McNary Dam and adjacent to the Pacific Salmon Visitor Information Center. It includes a disc golf course, waterborne restroom facilities, the Oregon Fish Viewing Room, and a reservable group shelter. The area along the shoreline is popular for anglers, and visitors enjoy the cool breeze off the water and the shade under the trees on hot days. Kids love the Oregon Fish Viewing Room, where visitors can view the many species of fish traversing the fish ladder.

Oregon Boat Ramp

The Oregon Boat Ramp is heavily used, with a two-lane ramp on the upstream side and a single-lane ramp just downstream. Amenities include a vault toilet, two picnic shelters near the water, a small dock, and a partially paved parking lot.

West Park

This day use park adjacent to the McNary Wildlife Nature Area features two reservable group shelters, a playground and a swing set, a waterborne restroom, and a ball field. The park is easily accessed from Highway 730 down Scaplehorn Road, or from Devore Road down 3rd Street. Ample parking is provided in the paved parking lot. The green grass and trees provide a pleasant oasis for picnicking visitors.

Pacific Salmon Visitor Information Center

The Pacific Salmon Visitor Information Center is considered a Class B visitor center with displays on first and third floors. Educational videos on salmon and hydropower are shown on the third floor. Visitors can observe the fish handling laboratory through a viewing window on the third floor, and the juvenile fish facility via the platform overlooking the dam on the fourth floor. The Pacific Salmon Visitor Information Center's purpose is to educate visitors on USACE missions, specifically wildlife and natural resources, recreation, anadromous fish life cycles and passage, and navigation.

McNary Beach

Just 1.5 miles upstream from McNary Lock and Dam, McNary Beach provides a designated swim area and a developed park with lush green grass and trees. Picnic tables, barbeque grills, a playground, and a waterborne restroom with cold showers make this area ideal for a family day at the beach. McNary Beach is a "no pets" park. Visitors accessing McNary Beach from Highway 730 down Beach Access Road will find ample parking in two paved parking lots. This area also provides access to the Lewis and Clark Commemorative Trail.

Hat Rock State Park

This desert oasis surrounded by rolling sage brush hills and outcroppings of basalt is outgranted to Oregon Parks and Recreation Department. Visitors can hike up to the base of Hat Rock along a trail featuring interpretive displays about local wildlife, vegetation, and past volcanic activity. Hat Rock is a distinctive geological landmark noted by the Lewis and Clark expedition as they traveled down the Columbia River. Adventurous hikers can veer from the Hat Rock trail, following a spur across the pond to connect to the 10-mile Lewis and Clark Commemorative Trail. The spring-fed pond is routinely stocked with rainbow trout by Oregon Department of Fish and Wildlife. A two-lane boat ramp in a protected inlet provides access to Lake Wallula. Visitors can access Hat Rock State Park from Highway 730 turning down Hat Rock Road. The area provides ample parking in several paved parking lots, 50 picnic tables, 4 reservable group shelters, and 2 ADA-accessible restrooms (one waterborne).

McNary Yacht Club

Surrounded by Hat Rock State Park, McNary Yacht Club comprises a public one-lane boat ramp with

handling dock and a private marina. Members of the public can purchase marine fuel from the marina, but moorage, dry storage, and other marina amenities are reserved for club members.

Warehouse Beach

Upstream from Hat Rock State Park, down Landing Road from Highway 730, Warehouse Beach provides sandy beaches and a swim area for those seeking relief from hot summer days. The swim area is somewhat protected from the powerful flow of Lake Wallula by the nearby island. The covered picnic tables and shade shelters provide welcome relief from the heat. Kids can play in the sand or on the swing set, and a vault toilet serves both Warehouse Beach and the adjacent HMU. The group camping area must be reserved for use and is used by beachgoers in the summer and hunters in the fall.

Sand Station

Less than a mile upstream from Warehouse Beach, Sand Station gives visitors another swim area and sandy beach to enjoy. This area is directly off Highway 730 and is predominately used in the summer. The park's mature trees provide welcome shade, and amenities include picnic tables, barbecue grills, and a vault toilet. The group camping area must be reserved for use; stays are limited to 6 nights, 7 days. Visitors also enjoy fishing and the upstream views of the Wallula Gap.

Two Rivers Park

Two Rivers Park is located on the south shore of Lake Wallula at the confluence of the Columbia and Snake Rivers. The park is outgranted to Benton County for operation and maintenance. The two-lane paved boat ramp on the east end of the park off East Finley Road is heavily used by anglers fishing for walleye and bass. There are three handling docks at the boat ramp. The current is especially strong near the boat ramp; swimming is strongly discouraged in this area due to the hazardous conditions.

A trail meanders west from the boat ramp, taking visitors to a gravel parking lot in the middle of the park. This area boasts a small, protected inlet that is very popular among paddleboarders, kayaker, canoers, and anglers. This basin was created by borrow operations during levee construction and is restricted to motorized vessels. Anglers fish for bass and other warm water species here.

On the west side of the inlet lies a developed park with extensive manicured lawns, mature trees, and picnic tables. The 18-hole disc golf course winds through this area and is very popular. A well-maintained playground is a hit with kids, and waterborne restrooms and drinking fountains are provided for visitors. A large, paved parking lot is conveniently located down Glynn Wheeler Lane off East Finley Road. A swim beach in the northwestern corner of the protected inlet provides a safe place to swim instead of the swift waters at the confluence.

A historic property that is eligible for listing on the NRHP is present within the park.

Sacajawea State Park

Sacajawea State Park sits across from Two Rivers Park at the confluence of the Snake and Columbia Rivers. Accessed via Sacajawea Park Road, it features a day use area, boat launch, and interpretive center. It is outgranted to Washington State Parks. Visitors are required to pay for a daily parking pass or possess a Washington State Discover Pass, but entry to the day use area and the interpretive center are free. The Sacajawea Interpretive Center is open from April 1 through October 31. Interactive exhibits educate visitors on the Lewis and Clark Corps of Discovery, Sacajawea, and the Sahaptian-speaking tribes of the region.

An abundance of amenities can be found in the day use area, including picnic tables, covered shelters, group shelters, two horseshoe pits, a volleyball field, fire pits and barbecue grills, ADA-accessible waterborne restrooms, drinking

water, and a playground. A kitchen shelter with electricity and a large barbecue grill is available, as well as another kitchen shelter without electricity. One of the shelters can accommodate up to 200 people. A swim beach is located near the interpretive center in the southwest corner of the park.

A 1.2-mile trail winds through the mature landscaping and manicured lawns of the day use area, 0.5 mile of which is ADA-accessible. Self-guided interpretive displays and framework representations of Native American dwellings are scattered along the trail and throughout the day use area. Most of the original site of the historical railroad town of Ainsworth lies within Sacajawea State Park grounds. While camping is not allowed in the park, one primitive campsite for travelers on the Northwest Discovery Water Trail is available on a first-come, first-served basis. Sacajawea Park Road connects to the Sacagawea Heritage Trail on the west side of the park. Note that the difference in spelling is correct; Sacajawea State Park was established prior to more current scholarship that determined that Sacagawea is more accurate.

A small inlet on the southeast side of park offers a 2-lane boat ramp, handling dock, and 70-foot mooring dock. Launch and moorage fees apply year-round. The shoreline surrounding the park and the inlet, and the three docks along the Snake River side of the confluence, are heavily used by anglers.

There are two historic properties that are listed on the NRHP present within the park.

Sacagawea Heritage Trail

This paved trail is a relatively flat 23-mile multi-use recreational trail located in the Tri-Cities and intersects numerous USACE owned lands and waters. It travels along the Columbia River for its entire length, and forms a loop that connects Pasco, Richland, and Kennewick.

Hood Park

This popular USACE-managed park is just upstream of the confluence of the Snake and Columbia Rivers on the south shore. Hood Park boasts 46 campsites with electric hookups, all reservable on recreation.gov. Each campsite has a combination fire pit/barbecue grill and a picnic table, and most sites have electric hookups. A playground and amphitheater provide entertainment opportunities for campers. The campground has a waterborne restroom and shower facility, dumpsters (for visitors only), and drinking water spigots. The park is easily accessed from Highway 12, exiting on Ice Harbor Drive then immediately turning on to Hood Park Road.

The day use area has a waterborne restroom in the park and a waterborne restroom on the west side of the park near the boat ramp. The day use area has picnic tables, sun shelters, barbeque grills, a playground, horseshoe pits, and a basketball court. A reservable group kitchen shelter with electricity, two large barbecue grills, water, and ample parking nearby provides accommodations for up to 250 people. The swim beach is popular during the summer months. A nature trail winds through the mature landscaping and manicured lawns. Fishing ponds on the east side of the park are stocked with rainbow trout by WDFW. The day use area is heavily used by bird watchers, especially in the winter months. On the east side of Highway 12 there is a three-lane boat ramp with handling dock and crib wall.

On the west side of Highway 12, Hood Park Boat Basin (also known locally as Cargill Pond) is heavily used by shoreline anglers. A one-lane boat ramp with handling dock provides access to the water. A vault toilet is provided for visitors, who can follow a trail under Highway 12 to Hood Park. USACE and agencies who operate adjoining and nearby lands are pursuing grants to connect the trail system crossing Vaughn Hubbard Bridge to Hood Park near the boat ramps, then across Highway 124 to the trail system within NWR. If every-

thing goes as planned, the improved connectivity will be beneficial to all visitors.

There is one historic property that is listed on the NRHP present within the park.

Sacagawea Heritage Trail Access Park

This small area provides access to the heavily used multi-purpose paved loop trail running for 23 miles along the north shore of Lake Wallula. It is frequented by joggers, walkers, bicyclists, and bird watchers. The Sacagawea Heritage Trail (Figure 5-3)is a part of the Manhattan Project National Historical Park and connects to the Richland Riverfront Trail for additional cycling and walking opportunities. The trail begins at Sacajawea Historical State Park. The Sacagawea Heritage Trail has variable concrete surfaces with mile markers along the entire length of the trail. It is mostly flat and away from public roadways. Visitors can walk, run, bike or cycle on this trail.

Wade Park Boat Ramp

This boat ramp is in Pasco, Washington at the end of Road 54. Facilities include a parking lot with overflow parking, a kiosk, a trailhead for the Sacagawea Heritage Trail and two-lane boat ramp with courtesy dock. There are no permanent restroom facilities.

Figure 5-3. Tri-Cities Levee System

Chiawana Park

Chiawana Park is a very popular park in Pasco, Washington, at approximately RM 334. A two-lane boat launch provides access for vessels with courtesy dock in a protected cove. There are two playgrounds, waterborne restrooms, reservable group shelters, and four horseshoe pits. The Sacagawea Heritage Trail, a multi-purpose paved trail, runs the length of the park along the shoreline. Visitors also enjoy the volleyball court and picnic areas. A dock on the west end of the park extending into Lake Wallula provides fishing access and a place to tie up vessels. This dock is popular with anglers and water recreators. Boaters often launch from the east end of the park, while their family drives to the west-side courtesy dock to board the boat, leaving their vehicle in the parking lot nearby.

A historic property that is listed on the NRHP is present within Chiawana park.

Leslie R. Groves Park

Leslie R. Grove Park, at approximately RM 334, is outgranted to the City of Richland Parks and Recreation Department. This is a highly developed park with many features to appeal to outdoor fitness enthusiasts, including tennis courts, a wall ball court, volleyball courts, reservable baseball/softball field, and other sport field space. Visitors can enjoy picnic benches and barbeques, reservable group shelters, and a multi-purpose trail popular with joggers, hikers, and bicyclists. This trail features exercise equipment stations spaced out along the trail to encourage visitors to engage in quick body weight fitness activities.

Leslie R. Grove Park is extremely popular among paddle boarders and kayakers, partially due to no-motorized-vessel zone between the shoreline and Nelson Island. This stretch of Lake Wallula is very shallow and ideal for paddle craft users of all skill levels. The fishing dock is also very popular for anglers fishing for smallmouth bass. Waterborne restrooms and drinking water fountains provide a more comfortable recreational experience for visitors.

There is one historic property that is eligible for listing on the NRHP and one listed historic property present within Leslie R. Grove Park.

Howard Amon Park

The majority of Howard Amon Park is outgranted to the City of Richland and lies north of Columbia Point Marina Park along the southwest shoreline of the Columbia River at approximately RM 337.5. Amenities include tennis courts, reservable group shelters, waterborne restrooms, picnic tables, playground, a half basketball court, a kiddie pool, a performance stage (the Fingernail), and a multi-use trail for hikers, joggers, and bicyclists. The four-lane boat ramp provides access to Lake Wallula, and associated handling dock and tie up dock are available for boaters. The swim beach runs south along the shoreline from the dock used by sternwheeler cruises for passenger loading and unloading. The park also features a swim dock on the north end, in response to high public demand for swimming areas.

A historic property that is listed on the NRHP is present within Howard Amon Park.

Columbia Point Marina Park

Much of this heavily used park and marina is outgranted to the City of Richland. The park, at approximately RM 336.5, features a waterborne restroom, playground, paved trails, and picnic shelters. The marina is protected by a manmade breakwater levee. The marina features a heavily used four-lane boat launch, courtesy and handling docks, and about 90 moorage spots for vessels of varying sizes. The marina is adjacent to a growing commercial district with restaurants and lodging and is home to the Richland Yacht Club.

Wye Park

Wye Park abuts Columbia Park West and is outgranted to the City of Richland. This small

park offers shelters, a playground, waterborne restrooms, barbecue grills, and picnic tables. The boat launch provides lake access inside the sheltered waters of the Yakima Delta. The paved trail that runs through Columbia Park continues through Wye Park and is heavily used by walkers and bicyclists. The trail continues along the levee to Highway 240, where it connects with the extensive trail system branching into Richland. Wye Park also provides access to the land bridge with foot path across to Bateman Island.

Columbia Park

This 112-acre park is an anchor for recreational activities in Kennewick along Lake Wallula. A key feature of this park is the Columbia Park Golf Tri-Plex, which includes an 18-hole golf course and driving range, a FootGolf course, and a disc golf course. Other amenities include a skate park, soccer fields, playgrounds, and even a train-trolley ride through the park on the J&S Dreamland Express. One playground within the park, the Playground of Dreams, features a splash pad and a large variety of play structures modeled after local attractions and accessible to the physically challenged and children of all ages. There are horseshoe pits, basketball courts, volleyball courts, picnic areas, water-borne restrooms, and a veteran's memorial. There is a park atmosphere over much of the park with irrigated, green lawns, large shade trees, and a juvenile fishing pond stocked with trout and hosting warm water fish species from the river. The Columbia Park Family Fishing Pond was the first warm-water family fishing pond developed in Washington State. Bird watchers and walkers appreciate the extensive trail system throughout the park, leading visitors through developed park and natural areas alike. There are several reservable facilities available in Columbia Park, including the Columbia Park Bandshell, picnic shelters, the Lions Club Picnic Shelter, and the Kiwanis Building which includes a kitchen and meeting area. Columbia Park is outgranted to the Cities of Kennewick and Richland.

For visitors wanting access to the water, a marina on the west side of the park with covered mooring, a four-lane launch ramp, waterborne restrooms, and a courtesy dock is available. This area often hosts a rental station for kayaks and stand up paddleboards. There is a single-lane launch ramp on Edison Street, and another four-lane boat launch on the Columbia Park Trail at the Blue Bridge, with a courtesy dock and one lane with extended length for deep-hulled vessels.

The Tri-City Water Follies are hosted at Columbia Park East each July and draw tens of thousands of unlimited hydroplane race fans. This event is a large driver of visitation at the park and tourism in the Tri-Cities area.

One historic property that is listed on the NRHP is present within Columbia Park.

Duffy's Pond

Duffy's Pond is an inland drainage collection pond that is heavily silted in. The edge of the pond consists of Cattails, Rushes, Willows and Cottonwoods as well as other native and non-native tree species. The pond is home to several different waterfowl species and is a popular area frequented by walkers, bikers and bird watchers. This pond is separated from the Columbia River by Levee 5D located on the North side and water is conveyed into the Columbia via a pump plant. There are trails around the pond, however they are not completely connected. Most of the pond and surrounding lands are leased to and managed by the City of Kennewick, with the exception of the trees and vegetation growing on the slope of Levee 5D which is managed by USACE.

5.3. ENVIRONMENTALLY SENSITIVE AREAS

ESAs are managed to protect the scientific, ecological, cultural, or aesthetic features of the lands. Typically, limited or no development for public use is allowed. Manmade intrusions (power lines, non-Project roads, and water and sewer pipelines) are not permitted on lands classified as ESAs. Activities designed to promote and improve special features identified in the area are allowed, along with education and interpretation. There are a total of 1391.1 acres designated under the ESA land classification. There were no lands classified as ESA in the 2021 classifications; ESA was not an approved land classification under the old nomenclature, though 159.5 acres were classified as Other: Natural Area, which was similar to ESA. The management areas in this land classification are shown in Table 5-3.

The Project lies within expansive ancestral areas significant to numerous Tribes. Many of the ESAs at McNary were designated due to the presence of resources of importance to individual or multiple Tribes, features that are eligible for listing on the NRHP, and management concerns. These areas contain sensitive, non-renewable resources that have been recognized as significant at a state and federal level. In addition, the landforms and natural features retain importance to tribal members as the setting of past, present, and future use and traditional practices. Protection of the natural environment is also important to preserve the integrity of National Register eligible and listed historic properties. ESA classification will promote appropriate USACE management and planning for the protection of significant cultural resources.

Traditional place names have been mentioned below when they have been published in widely available works. These place names, spelling, and pronunciation may differ depending on the tribe, and some of these places may have many names and associations through time. For more infor-

Table 5-3. Environmentally Sensitive Areas

Management Area	Acres
Cottonwood Cove	129.0
Horse Heaven ESA	154.2
Yellepit Vicinity ESA	35.8
Wallula Gap ESA	122.5
Sunset Drive ESA	22.1
Martindale Island	10.9
Martindale HMU ESA	4.8
Ainsworth ESA	11.9
Indian Island	3.5
Hydro Island	1.7
Borgans Island	12.9
Yakima Islands	23.4
Richland Bend ESA	21.4
Upper Nelson Island	33.5
Island 12	193.9
Forgotten Hills ESA	312.0
Taylor Flat ESA	3.5
Carbody Beach ESA	51.5
Total	1148.6

mation on these areas and their place names, an excellent reference is Ĉáw Pawá Láakni, They are Not Forgotten, Sahaptian Place Names Atlas of the Cayuse, Umatilla, and Walla Walla (Hunn et al. 2015).

Cottonwood Cove ESA

Located downstream from McNary Dam, at RM 290.5 to 291.5 is Cottonwood Cove ESA. The ESA is comprised of shoreline areas and hillside that are either open areas, or where low density, walk-in recreation occurs. The shoreline of Cottonwood Cove is used as a recreational beach, with cottonwood trees growing along the sandy interior. A recreational trail runs through an underpass under the highway, and along a historic railroad grade and through a historic tunnel, continuing along the shoreline toward the dam. The area is of known cultural importance to multiple Tribes, who note this was an important fishing area. Tribal fishing platforms have been erected in the area in recent years (Figure 5-4). Cultural impacts in this area include ongoing erosion, heavy graffiti along cliff faces and man-made structures, and occasional off-road driving. The hillside above the shoreline has also been designated as an ESA to preserve the viewshed, which is also considered an important aspect for preservation of historic properties.

Horse Heaven ESA

Horse Heaven ESA is located upstream of McNary

Figure 5-4. View of Fishing Platforms Constructed in the Cottonwood Cove ESA in 2014

Dam on the right bank of the Columbia River at RM 294. This undeveloped area located north of a powerline is within an area of importance to multiple tribes and is being impacted by off-road vehicle traffic and target shooting. Preservation of the viewshed and native vegetation in this area is considered important for preservation of historic properties.

Yellepit Vicinity ESA

Located along the west side of the Columbia River at RM 308-310 is Yellepit Vicinity ESA. The ESA is comprised of a series of ponds and the surrounding hillside that are boat accessible only. Yellipit and two other named ponds (Switch and Palmer) are stocked by Washington Department of Wildlife for recreational fishing opportunities by the public. The ponds were created by railroad fill, and the surrounding hillside is rugged. A fourth unnamed pond is located downstream of Palmer Pond. Chief Yellepit is remembered in historical documents for his friendly interactions with Lewis and Clark during the 1805-1806 expedition.

Wallula Gap ESA

Located along the Columbia River at RM 311, Wallula Gap ESA includes USACE lands that are part of the Wallula Gap National Natural Landmark. The overall landmark measures 4,400 acres (only part of which is on USACE lands) and was described as "... the largest, most spectacular, and most significant of the several large water gaps in the Columbia River basin" (Department of the Interior 1980). The gap was created from prehistoric floods caused by glacier melt. Today Wallula Gap is part of Ice Age Floods National Geological Trail. Since the original designation of the National Natural Landmark, USACE has disposed of some lands to the USFWS and to Walla Walla County. The Twin Sisters landform, which is a culturally important area to multiple Tribes, was disposed of by USACE to the General Services Administration in 1982, and then ultimately conveyed to Walla Walla County in 1984 for use as use as a public park and recreation area. The remainder of the lands within the Wallula Gap ESA will be managed by USACE to preserve the viewshed of this important National Natural Landmark.

Ainsworth ESA and Indian Island ESA

Ainsworth ESA is located along the right bank of the Snake River at RM 1.5 and Indian Island ESA is located just over a mile to the southwest at Columbia RM 326. Ainsworth ESA is comprised of vegetated shoreline on the north side of the Burlington Northern Railroad Bridge. The area is periodically affected by homeless encampments. Indian Island ESA is only accessible by boat, and the area attracts some visitation and day use. Cultural impacts on the island include visitor-constructed temporary structures and digging. One of the traditional names for the Snake and Columbia River confluence area is Ḱwsíis [Sahaptin NE] and is of ongoing importance to multiple tribes (Hunn et al. 2015). The confluence of the Snake and Columbia Rivers was known as an important fishing, living, and trade area.

Sunset Drive ESA

Located on the left bank of the Snake River at approximately RM 3.25, this undeveloped stretch of river was designated Sunset Drive ESA to protect the viewshed and shoreline resources associated with a fishing area called Sayaykwmí Wápyaš [Sahaptin NE] (Hunn et al. 2015).

Martindale Island ESA and Martindale HMU ESA

Both ESAs are located along the Snake River; Martindale HMU ESA is on the right bank at RM, and Martindale Island ESA is upriver at RM 5.5. Both ESAs are sparsely visited areas of cultural importance to several tribes who note that a salmon weir used to be constructed and maintained in this area by local inhabitants of a nearby village. The surrounding area was also important for hunting and root gathering (Hunn et al. 2015). Retaining the natural vegetation in this area and

discouraging development will help to protect the viewshed which is important for preservation of historic properties.

Hydro Island ESA

Hydro Island ESA is a small island located in the Tri-Cities at RM 332. Prior to creation of Lake Wallula, this area was seasonally linked to the shoreline. This small island is covered with vegetation and is within multiple historic properties. This island was along the edge of a property known as Ḱótḱot [Sahaptin NE], which was known as an important fishing area and area for gathering driftwood (Hunn et al. 2015).

Borgans Island ESA

Borgans Island ESA is located along the Columbia River at RM 333.5. In 1971-1974, the city of Kennewick proposed to construct a domestic water collector and pipeline on the island, but the effort was ultimately shut down due to tribal concerns. The island was formerly open to the public for boat accessible recreation but was permanently closed in 2016 due to ongoing visitor impacts. The island is an important area to multiple tribes, and the closure of the island has allowed for regrowth of vegetation which is considered an important aspect for preservation of historic properties.

Yakima Islands ESA

Located on the Yakima River (Táptat) [Sahaptin NW] at RM4, Yakima Islands ESA is a culturally important area to local tribes (Hunn et al. 2015). The larger area is known as an important village (Ĉamná) [Sahaptin NE] and fishing area (Tamákpikus) [Sahaptin NE]. A large interstate highway bridge and sewer line have been constructed to the north of the ESA, but the southern portion has been less impacted by human activity. The protection of the island and shoreline in this area will help to protect historic properties that are eligible for listing on the NRHP and native plant communities in this area.

Richland Bend ESA

Located along the left bank of the Columbia River at RM338-340, Richland Bend ESA partially encompasses Tamántawla [Sahaptin NE], which encompassed several villages prior to euroamerican settlement (Hunn et al. 2015). The protection of the shoreline in this area will help to protect historic properties that are listed on the NRHP, and native plant communities in this area.

Upper Nelson Island ESA

Situated on the western side of the Columbia River at RM 336, just upstream of Nelson Island, this sparsely vegetated island is a nesting area for a few species of gulls and a small number of shorebirds such as kildeer and avocets. Access to the island is by boat only, but due to the swift current and the high gull population, the area does not attract many human visitors. A few wild alder trees along the shore provide habitat.

Carbody Beach ESA

Carbody Beach ESA is split into two separate areas, the northern on the Franklin County shoreline at RM 346, and the southern area at RM 343.5. Multiple Tribes have identified both areas having the place name Sikimá [Sahaptin NE], and it is remembered as a productive salmon fishing area (Hunn et al. 2015).

Taylor Flat ESA

The narrow stretch of shoreline along the Columbia River at RM 348 in Franklin County is called Taylor Flat ESA. This shoreline is relatively undeveloped and is in an area of importance to one or more Tribes. The protection of the shoreline in this area will help to protect historic properties that are eligible for listing on the NRHP and native plant communities in this area.

Forgotten Hills ESA

Located in Franklin County at RM 351, Columbia River Road ESA is near the northern end of the Project lands, opposite Hanford. The land occasionally disconnected from the shoreline, forming an island. This area is culturally important to multiple Tribes and was a fishing and habitation area. The ESA is relatively undeveloped, except for the presence of transmission towers, and appears to experience off road vehicle traffic, as evidenced by multiple two-track roads that are visible in aerial imagery.

Island 12 ESA

Island 12 is located at RM 355 in Benton County. The island is within an area called Táqwt [Sahaptin NW]. The name is associated with a nearby village, which may be named after the surrounding landscape or salmon that were found in this area (Hunn et al. 2015).

5.4. MULTIPLE RESOURCE MANAGEMENT

This MRM Lands classification allows for designation of a predominant use with the understanding that other compatible uses may also occur in the classification, to include Low Density Recreation, Wildlife Management, and Future or Inactive Recreation Areas. Total MRM lands for the Project are approximately 3,675.7 acres. This is a decrease in acreage from 4,336.6 previously. The management areas in this land classification are shown in Table 5-4, organized by subclassification.

5.4.1. MRM – Low Density Recreation

MRM-LDR are lands with minimal development or infrastructure that support passive public recreation use (e.g., primitive camping, fishing, hunting, trails, wildlife viewing, etc.). There are 13 sites under this classification encompassing approximately 335.7 acres.

Lewis and Clark Commemorative Trail

Lewis and Clark Commemorative Trail begins on the south shore at McNary Beach and runs approximately 7 miles to Warehouse Beach. In general, the trail experiences light seasonal visitation for hiking, biking, horseback riding, and even some hunting and fishing depending on location. The terrain of the trail is generally flat and wide short sections with narrow, moderately steep grades where the trail diverts around washouts. Visitors can take advantage of the equestrian staging at each end of the trail, with the main equestrian staging and trailer parking area at Warehouse Beach. The trail has limited safe access to the river for watering horses. Hat Rock State Park provides restrooms, drinking water, food and picnic area, and facilities for watering horses.

Port Kelley & Walla Walla Yacht Club

This area at RM 312.2 is outgranted to Port Kelley, which subleases a portion to the Walla Walla Yacht Club. A one-lane boat ramp is accessible to the public, with public parking located to the west of the boundary fence. The site also holds a private marina, open only to club members, but they may sell marine fuel to non-members. This is a particularly good sailing area in the Wallula Gap, with soaring cliffs and incredible geology contributing to boating experiences.

Hover Park

Directly across Lake Wallula from the Boise-Cascade paper mill at RM 317.5, this area is outgranted to Benton County. This is a primitive recreation area with no visitor amenities. This area is mostly used for its fishing access points with some areas accessible only by boat and others accessible by vehicle.

Shot Rock Islands

The three Shot Rock islands at RM 324 were created from dredging spoils near the confluence of the Snake River. The islands are quite primitive and minimally used by the public, but heavily used by waterfowl. Vegetation density increases

Table 5-4. MRM Lands by Land Use Subclassification

Management Area	Acres
MRM - Low Density Recreation	
Lewis and Clark Commemorative Trail	110.0
Port Kelley & Walla Walla Yacht	12.2
Hover Park	160.6
Shot Rock Islands	35.7
Two Rivers Park	40.6
Schlagel Park / Pasco Boat Ramp	12.7
Pasco Pond	9.9
Wade Park / Road 54 Boat Launch	25.2
Chiawana	30.2
Bateman Island	185.8
Columbia Point	3.6
Nelson Island	34.7
Carbody Beach	17.2
Total	678.4
MRM - Wildlife Management	
Horse Heaven HMU	216.9
McNary Wildlife Nature Area	265.6
Warehouse Beach HMU	189.7
Columbia River Highway South Natural Area	200.0
Lake Wallula North Shore Islands	8.6
Toothaker HMU	429.5
Burbank Heights HMU	236.2
Goose Island	9.4
Martindale HMU	220.8
Yakima Delta HMU	945.2
Chamna Natural Preserve	286.8
Chiawana HMU	8.5
Richland Bend HMU	58.7
Taylor Flat HMU	10.8
Forgotten Hills HMU	136.6
Total	3594.2
MRM - Vegetation Management	
Toothaker Mitigation	93.2
Total	93.2
MRM - Future or Inactive Recreation Area	
Sacajawea State Park	57.2
Total	57.2
Total MRM Lands	*4,423.0*

on southern island, but mostly struggle to maintain stable vegetation communities.

Two Rivers Park

This area between the Two Rivers boat launch and the inlet, along the Lake Wallula shoreline, is used by anglers, bird watchers, and hikers looking for a more primitive experience. Kayakers and paddleboarders sometimes traverse the lake near the shoreline, but usually prefer the calm, protected area of the inlet ringed by Two Rivers Park.

There is one historic property that is eligible for listing on the NRHP present within the park.

Schlagel Park

Schlagel Park (also known as Pasco Boat Ramp) and the associated marina are leased to the City of Pasco, who subleases the marina to Columbia Marine Center. The main attraction for visitors is the boat launch with associated handling docks, tie-down dock, and year-round covered mooring docks. The boat launch was constructed as a four-lane launch, but major repairs are needed to restore full functionality. The marina shop is a full-service boat repair shop. Schlagel Park offers portable toilets, a manicured lawn with mature landscaping and shade trees, and a picnic area. The breakwaters offer protection to the marina in this small cove but have been damaged due to illegal camping activities.

Pasco Pond

This small pond collects stormwater that is later pumped into Lake Wallula. It is bordered by the Tri-City Animal Shelter, Riverview Park, and the Pasco Youth Baseball Complex. The pond was historically stocked with trout by WDFW, but it is filled with sediment now and is rarely used for fishing.

Wade Park/Road 54 Boat Launch

The two-lane boat launch on the west end of Wade Park is the main draw for visitors. The manicured lawn is maintained by the City of Pasco, though it lacks mature trees for shade. A multi-purpose paved trail, the Sacagawea Heritage Trail, runs through this park and is popular with pedestrians and bicyclists. Visitors can access the shoreline for fishing and wildlife viewing.

Chiawana Park

This portion of Chiawana Park is maintained for low density recreational use. Most visitors are passing through the area on the Sacagawea Heritage Trail. There is one historic property that is listed on the NRHP present within the park.

Bateman Island

This island is within the Yakima River Delta area located at the confluence of the Columbia and Yakima Rivers, near River Mile 335, just north of Wye Park. The island is popular with visitors due to its proximity to the Tri-Cities metropolitan area, and the natural habitat it offers. Many different species of wildlife are found in the area, allowing visitors to enjoy bird watching, fishing, and hiking. A causeway that was constructed around 1940 currently provides pedestrians walk-in access to the island.

There is one historic property that is listed on the NRHP present within the island.

Columbia Point

This area is leased to and managed by the City of Richland. The area is popular for fishing access. There is one historic property that is listed on the NRHP present within the leased area.

Nelson Island

This island is outgranted to and managed by the City of Richland. Adjacent to Leslie Groves Park and associated recreational uses. This island is frequented by deer and other wildlife. It is comprised of low-lying vegetation with a dense ripar-

ian shoreline. There is one historic property that is listed on the NRHP present within the leased area.

Carbody Beach

Although this is not a USACE-designated beach, visitors often use the sandy shore for picnicking, the area is popular with anglers, and with boaters seeking to cool off in the water. Hunting is allowed. This is a fairly remote area which attracts off-road vehicles. Illegal off-road activities and litter have become major problems in this area, and USACE and law enforcement partners are working to curb illegal and illicit activities through this stretch.

5.4.2. MRM – Wildlife Management

MRM-WM lands are designated for stewardship of fish and wildlife resources in conjunction with other land uses. Habitat maintenance and/or improvements are for a designated species, or group of species.

There are 16 sites under this classification encompassing approximately 3,167.8 acres. USACE uses these lands to meet the ENS mission and provide fish and wildlife habitat, and some of these lands and usages are credited to the mitigation requirements of the Lower Snake River Fish and Wildlife Compensation Plan.

Horse Heaven HMU

Horse Heaven HMU is a primitive, minimally managed area starting above the railroad east of Interstate 82 and following the railroad and north shoreline east roughly 8 miles. This HMU provides visitors access to the shoreline area upstream of McNary Dam. Cottonwood Cove ESA, south of the HMU downstream of McNary Dam, contains an approximately one-mile trail that would be considered “easy” for hikers and bikers traveling through an old railroad tunnel. Visitors in small vessels use a portage route through this area around the McNary north shore project operations area. Terrain ranges from rocky cliffs to gentle sandy slopes covered shrub-steppe type vegetation.

McNary Wildlife Nature Area

McNary Wildlife Nature Area lies downstream of McNary Dam and is heavily used by hikers and anglers. Due to the heavy use and the proximity to McNary Dam, the area offers visitors three vault toilets. Access roads and parking areas are found throughout the nature area to facilitate access to the many ponds providing fishing opportunities. (ODFW stocks ponds every spring), 10 miles of gravel/natural easy trails, great habitat for migratory birds so popular with birders. Heavy use by hikers and anglers. Only area in Walla Walla District designated as a Nature Area by Congress.

Warehouse Beach HMU

This is an approximately 190-acre HMU which is also used by visitors hiking on the Lewis and Clark Commemorative Trail. Hunting, biking, trail riding. Area under minimal management.

Columbia River Highway South Natural Area

Long narrow strip of lands along railroad and Lake Wallula, popular among anglers for salmonids as well as warm water fish species. Minimally managed by USACE due to inaccessibility and railroad and highway easements. Area also hosts aquatic mammal species such as beaver, mink, and river otter.

Lake Wallula North Shore Islands HMU

Minimally managed shoreline and small islands between Horse Heaven Hills HMU and Yellepit and Mound Ponds. Boat access only, these lands provide good structure to fish around but primitive conditions on the land.

Toothaker HMU

This intensively managed HMU is heavily used by

the public. It is stocked with pheasants by WDFW and is also heavily used by waterfowl hunters. Other users frequent the area for fishing access, bird watching, hiking, and horseback riding. The area is prone to wildfire due to the arid conditions and prevalence of Russian olive and proximity to the railroad. Habitat management efforts are trending toward use of native species, with species planted according to natural topography, soil, and land type.

Burbank Heights HMU

This HMU is along the south shore of the Snake River just upstream of the confluence with the Columbia River. Visitors can access Burbank Heights HMU via Pumping Plant Road, Island View Road, Emerald Road, or boat. The shoreline is frequented by bass anglers, and it is an excellent location for bird watching. California quail are regularly observed, along with other upland and migratory species. A portion of the shoreline is within a limited development area in the MSMP, which allows for limited private use of the Federal lands along Lake Wallula in specific areas for private docks. There are two historic properties that are listed on the NRHP present within the HMU.

Martindale HMU

Ice Harbor Road runs alongside this HMU which is also known as Locust Grove. It features shrub steppe with sagebrush, rabbitbrush, and cheatgrass in the upland part of the HMU. The portion of the HMU along the shoreline downstream of the dam has some riparian vegetation including golden currant, willows, cottonwood, wild rose, Himalayan blackberry, and some locust. Upland bird hunting is allowed according to WDFW regulations, and fishing is popular along the shoreline. There is one historic property that is listed on the NRHP present within the HMU.

Goose Island HMU

This approximately 17-acre island below Ice Harbor Dam and adjacent to Burbank HMU and Ice Harbor South Shore Recreation Area is heavily used by wildlife, especially waterfowl and shorebirds. Some portions of this island are vegetated with wild rose, willow, false indigo, and net-leaf hackberry. However, most of this island is somewhat denuded due to seasonal inundation, which makes establishment of vegetation difficult.

Chamna Natural Preserve

Chamna Natural Preserve is within Yakima Delta HMU and is outgranted to the City of Richland. This area is used by hikers, bicyclists, equestrians, and bird watchers. This area is an urban haven for wildlife inside the city limits, with habitat for river otters, deer, rabbits, and songbirds.

Yakima Delta HMU

Yakima Delta HMU provides a unique riparian habitat within the Project. During spring and other high-water periods, a large portion of this HMU is underwater, making many of the trails inaccessible. Horses, hunting, fires, and camping are prohibited due to the urban location and fire risk. The eastern portion of this HMU burned in 2021 from Highway 240 east. This gave USACE an opportunity to reimagine the vegetation in this area, thinning the thick stands of invasive Russian olive and replanting with native species that will provide greater wildlife value and reduce catastrophic fire danger. USACE routinely mows the trails for safety of our recreational users. Yakima Delta is heavily used by bird watchers, anglers, hikers, and trail bikers, and is home to beavers, deer, small mammals, songbirds, and warm water fish such as smallmouth bass.

There is an ongoing effort to develop thermal refuge for salmon with the cooler water discharge from Amon Raceway/Creek through Yakima Delta HMU. This proposed project is currently under development with Benton County Conservation District and other regional partners to improve salmon passage up the Yakima River.

Chiawana HMU

Chiawana HMU is the area below the Sacagawea Heritage Trail west of Chiawana Park and is minimally managed as a riparian vegetation zone. The area was heavily vegetated by Russian olive, but USACE wildlife biologists are working to convert the vegetation to include more native shrubs and tree species. This area is frequented by beavers and river otters. There is one historic property that is listed on the NRHP present within the HMU.

Richland Bend HMU

Richland Bend HMU follows the bend of the Columbia River at RM 337-338 and provides wildlife habitat. The western portion of the HMU is open to hunting with shotgun and archery. It is popular among waterfowl hunters. It is managed to promote native trees and shrubs. A plethora of fur-bearing and aquatic mammals are found using this area. Anglers fish along the shoreline for smallmouth bass. There is one historic property that is listed on the NRHP present within the HMU.

Taylor Flat HMU

Taylor Flat HMU is a very narrow strip of land on the east side of North Columbia River Road at RM 348. The HMU is remote and minimally managed for wildlife habitat. There are two historic properties that are eligible for listing on the NRHP present within the HMU.

Forgotten Hills HMU

Forgotten Hills HMU is found at Columbia RM 350 above West Fir Road, with North Columbia River Road ending about halfway through the HMU. It is characterized by steep, rocky outcroppings and conglomerate sediment bluffs. Several seasonal ponds and wetlands are found throughout the area. The HMU is remote and has been damaged by off-road vehicles as well as by trash dumping. This location is an extension of the Ringold formation which is estimated to be 4-8 million years old. There is one historic property that is eligible for listing on the NRHP present within the HMU.

5.4.3. MRM – Vegetative Management

Toothaker Mitigation

This 93.2-acre area is found at Columbia RM 320 and is approved for the management and improvement of shoreline riparian habitat as mitigation for the private use of the shoreline authorized by the MSMP. This area begins at Cochran and continues through Lechelt and south to Straightbank Road. Citizens with permits for private docks are responsible for improving and maintaining habitat in one of the three sites listed in this section. However, USACE and various partners also improve habitat within these three land management areas as budgets and priorities allow. The habitat is improved and maintained by those with permits for private docks through MSMP as mitigation for the impact their dock might have on ESA-listed salmonids.

5.4.4. MRM – Future or Inactive Recreation Areas

A 57-acre portion on the north side of Sacajawea State Park is the only area classified as a Future or Inactive Recreation Area. This area was identified as compatible with future recreational development. Until there is an opportunity to further develop this area, this land will be managed under the MRM–FIRA classification. A total of 487.5 acres was moved out of the MRM–FIRA land classification from 2022, including lands at Hover Park, Martindale, Richland Bend, Columbia Point, and a larger portion of Sacajawea State Park.

Sacajawea State Park

This area on the north side of the state park is set aside for potential future development, should the need arise. Visitors can currently use this area for hiking, bird watching, and wildlife viewing. The park currently meets the needs of visitors, but as population and demand increase, this is an

ideal location to expand recreational offerings in the Project.

5.5. WATER SURFACE ZONING

Water surface zoning at the Project is used to support public safety and security. The water surface on Lake Wallula includes the following zones: Restricted, Designated No-Wake, and Open Recreation. Open Recreation allows for recreation activities such as wading, swimming, paddling, sailing, motorboating, and fishing. There are 38,800 acres of water surface designated for Open Recreation. Water Surface acreage was not quantified in the 1982 Master Plan.

At McNary Lock and Dam, there are boat restricted zones (BRZ) both below and above the dam to allow for Project operations, safety, and security. The waters are restricted to all vessels, except government vessels. The BRZ is described as "all waters commencing at the upstream end of the Oregon fish ladder thence running in the direction of 39°28′ true for a distance of 540 yards; thence 7°49′ true for a distance of 1,078 yards; thence 277°10′ for a distance of 468 yards to the upstream end of the navigation lock guidewall. The downstream limits commence at the downstream end of the navigation lock guidewall thence to the south (Oregon) shore at right angles and parallel to the axis of the dam. Signs designate the restricted areas," (33 CFR § 207.718). There are also boat restricted zones at McNary Beach, Warehouse Beach, Sand Station, Hood Park swim area, Sacajawea State Park swim area, Howard Amon swim area, all in the swim areas. There is a BRZ between Leslie Groves Park and Nelson Island due to the heavy use of this shallow water area by swimmers and other water recreation users. Finally, the protected inlet at Two Rivers Park is a BRZ.

Zones near boat ramps are Designated No-Wake to protect recreational water access from disturbance and for public safety. There are Designated No-Wake zones throughout Lake Wallula, including at Oregon Boat Ramp, Washington Boat Ramp, Warehouse Beach, Hat Rock Boat Ramp, McNary Beach, McNary Yacht Club, Sand Station, Walla Walla Yacht Club, Hood Park Boat Basin, Hood Park Boat Ramp and Swim Beach, Sacajawea State Park Boat Ramp and Swim Beach, Schlagel Park/Columbia Marina, Clover Island Marina, Chiawana Boat Ramp, Columbia Park Marina, and Columbia Point Marina.

Lastly, there is a Designated No-Wake area on the west side of Bateman Island. This area was designated a No-Wake zone in 2015 for the purposes of erosion protection.

Forgotten Hills HMU

Chapter 6. Special Topics, Issues, and/or Considerations

This chapter discusses the special topics, issues, and considerations identified as important to the future management of the Project. Special topics, issues, and considerations are defined in this context as any problems, concerns, and/or needs that could affect or are affecting the stewardship and management potential of the lands and waters under the jurisdiction of the Walla Walla District, McNary Project.

6.1. ENCROACHMENTS

Encroachments in urban areas can be a big problem. Natural Resource Management staff has prioritized several surveys in recent years to help understand and resolve encroachment issues and uncertainty in encroachment-prone areas.

Vegetation and livestock grazing encroachments are common violations on USACE-managed lands. This is primarily due to the rural and remote location of Project lands and the fact that property surrounding these lands are managed for agriculture and/or livestock.

USACE Natural Resource Management mission is to manage and conserve natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations. Encroachments on USACE-managed Federal lands directly conflict with that mission. USACE is, therefore, committed to resolving encroachments by the most expedient and effective means available. It is the intent of the District to recapture use of encroached upon USACE owned lands for project purposes.

The general policy is to require removal of encroachments, restore the premises, and collect appropriate administrative costs and fair market value for the term of unauthorized use. Policies and procedures are described in the references specified in Walla Walla District Office Memorandum 1130-1-9, Encroachment Action Handbook (Corps 2018), which is subject to periodic policy updates. Exceptions to this general policy are set forth in ER 405 1 12, Real Estate Handbook, Chapter 8 (Corps 1999).

The purpose of the Encroachment Action Handbook is to prescribe policies and procedures for surveillance and safeguarding of USACE managed lands and easements to prevent potential encroachments and to prescribe the actions necessary to remove or resolve existing encroachments. This handbook establishes a program to

protect all resources on operating project lands.

6.2. INTERPRETATION

The Project will provide community outreach by participating in fairs and public events; providing interpretive displays and programs for day-use areas, community organizations, and the Chamber of Commerce; School tours, Dam tours, Wildlife and environmental presentations, Water Safety, partnerships, and releasing information to the press. Interpretive displays and programs should highlight several of the following subjects:

- USACE
- Land use classifications
- Prehistory and History
- Natural history
- Project authorized purposes and public benefits
- Impacts of the Project (historical, cultural, ecological)

Figure 6-1. Water Safety Message and Life Jacket Loaner Board

- Traditional and ongoing uses of the area by regional Tribes
- Recreation opportunities
- Wildlife and fish associated with Project lands and waters, and opportunities to use these resources passively and actively
- Water safety
- Pack-it-in, Pack-it-out bags
- Ongoing management activities
- Challenges and possible solutions

The Natural Resource Management staff continues to look for ways to educate and inform visitors on how they can help care for the resources and stay safe when visiting the project (Figure 6-1).

6.3. INVASIVE SPECIES

The issue of invasive species, while not new, has been a specific area of focus for USACE in the last 10 years. Compliance with USACE regulations and the Endangered Species Act led to the development of a District-wide IPMP, which was put into full effect in 2012. Approved pesticides, buffers from water, best management practices, and standardized pest management reporting were all presented in the comprehensive plan in 2012.

USACE has also been working with the NMFS and USFWS to complete Endangered Species Act consultations on the Aquatic Pest Management Plan (the aquatic portion of the IPMP) since 2009, and consultations were completed in 2019. USACE is working toward reintegration of treating aquatic invasive plant species into routine operations and maintenance. Because treatments have not occurred since 2009, USACE faces some challenges and large infestations, and anticipates the need for some focused efforts to bring the invasive species back under control. Specific aquatic invasive species concerns in Lake Sacajawea include Flowering Rush, phragmites, purple loosestrife, and reed canary grass.

Additionally, USACE has been engaged on a national level to help prevent the spread of invasive species with watercraft inspection stations (cost-share programs) and through education on zebra and quagga mussels. USACE performs annual sampling and visual monitoring for adult zebra and quagga mussel at the dam and within the reservoir. Monitoring occurs at various locations within the juvenile fish facility system at points determined to be of high risk of introduction and routine sampling occurs through the upper reservoir. This informational data is shared within the region and with the 100th Meridian Initiative Columbia River Basin Team (an aquatic invasive species prevention organization) to inform future monitoring and sampling.

6.4. MCNARY SHORELINE MANAGEMENT PLAN

The purpose of the MSMP is to provide guidance for managing McNary Lock and Dam, including the federally owned shoreline and project waters (Lake Wallula). The MSMP addresses rules and regulations, shoreline allocations, and requirements for permitting private use of public lands, and explains the permitting process for private community and individual docks on the public shoreline, to include any modifications to vegetation located on lands managed by the Walla Walla District.

The objective of the plan is to achieve a balance between permitted private uses and resource protection for public use. Management of the shoreline provides recreation opportunities, while protecting fish and wildlife habitat, cultural resources, and the natural environment. New docks can only be placed in Limited Development Areas.

6.5. NORTHWEST DISCOVERY WATER TRAIL

The Northwest Discovery Water Trail is a 367-mile recreational boating route that begins at Canoe Camp on the Clearwater River in Idaho. It follows the Snake River to the Columbia River and ends at Bonneville Dam in the Columbia River Gorge. The Trail connects you to nearly 150 sites along the way where you can launch your vessel, picnic, or camp along the river. There are camping opportunities roughly every 10 miles, and access and restroom facilities roughly every 5 miles, with some exceptions in certain stretches of the water trail that are remote and inaccessible.

The Wallula Reach of the Northwest Discovery Water Trail extends from Ice Harbor Dam down to McNary Dam, and includes the Bateman Spur up to Bateman Island, the furthest point up the Columbia River that Lewis and Clark traveled. The Wallula Reach is considered the most urbanized portion of the water trail (Figure 6-2).

There are developed and primitive campsites available to those traveling the Northwest Discovery Water Trail in Lake Wallula. Sites include Hood Park and Sacajawea State Park near the Tri-Cities, then roughly 25 miles downstream paddlers can stay in primitive camping areas at Warehouse Beach or Sand Station.

Travelers on the Northwest Discovery Water Trail can see firsthand the geological impact of the Missoula Ice Age Floods, follow the path of the Lewis and Clark expedition, and experience the rivers and landscape that have been sacred for countless generations of Native Americans. USACE is an official partner of the Northwest Discovery Water Trail. For more information on the Northwest Discovery Water Trail, visit www.ndwt.org.

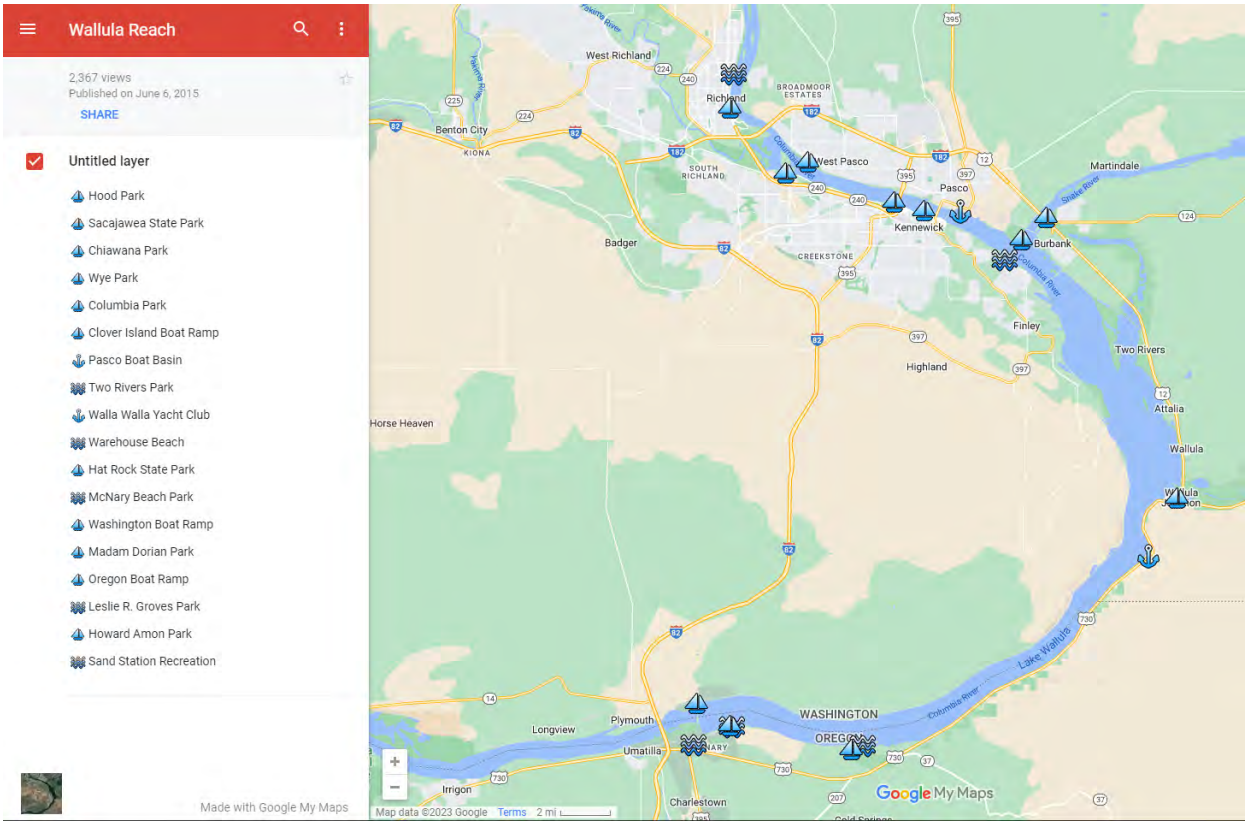

Figure 6-2. Northwest Discovery Water Trail, Wallula Reach Map[11]

[11] Source: ndwt.org/ndwt/explore/wallula.asp

Howard Amon Park and River Boat

Two Rivers Park

Chapter 7. Agency and Public Coordination

This chapter provides information on the public involvement and extensive coordination within USACE and other affected agencies and organizations, which is a critical requirement in the development or revision of a project Master Plan.

7.1. SCOPING

A public scoping process for the Master Plan revision was initiated in May 2022. Approximately 120 letters and emails were sent to stakeholders (community groups, elected officials, government agencies, interested parties) inviting them to comment on the Master Plan update.

USACE conducted scoping for the Master Plan update from May 2 to June 2, 2022. To publicize the scoping process, ads were placed in a local newspaper, news releases were published and sent to local news outlets and radio stations, and notices were posted to the Walla Walla District and McNary Facebook pages.

Public scoping meetings were held on May 10, 2022, at the Red Lion Inn in Kennewick, Washington, and on May 11, 2022, at the Pacific Salmon Visitor Information Center in Umatilla, Oregon. A stakeholder meeting was held on May 10, 2022, at the Red Lion Inn in Kennewick before the public meeting. More than 20 people attended the meetings.

The scoping process was an opportunity to get input from the public and agencies about the vision for the Master Plan update and the issues that the Master Plan should address, where possible. During the scoping period, USACE received suggestions and comments from about 30 people related to management issues and recreation at the Project.

The comments were separated into six general themes:

- Vegetation Management: Comments under this theme pertain to the request for increased management of the overgrown vegetation along the dikes and levees. Residents view this overgrowth negatively.

- Habitat Restoration/Maintenance: Comments under this theme discuss concern for restoring wildlife habitat along the levees and shoreline as well as ensuring that it is maintained in the future

to protect the local ecological system.

- Land Designation: Comments under this theme are of the opinion that the land designation for planning purposes should be kept as 'High Density Recreation' (formally 'Intensive use'). Also under this theme was the opinion that certain areas not covered under the current Project footprint should be added (i.e., Juniper Canyon and an unclaimed island).

- Recreational Uses: Comments under this theme pertain to the public's wish for improved bicycle/walking paths and shoreline access. And the desire for boat launch ramp updates due to high use deterioration.

- Columbia Park Facilities: Comments under this theme pertain to the request to add facilities in Columbia Park to create an area like Riverfront Park in Spokane.

- Shoreline Management: Comments under this theme expressed the desire for improved shoreline management. However, the McNary MP does not address shoreline management because the McNary Shoreline Management Plan specifically does that.

Comments compiled from attendees at the public scoping meetings and other sources were used to prepare the draft Master Plan.

7.2. TRIBAL COORDINATION

On May 4, 2022, USACE sent a letter offering government-to-government consultation and an invitation to public meetings to the Colville, the CTUIR, the Yakama, the Nez Perce Tribe, and the Wanapum Band. The Colville and the CTUIR provided written comments.

On June 30, 2023, USACE sent letters to the Colville, CTUIR, Yakama, Wanapum Band, and Nex Perce Tribe requesting review and comment on the draft McNary Master Plan, draft Finding of No Significant Impact (FONSI), and EA.

7.3. AGENCY INVOLVEMENT AND COORDINATION

All development will be coordinated with appropriate Federal, State, and local agencies throughout the planning process. Because McNary Dam affects interstate runs of anadromous salmonids (Pacific salmon and steelhead trout), valued both as commercial and sport fish, many Federal and state fish and wildlife agencies have taken part in the assessment and recommendation of compensatory measures for losses of fish resources resulting from the Project. These agencies are NMFS, USFWS, ODFW, and WDFW.

7.4. THE U.S. ARMY CORPS OF ENGINEERS WEBSITE

USACE developed a webpage (https://www.nww.usace.army.mil/locations/district-locks-and-dams/mcnary-lock-and-dam/mcnary-master-plan/) to provide information, updates, and collect comments for the Master Plan update. The draft Master Plan, draft FONSI and EA, and other draft Master Plan appendixes, with associated documents were placed on this webpage for the public to view. The final Master Plan, including all appendixes, is posted on this page and will remain available to the public.

7.5. THE DRAFT 2023 MASTER PLAN AND ENVIRONMENTAL ASSESSMENT

Comments received from review of the Draft Master Plan, Draft FONSI, and EA were summarized with comment responses and are included in the final FONSI (Appendix A of the final 2023 Master Plan). Approval of the Master Plan is indicated at the beginning of the Master Plan. The final, approved FONSI is in Appendix A.

Wallula Gap

Juvenile Great Horned Owl

Chapter 8. Summary of Recommendations

This chapter provides the recommended land classifications for the updated Master Plan at a detailed level (by each management area) and includes a list of recommendations for recreation, natural resources, and public outreach.

8.1. GENERAL

This updated Master Plan presents an inventory of land resources and how they are classified, existing park facilities, analysis of resource use, anticipated influences of Project operation and management.

This Master Plan is a living document establishing the basic direction for management and development of the Project in agreement with the capabilities of the resource and public needs. The plan is flexible and allows for supplementation if changes are needed before the next Master Plan update. The Master Plan will be periodically reviewed to facilitate the evaluation and use of new information as it becomes available.

The Master Plan will guide the use, development, and management of the Project in a manner that optimizes public benefits within resource potentials and the authorized function of the Project while remaining consistent with USACE policies, regulations, and environmental operating principles.

8.2. RECOMMENDATIONS

8.2.1. Proposed Land Classification Changes

The proposed land classifications for the 2023 Master Plan are summarized in Table 8-1. Figure 8-1 provides a visual representation of the land classification changes between 1982 and 2023.

8.2.2. Recreation Recommendations

The following recreation recommendations have been identified:

- Conduct regular surveys, counts, and other methods to collect data and monitor trends to determine user capacity and environmental sustainability.
- Address sediment deposition in boat basins as

Table 8-1. Land Classifications for the 2023 Master Plan

Land Classification	Acres
Project Operations	617.9
High Density Recreation	1360.4
Environmentally Sensitive Area	1148.6
MRM - Low Density Recreation	678.4
MRM - Wildlife Management	3600.6
MRM - Vegetative Management	115.0
MRM - Future or Inactive Recreation Area	57.2
Total Acres	7578.0

needed according to the Programmatic Sediment Management Plan and as funding becomes available, to maintain access to public lands.

- Continue to explore and integrate energy saving options such as solar and LED lighting.

- Improve visitor information through updating interpretive panels and kiosks, and updating website information using innovative technology (e.g., virtual tours).

- As funding becomes available, add small shelters where needed according to public demand in parks.

8.2.3. Natural Resource Recommendations

The following natural resource recommendations have been identified:

- Invasive plant species can significantly degrade aquatic and wildlife habitat, increase soil erosion, and outcompete native species that fish and wildlife depend upon and that are culturally significant to Tribes. Species should be controlled using methods provided in the IPMP.

- Continue to enhance riparian and upland biodiversity through vegetation enhancement projects that focus on planting native trees, shrubs, and groundcovers.

- Persist in addressing encroachments in accordance with the guidance in the District Encroachment Action Handbook. It is USACE policy to use the minimum level of recourse necessary to gain voluntary compliance and achieve resolution of encroachments, and to employ the most efficient and cost-effective means of resolving encroachments.

- Pursue funding for boundary surveys while navigating the complex issues surrounding joint funding (appropriated funds from Congress with BPA approval of matched funding). Well documented boundaries are essential to the effort to address encroachments on federal land.

- Continue collaboration with USFWS, WDFW, and ODFW on wildlife habitat protection and improvement on Project lands.

- Keep providing public access to federal lands for hunting, fishing, hiking, bird watching, and other nature-related activities.

8.2.4. Education, Information, and Public Safety Recommendations

The following education, information, and public

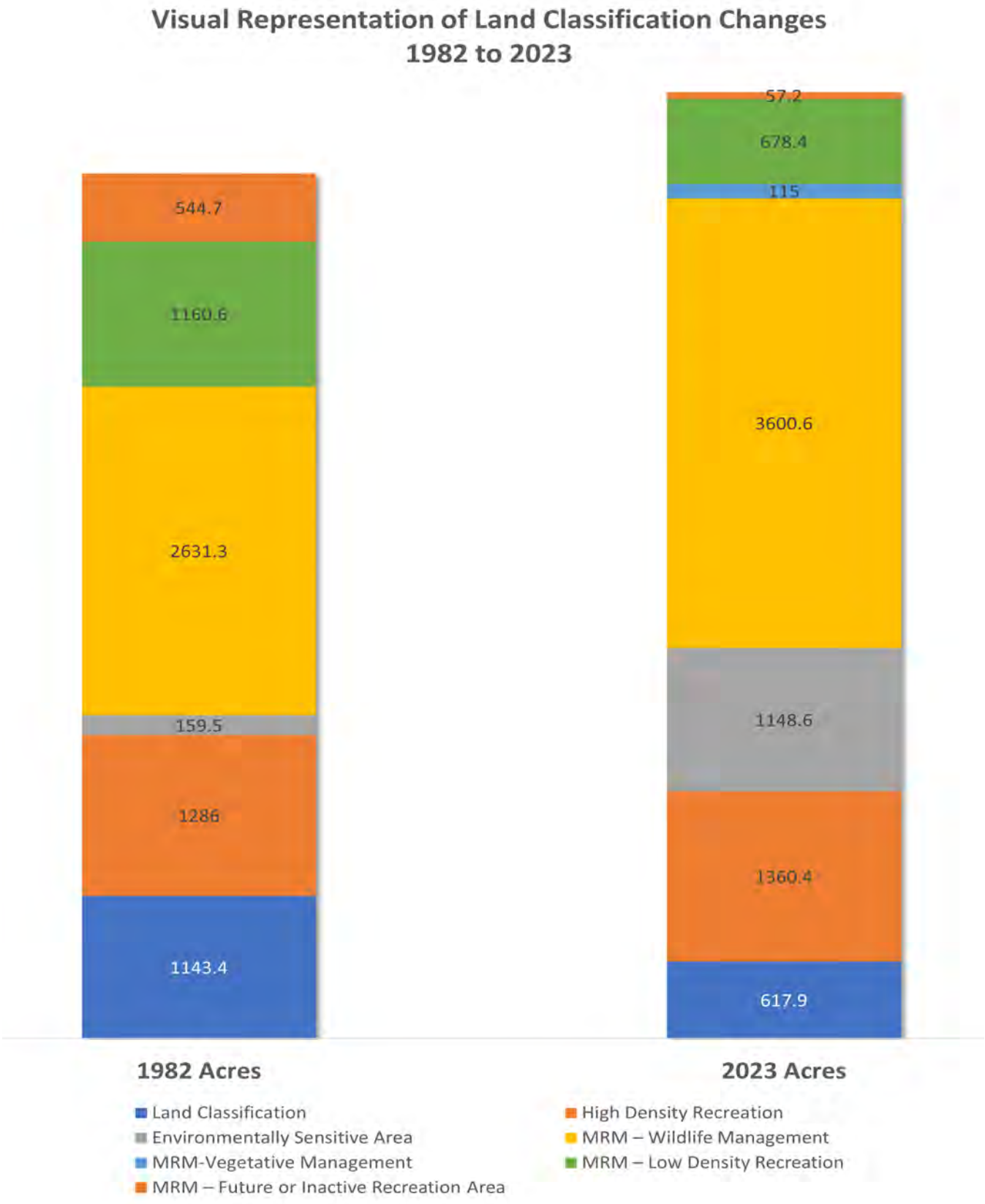

Figure 8-1. Northwest Discovery Trail, Wallula Reach Map[11]

safety recommendations have been identified:

- Use social media and other means of communication so users can access information that is pertinent to the Project (e.g., trail closures, hunting season, current conditions, special events). Keep up to date on emerging communication methods.

- Seek opportunities to partner with regional Tribes, local youth organizations, volunteers, and other organizations to provide educational and interpretive signs, activities, and programming.

- Add educational and interpretive information to kiosks in parks and HMUs, such as adding lists of bird species specific to the area from Engineer Research and Development Center surveys, or other wildlife/plant species of interest.

- Pursue public outreach opportunities such as county fairs, outdoor shows, and other events to educate the public on recreation and hunting and fishing opportunities available on USACE lands.

- Visitor safety and facility security are of the highest priority in USACE parks. Common issues stem from unsupervised juveniles and an increasing transient population. Alcohol, drug usage, and mental health issues are often catalysts for crime being perpetrated in USACE parks. Project staff will continue to provide visitor assistance patrols and work with local law enforcement partners. Additional security measures that may be taken include increased contracting with local law enforcement for additional patrols, installing gates on parks to control access during periods of darkness, placing security cameras in high incident areas, or other appropriate methods.

- Continue to use social media and kiosks to post relevant visitor safety information ("Know Before You Go"), such as warnings to avoid rattlesnakes, to bring plenty of water, sunscreen, and bug protection, and to let people know your whereabouts. Boaters should also be sure to have a float plan and to let someone know when to expect them back in case of trouble. Many of the parks and HMUs in this Project are isolated with poor cell phone coverage so it is very important that visitors are prepared.

8.3. FUTURE DEMANDS

Recommendations in this Master Plan reflect current inventory data, recreation trends, and forecasts. As technology and public demand change and new recreational opportunities arise, USACE staff will investigate the feasibility of new activities and evaluate proposed changes and additions to this Master Plan for potential conflicts, opportunities, and environmental impacts.

Fox

Hood Pond

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Bald Eagle at McNary

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US Army Corps of Engineers ®
Walla Walla District
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McNARY MASTER PLAN REVISION

McNary Lock and Dam
Columbia River
Umatilla, Oregon

ENVIRONMENTAL ASSESSMENT

In compliance with the
National Environmental Policy Act of 1970

ADMINISTRATIVE RECORD – DO NOT DESTROY

PROJECT FILE NUMBER: PPL-C-2022-0059

September 2023

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Acronyms

AIRFA	American Indian Religious Freedom Act
BGEPA	Bald and Golden Eagle Protection Act
BPA	Bonneville Power Association
CAA	Clean Air Act
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWA	Clean Water Act
DO	Dissolved Oxygen
EA	Environmental Assessment
Ecology	Washington State Department of Ecology
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EP	Engineering Pamphlet
EPA	Environmental Protection Agency
ER	Engineering Regulation
ESA	Endangered Species Act
FCRPS	Federal Columbia River Power System
FIRA	Future or Inactive Recreation Areas
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
HDR	High Density Recreation
HMU	Habitat Management Unit
HPRCSITS	Historic Properties of Religious and Cultural Significance to Indian Tribes
MCR	Middle Columbia River

MP	Master Plan
MRM	Multiple Resource Management
MRM-LDR	Multiple Resource Management-Low Density Recreation
MRM-WM	Multiple Resource Management-Wildlife Management
MSA	Magnuson-Stevens Fishery Conservation and Management Act
N	No
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPT	Nez Perce Tribe
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Units
OMP	Operational Management Plan
OR	Oregon
PDT	Project Delivery Team
PL	Public Law
RM	River Mile
RMJOC	River Management Joint Operating Committee
RO	Resource Objective
SHPO	State Historic Preservation Officer
TCPs	Traditional Cultural Properties
UCR	Upper Columbia River
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
WA	Washington
WAC	Washington Administrative Code
Y	Yes
°F	Fahrenheit

Appendix

McNary Master Plan Climate and Economic Justice Screen Tool Tables

Section 1: Introduction

This environmental assessment (EA) identifies, considers, and describes potential environmental effects associated with the proposed action of revising/updating the 1982 McNary Lock and Dam Master Plan (MP) for management of the lands and associated recreational, natural, and cultural resources of McNary Lock and Dam operating project (hereinafter referred to as the Project) located on the Columbia River near Umatilla, Oregon (OR). The MP guides how the U.S. Army Corps of Engineers, Walla Walla District (USACE) manages McNary project lands surrounding Lake Wallula behind McNary Dam. USACE proposes to revise/update the 1982 MP to comply with new USACE policy in Engineering Regulation (ER) and Engineering Pamphlet (EP) 1130-2-550 (USACE 2013), and to respond to regional and Project changes that have occurred since 1982, to include but limited to changing public use, added Endangered Listed Species, and future guidance for the management of the McNary project lands.

The revised MP would be a strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources of the Project for the next 20 years. The revised MP would promote the efficient and cost-effective management, development, and use of Project lands. It is an important tool for the responsible stewardship and sustainability of Project resources for the benefit of present and future generations.

As required by the National Environmental Policy Act (NEPA) and subsequent implementing regulations promulgated by the Council on Environmental Quality (CEQ), this EA is prepared to determine whether the action proposed by USACE constitutes a ". . . major federal action significantly affecting the quality of the human environment . . . "and whether an environmental impact statement (EIS) is required. This EA is prepared pursuant to NEPA, CEQ regulation [40 Code of Federal Regulations (CFR) 1500-1508], and the USACE implementing regulation, Policy and Procedure for Implementing NEPA, ER 200-2-2 (USACE 1988), also known as 33 CFR 230. The EA covers the proposed action of revising and implementing an updated MP. However, future site-specific actions following revision of the MP (e.g., further development of camping locations), may necessitate additional analysis as required by NEPA.

NEPA is a full disclosure law, providing for public involvement in the NEPA process. All persons and organizations that have a potential interest in major actions proposed by a federal agency – including the public, other federal agencies, state and local agencies, Native American Tribes, and interested stakeholders, are encouraged to participate in the NEPA process.

The revised MP would guide and articulate USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the Project lands, waters, and associated resources. The revised MP would deal in concepts, not details, of design or administration. Detailed management and administration functions would be addressed in a five-year Operational Management Plan (OMP) or similar plan, which

would implement the concepts of the MP through operational actions. Actions identified in the OMP or similar plan would be reviewed annually to identify upcoming actions needing review under NEPA and other applicable environmental laws and regulations.

MPs are about the *land*, the revised MP would not address dam management procedures and functions, including operations and maintenance of the dam and hydropower facilities, dam breaching, navigation locks and channel, levees, fish passage ladders/facilities or emergency flood operations.

1.1 Project Location and Background Information

McNary Lock and Dam is located on the Columbia River at River Mile (RM) 292 (Figure 1-1). The dam and reservoir lie in northeastern Oregon, with the right abutment of the dam in Umatilla County and the left abutment in Benton County, Washington. The reservoir impoundment of the Columbia River, called Lake Wallula, extends 64 miles upstream to the U.S. Department of Energy's Hanford Site (about 27 miles above Pasco, Washington). Lake Wallula also extends over nine miles up the Snake River to Ice Harbor Lock and Dam. Lake Wallula has a water surface area of 38,800 acres with 242 miles of shoreline. The Project includes about 16,908 acres of land, most of which surrounds the reservoir although a small amount of land is adjacent to or downstream of the dam. Portions of Project lands lie in Umatilla County, Oregon, and in Benton, Franklin, and Walla Walla Counties, Washington.

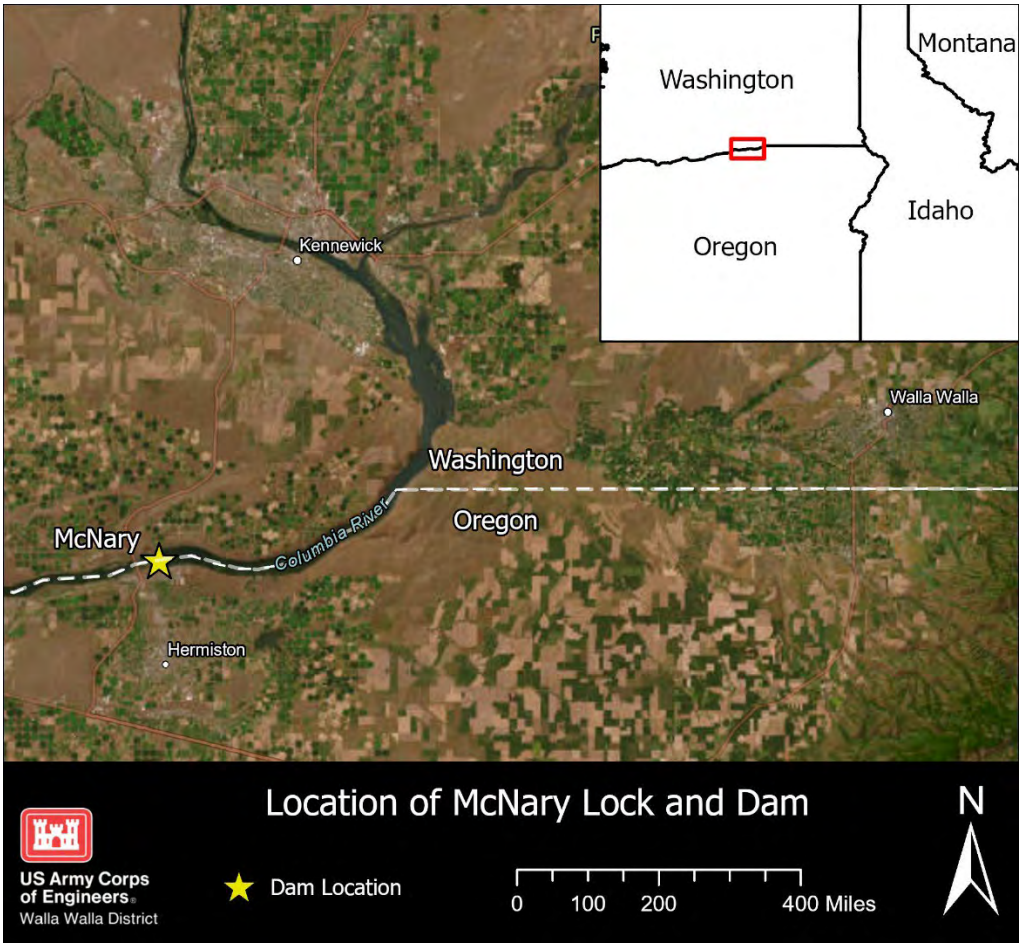

Figure 1-1. Location of McNary Lock and Dam

1.2 Authority for the Project

The Construction of McNary Lock and Dam was authorized by the River and Harbor Act of 1945 (Public Law (PL) 79-14; approved 2 March 1945). Construction began May 1947, and all power units were in operation in February 1957. McNary Lock and Dam Project was authorized for the primary purposes of navigation, power development, and irrigation. Additional laws (i.e., PL 78-534 and PL 89-72) provided authority for USACE to develop recreation facilities and include recreation as a project purpose. The Fish and Wildlife Coordination Act of 1958 (PL 85-624) authorized more effective integration of fish and wildlife programs with Federal water resource development projects.

1.3 Master Plan History

The original Master Plan was developed in 1952 and was revised and updated in 1964 and 1982. The 1982 MP was written in accordance with ER 1130-2-550, which was the guidance in effect at that time. Since then, McNary Project lands have undergone several changes, most of which were never formalized with a MP revision or supplement. A supplement is a minor change to a MP such as change in land classification or facility footprint. Supplements should be prepared as often as necessary to ensure MPs remain relevant.

1.4 Purpose and Need

USACE is proposing to revise/update the 1982 McNary. The purpose of the MP revision is to create a strategic planned use management document that guides the management and development of the McNary Project's recreational, natural, and cultural resources in a comprehensive manner; and complies with applicable laws, regulations, and USACE policies. Adopting and implementing an updated MP will support the USACE's responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources at the Project.

The 1982 MP no longer fulfills the intended purpose due to changes in techniques and methods required by USACE policy, changes for endangered species management, and substantial increases in public use of the Project. An all-inclusive approach is needed to respond to public requirements while meeting all other Project goals and resource objectives (ROs). The revised MP would promote the efficient and cost-effective management, development, and use of Project lands. It would be an important tool for responsible stewardship and sustainability of Project resources for the benefit of present and future generations.

The MP also needs to be revised to reflect the current regional goals of invasive species management, wetland protection, and habitat management and restoration. Further, the public has expressed interest in enhancement of native plants and animals, availability and accessibility of recreational resources, preservation of scenic resources, and public land uses that support diversity, equity, and inclusion.

An updated MP is needed because the existing 1982 MP is more than 40 years old and provides an inadequate base with which to evaluate contemporary (current and future) land and resources management. The revised/updated MP would comply with new policy found in the USACE ER and EP 1130-2-550, which requires the Project to focus on qualities, characteristics, and potentials of Project lands and provides consistency and compatibility with national objectives and other state and regional goals and programs. The revision and approval of the MP would assure the requirements of USACE policies are met, and that comments from the public, local, state, federal agencies, and Tribes are considered.

USACE regulations require each Civil Works Operating Project (such as McNary) to develop a MP. As stated in EP 1130-2-550, MP goals must meet the following screening criteria:

- Respond to regional needs and expressed public interests consistent with authorized Project purposes,
- Provide for the comprehensive management and development of all Project recreational, natural, and cultural resources,
- Comply with USACE Master Plan policy, environmental laws, and regulations.

The revised MP would consist of management concepts, not the specific details of design or administration. It is intended to serve as a guide for the orderly and coordinated development, management, and stewardship of all recreational, natural, and cultural resources of the Project. The MP is an overarching framework for a more detailed OMP or similar plan, which would be developed after the MP is completed and updated within a five-year work plan, then an annual work play is required. The MP classifies lands to provide for balanced management of the competing interests of these resources.

1.5 Land Classifications

All lands that were acquired for the Project were classified to provide for development and resource management consistent with authorized purposes and other federal laws. Land classification designates the primary use for which Project lands are managed. During the classification process, USACE considers direct and indirect public input through comments and site use, regional and Project specific resource requirements, and site suitability. Land classifications established in EP 1130-2-550 include the following six categories:

Project Operations: These are lands required for the dam and associated structures, administrative offices, maintenance compounds, and other areas used for Project operations and maintenance of the McNary Lock and Dam System.

High Density Recreation: These lands are designated for intensive recreational use to accommodate and support the recreational needs and desires of Project visitors. They include lands where existing or planned major recreational facilities are located; and allow for developed public recreation facilities, concession development, and high-density or high-impact recreational use.

Mitigation: These are lands specifically allocated and designated to offset losses associated with the development of an operating project. There are not any lands in the McNary Project area that should be classified as Mitigation.

Environmentally Sensitive Area: These are lands where scientific, ecological, cultural, or aesthetic features have been identified.

Multiple Resource Managed Lands: These are lands managed for one or more of the activities described in the following bullets:

- **Low Density Recreation:** These lands emphasize opportunities for dispersed or low-impact recreation use.
- **Wildlife Management:** These lands are designated for wildlife management, although all McNary lands are managed for fish and wildlife habitat in conjunction with other land uses.
- **Vegetative Management:** These lands focus on the protection and development of vegetative cover, although all McNary lands are primarily managed to protect and develop vegetative cover in conjunction with other land uses.

- **Future/Inactive Recreation Areas:** These are lands where recreation areas are planned, or lands that contain existing recreation areas that are temporarily closed.

Water Surface: The water surface acreage at the Project is divided into the following zones to support public safety and security:

- **Restricted:** Water areas restricted for Project operations, safety, and security purposes.
- **Designated No-Wake:** Shoreline areas designated to protect recreational water access areas from disturbance, environmentally sensitive shoreline areas, and/or for public safety.
- **Open Recreation:** Those waters available for year-round or seasonal water-based recreational use.

Ideally, the large-scale changes in land ownership and use over 40 years throughout the Project, along with the nomenclature changes, would have been documented in a MP revision or supplement before now. However, due to multiple constraints, this is the first full revision of the MP since 1982. The proposed 2023 MP Revision is an opportunity to document these changes and to ensure that the public record accurately reflects the management of lands at the Project, as well as to classify lands for future use to best manage Project recreational, natural, and cultural resources. USACE needs to translate the previous land classifications to the currently authorized land classifications under EP 1130-2-550 and to update the most recent acreage amounts for land classification for comparison with the revised MP land classifications. Table 1-1 below depicts a crosswalk between the two different classification nomenclatures. Table 1-2 below summarizes the changes in acreage between the previous and most recent (2023) land classification.

Table 1-1. Previous Land Classification and New Land Classification Nomenclature

Current (Old) Land Classifications	Proposed New Land Classifications
Project Operations • Project Structures • Port Terminal • Industrial Use and Access	Project Operations
Recreation: Intensive Use - Initial	High Density Recreation
----- Recreation: Low Density Use Recreation: Intensive Use - Future Wildlife Management: Intensive Wildlife Management: Moderate	Multiple Resource Management • Low Density Recreation • Future and Inactive Recreation Areas • Wildlife Management
Natural Area	Environmentally Sensitive Area
-----	Mitigation
Not Classified	-----

Table 1-2. Land Classification Changes from 1982 to 2023

Previous Land Classification	1982 Acres	2023 Acres
Not Classified	21.4	-
Project Operations	1143.4	617.9
High Density Recreation	1286.0	1360.4
Environmentally Sensitive Area	159.5	1148.6
MRM – Wildlife Management	2631.3	3600.6
MRM – Vegetative Management	-	115.0
MRM – Low Density Recreation	1160.6	678.4
MRM – Future or Inactive Recreation Area	544.7	57.2
Total	**6946.9**	**7578.0**

***The table represents a conversion according to the text description above**

Section 2: Alternatives

2.1 Introduction

Revising the McNary MP is a somewhat complex task. Substantial changes have taken place in the region over the last 40 years including increased human population, and increased commercial, industrial, and residential development. The passage of NEPA in 1969 and the Endangered Species Act (ESA) in 1973 have added environmental compliance requirements that now must be considered. Fishes of the Columbia and Snake Rivers have been listed under the ESA and within the Project there are areas designated as Critical Habitat for these listed fish species. USACE strives to attain balance while comprehensively managing and developing natural, cultural, and recreational resources at all Project lands, and therefore follows a systematic process for developing and formulating several viable alternatives to find the best option to satisfy the purpose and need of the proposed action.

2.2 Alternative Development and Evaluation

NEPA requires federal agencies to consider a reasonable range of alternatives during the planning process. Alternatives considered under NEPA must include, at least, the proposed action and the “No Action” Alternative, which provides a baseline from which to compare other alternatives. In the case of an ongoing program, the No Action Alternative is no change from the current management direction or level of management intensity.

Therefore, to help facilitate the identification and evaluation of a reasonable range of alternatives, USACE scheduled a 30-day “scoping period” from May 2 - June 2, 2022, to give the interested public; local, state, and federal agencies; and Tribes an opportunity to provide input into the “scope” of the proposed MP revision. Scoping was designed to receive comments on how users would like to see USACE manage the recreational, natural, and cultural resources in the future. Scoping details and comments received are discussed in Section 5.1.1 (Scoping).

In addition, the proposed MP Revision is directed by specific USACE policy which informs consideration of alternatives for strategic Project development and management. Formulation and establishment of ROs for each Civil Works Project is required by EP 1130-2-550. ROs are clearly written statements that respond to identified issues and specify measurable and attainable activities for resource development and/or management of the lands and waters under jurisdiction of the Walla Walla District at the McNary Dam.

Proposed MP Revision Resource Objectives

1. General Resource Objectives

- **Safety and Security -** Provide use areas and facilities that are safe and provide the public with safe and healthful recreational opportunities.
- **Aesthetic Resource -** Plan all management actions with consideration given to landscape quality and aesthetics.
- **Facilities Management -** Ensure all current and future facilities are maintained and meet federal and state design standards.
- **Real Estate Management -** Prevent unintentional trespass and negative impacts associated with encroachments on government property while allowing state, county, municipal, and private entities opportunities to provide public recreation services.
- **Cultural Resources Management -** Inventory, record, and evaluate cultural resources per legal requirements of the National Historic Preservation Act. Preserve resources as per the Archaeological Resources Protection Act of 1979 (PL 96-95), Native American Graves Protection and Repatriation Act (PL 101-601), and applicable Treaty responsibilities. Seek to avoid harm to cultural resources using all tools available, including education, discussion, Title 36 citation, and federal and local law enforcement, as appropriate (36 CFR § 327.14).

2. Recreation Resource Objectives

- **Land and Water Accessibility -** Provide use areas and facilities that are accessible for all McNary visitors.
- **Interpretive Services and Outreach Programs -** Interpretive services would focus on agency, USACE, and McNary Project missions, benefits, and opportunities. Interpretive services at the Project will be used to enhance public education and safety through promoting public awareness, understanding and appreciation of the Project and its resources.
- **Recreation Optimization and Sustainability -** Use leveraged resources, when possible, to maintain and improve recreation facilities that reduce operations and maintenance costs while meeting public demand.
- **Quality Outdoor Recreation in Urban Settings (Intensive Use) -** Operate and maintain multi-purpose facilities, as well as develop new facilities that meet public demand, to provide opportunities for multiple user groups in a rural setting.
- **Quality Outdoor Recreation in Rural Settings (Intensive Use) -** Operate and maintain day-use facilities, as well as develop new facilities that meet public demand, to provide opportunities for

multiple user groups in a rural setting.

- **Quality Outdoor Recreation in Rural Settings (Low Density Use) -** Operate and maintain multipurpose facilities, as well as develop new facilities, that meet public demand and provide opportunities for multiple user groups in a rural setting.

3. Environmental Stewardship

- **Riparian and Wetland Protection -** Protect and limit impacts to wetlands and riparian corridors on the Project in conjunction with missions, water quality, and fish and wildlife benefits.
- **Fish and Wildlife Habitat Management -** Conserve, protect, restore, and enhance habitat and habitat components important to the survival and proliferation of threatened, endangered, special status, and regionally important habitat and species on Project lands.
- **Integrated Pest Management -** Minimize negative impacts to native flora and fauna and damage to government facilities by reducing and/or eradicating invasive and nuisance species on McNary lands.
- **Fire Management -** Minimize the negative effects of wildfires, including impacts to federal property and the recreating public.

2.3 Screening Criteria

For any alternative to be acceptable for further evaluation it must meet certain objectives, or screening criteria.

Screening criteria help eliminate those alternatives that could not reasonably or practically meet the proposed action purpose and need. When setting up screening criteria, USACE closely re-evaluated the purpose and need of the proposed action, which is to manage all McNary recreational, natural, and cultural resources in a comprehensive manner that complies with applicable laws and USACE policies, including current USACE land classification standards. In this re-evaluation, it became evident that truly achieving a balance between USACE natural resource management mission and environmental stewardship/ecosystem management principles was key to successfully updating the McNary MP.

With these objectives in mind, USACE developed the following technical and environmental screening criteria:

- Respond to regional needs and expressed public interests consistent with authorized Project purposes,
- Provide for the comprehensive management and development of all Project recreational, natural, and cultural resources.
- Comply with USACE Master Plan policy, environmental laws, and regulations.

2.4 Alternatives

The Project Delivery Team (PDT) evaluated all options and developed a reasonable range of alternatives to include the No Action Alternative, which is required by NEPA, Alternative 2 that focuses on balanced uses, Alternative 3 that focuses on cultural resources, Alternative 4 that focuses on recreation, and Alternative 5 that focuses on wildlife. The five alternatives initially considered in this EA include:

2.4.1 Alternative 1: No Action Alternative (No Change to Current Practice)

If Alternative 1 was adopted, USACE would not revise or update the 1982 MP. Instead, USACE would continue with the current management practices based on strategy and guidelines in the 1982 MP.

To compare acreages for all land classifications between the No Action Alternative and all other alternatives carried forward for further detailed analyses, the previous (1982) land classifications were converted to currently (2023) authorized land classifications as shown in Table 2-1. Accordingly, approximately 6946.9 acres of land is classified amongst eight land classifications including one “Not Classified” category in the previous 1982 MP, whereas the proposed 2023 MP revision assigns those acres, and none are left uncategorized.

2.4.2 Alternative 2: Balanced Use Alternative

Alternative 2 was developed to balance designated visitor use with recreational, natural, and cultural resource sustainability. The Balanced Use Alternative would meet all the conditions of the stated purpose and need and responds to current USACE policy and regulations. It would provide the required analysis for evaluating impacts regarding regional needs, resource capabilities and suitability, and a comprehensive recreation program.

The Balanced Use Alternative would incorporate current USACE land classification standards (including updated land classification maps), include contemporary requirements mandated by federal environmental laws, and reflect the USACE Environmental Operating Principles, natural resource management mission and environmental stewardship and ecosystem management principles.
The Balanced Use Alternative would include the development of ROs that were not part of the 1982 MP. The ROs would be consistent with current USACE regulations, authorized Project purposes, federal laws, and directives, and would take into consideration regional needs, resource capabilities, state comprehensive outdoor recreation plans, cultural and natural resources, and public input. See Table 2-1 to understand how the Balanced Use Alternative would distribute approximately 7578.0 acres of land and water amongst seven land classifications.

2.4.3 Alternative 3: Cultural Resources Focus Alternative

Alternative 3 would be a MP Revision emphasizing changes to land classifications along the shoreline to devise a framework that would maximize the protection of cultural resources.

The Cultural Resources Focus Alternative would consider known cultural resources and existing ways that the USACE manages the land for multiple uses. This alternative proposes to change the current land classifications along the shoreline (inland) to the "Environmentally Sensitive Area" classification in largely "natural" areas that are within Traditional Cultural Properties (TCPs) and Historic Properties of Religious and Cultural Significance to Indian Tribes (HPRCSITs). Land classification focused on cultural resource management would subsequently ensure that future OMPs limit impacts to these resources.

Protections on specific lands classified for maximum protection of cultural resources would result in OMPs that would not allow for manmade intrusions such as powerlines, non-Project roads, and water and sewer lines, but may still allow for activities designed to promote and improve special features in the area. Areas within TCPs and HPRCSITs where there is already development, such as McNary Dam, roads, railroads, powerlines, existing leases and easements, and recreation areas (except portions of Hat Rock State Park, Hover Park, Two Rivers Park, Hood Park, Sacajawea State Park, Columbia Park, Chiawana Park, Howard Amon Park, Leslie Groves Park, Wye Neighborhood Park) would not be changed to the "Environmentally Sensitive Area" classification. See Table 2-1 to understand how the Cultural Resources Focus Alternative would distribute approximately 7578.0 acres of land and water amongst seven land classifications.

The Cultural Resources Focus Alternative would also change portions of the Habitat Management Units (HMUs) from Multiple Resource Management-Wildlife Management (MRM-WM) to the "Environmentally Sensitive Area" classification. All of the following HMUs and recreation areas contain sensitive cultural resources of importance to local Tribes within undeveloped landscapes: Horse Heaven HMU, Cold Springs HMU, Juniper Canyon HMU, Mouth of Walla Walla River HMU, Walla Walla River HMU, Columbia River HMU, Toothaker HMU, and Burbank Heights HMU.

2.4.4 Alternative 4: Recreation Focus Alternative

Alternative 4 would be a MP Revision emphasizing changes to land classifications intended to expand recreational opportunities on USACE-managed lands. PDT personnel identified potential land classifications and land management units to change to either High Density Recreation (HDR, also called parks) or Multiple Resource Management – Low Density Recreation (MRM-LDR). This would include changing some Operations and MRM-WM lands. PDT staff assessed site suitability and used recent visitation trends and scoping comments to determine which land management units to convert. Selection of this alternative would allow for the creation of new parks, easier access, and upgraded or new visitor facilities. See Table 2-1 to understand how

the Recreation Focus Alternative would distribute approximately 7578.0 acres of land and water amongst seven land classifications.

2.4.5 Alternative 5: Wildlife Focus Alternative

Alternative 5 would be a MP Revision emphasizing changes to land classifications intended to prioritize preservation and enhancement of wildlife resources and habitat. PDT personnel identified land management units to convert to MRM-WM from Operations and MRM-LDR, which would benefit wildlife. Personnel identified areas with wildlife habitat potential and lower visitation to select sites for conversion to MRM-WM. Selection of this alternative would reduce recreation opportunities and allow for the creation or enhancement of better wildlife habitat on USACE-managed lands. See Table 2-1 to understand how the Wildlife Focus Alternative would distribute approximately 7578.0 acres of land and water amongst seven land classifications.

Table 2-1. Alternative Matrix. Proposed MNA MP 2023 Land Classification Nomenclature for each Alternative

LAND CLASSIFICATION NOMENCLATURE 2023	ALTERNATIVES				
	NO ACTION	BALANCED USE	CULTURAL RESOURCE	RECREATION FOCUS	WILDLIFE FOCUS
Project Operations	1143.4	617.9	617.9	403.3	617.9
High Density Recreation	1286	1360.4	1360.4	1360.4	1360.4
MRM Low Density Recreation	1160.6	678.4	652.2	1571.8	518.3
MRM Wildlife Management	2631.3	3600.6	2952.9	3118.5	3782.8
MRM Vegetative Management	0	115.0	115.0	115.0	115.0
MRM Future or Inactive Recreation Areas	544.7	57.2	57.2	57.2	57.2
Environmentally Sensitive Areas	159.5	1148.6	1822.5	951.9	1126.5
Not Classified	21.4	0.0	0.0	0.0	0.0
TOTALS	6946.9	7578.1	7578.1	7578.1	7578.1

2.5 The Screening Process

Once the screening criteria was developed and the alternatives were formulated, the PDT compared the alternatives against the screening criteria shown in Table 2-2. Action alternatives that met all three screening criteria, along with the No Action Alternative, were carried forward for environmental analysis in Chapter 3. Action alternatives that did not meet all three screening criteria were eliminated from further consideration.

Alternatives are marked as “Y” for “yes” if they meet the definition of the criteria and “N” for “no” if they do not meet the definition. Only Alternative 2 (Balanced Use) meets all criteria.

Table 2-2. The Screening Criteria and Alternatives

SCREENING CRITERIA	ALTERNATIVES				
	NO ACTION	BALANCED USE	CULTURAL RESOURCE FOCUS	RECREATION FOCUS	WILDLIFE FOCUS
Responds to regional needs and expressed public interests consistent with authorized Project purposes	N	Y	N	N	N
Provides for the comprehensive management and development of all Project recreational, natural, and cultural resources	N	Y	N	N	N
Complies with USACE Master Plan policy, environmental laws, and regulations	N	Y	N	N	N

2.6 Alternatives Carried Forward for Detailed Analysis

- Alternative 1: No Action Alternative (No Change to Current Practice)
- Alternative 2: Balanced Use Alternative (Proposed Action)

Alternative 1 (No Action/No Change to Current Practice) will be carried forward to Chapter 3 “Affected Environment and Environmental Effects” as required by NEPA, providing a basis for comparison with other alternatives. Under this alternative, USACE would continue to use the Revised 1982 MP with its associated management practices, and not implement a MP revision/update, to include the land classifications. The 1982 MP does not provide a regional analysis of recreation and ecosystem needs, Project resource capabilities, or recreation program analysis, which are essential to the balanced approach and requirements of current USACE MP policy. Although USACE currently uses the 1982 MP, the document does not fulfill all current USACE requirements for an approved MP.

Alternative 2, the Balanced Use Alternative, would meet all the conditions of the stated purpose and need, and would respond to current USACE policy and regulations. The Balanced Use Alternative would help focus on the primary components that were not

included in the 1982 document, or that require expanded analysis, including: (1) Responds to regional needs and expressed public interests consistent with authorized Project purposes; (2) Protects and manages Project recreational, environmental, and human resources; and (3) Complies with USACE MP policy, environmental laws, and regulations. Alternative 2 will be carried forward to Chapter 3 as the Proposed Action Alternative.

2.7 Alternatives Removed from Further Consideration

- Alternative 3: Cultural Resources Focus Alternative
- Alternative 4: Recreation Focus Alternative
- Alternative 5: Wildlife Focus Alternative

Alternatives 3, 4, and 5 all fail to fully respond to the purpose and need identified for the proposed action. Of critical importance is the need to emphasize that a revised MP would seek to balance protection and conservation of natural and cultural resources with recreational development and use. These alternatives are not consistent with multiple use authorized Project purposes as each alternative focuses on either recreation, cultural resources, or natural resources (wildlife), but not all three as required by the ER/EP 1130-2-550 discussed above. Alternatives 3, 4, and 5 have, therefore, been eliminated from further consideration as not satisfying the purpose and need for the proposed action, as identified in Section 1.6 (Purpose and Need).

Section 3: Affected Environment and Environmental Effects

3.1 Introduction

This section describes the affected environment and evaluates potential environmental effects on those resources for each alternative. Alternative 1 (No Action) and Alternative 2 (Balanced Use) were carried forward for analysis.

The following descriptors are used in the body of this chapter for consistency in describing impact intensity in relation to significance:

- No or Negligible Impact: The action would result in no effect, or the effect would not change the resource condition in a perceptible way. Negligible is defined as of such little consequences as to not require additional consideration or mitigation.
- Minor Impact: The effect to the resource would be perceptible; however, the effect would not be major and unlikely to result in an overall change in resource character.
- Moderate Impact: The effect to the resource would be perceptible and may result in an overall change in resource character. Moderate impacts are not significant due to their limited context (the geographic, biophysical, and social context in which the effects would occur) or intensity (the severity of the impact, in whatever context it occurs).
- Significant Impact: The effect to the resource would be perceptible and may be severe. The effect would likely result in an overall change in resource character. The determination of significant impact to any resource would require the completion of an Environmental Impact Statement.
- Direct Impacts: Direct effects are caused by the action and occur at the same time and place. Activities that occur from implementation of the proposed action would directly affect a change, and initial effects would be immediately evident.
- Indirect Impacts: Indirect effects are caused by the action but are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Activities that occur from implementation of the proposed action would not affect this change, but would enable change to occur, or change would occur later in time, or farther in distance than the actions.
- Cumulative Impacts: Cumulative impact is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

3.2 Environmental Evaluation by Resource

The following resource areas were evaluated: Land Use, Recreation, Vegetation, Geologic Features and Soils, Threatened and Endangered Species, Wildlife, Water Quality, Aquatic Resources, Socioeconomics and Environmental Justice, Historic and Cultural Resources, Climate Change Analysis, and Cumulative Effects. It was determined that it was not necessary to evaluate Aesthetics/Visual Quality, Noise, or Air Quality as implementation of the Balanced Use Alternative would have no or negligible effects on these resources (Table 3-1).

Table 3-1. Environmental resources not evaluated further.

Environmental Component	Explanation
Aesthetics/Visual Quality	Aesthetics/Visual resources would evolve in the action area through natural processes as vegetation matures, or streambanks erode, or through changes occurring on adjacent lands within the view shed. Aesthetics/Visual Quality would be negligibly impacted by the proposed MP Revision**.**
Noise	The proposed action is located within a populated area with many noise sources. Added noise sources may include boat operation and vehicle use. Noise levels would be negligibly impacted by the proposed MP Revision.
Air Quality	The project area meets WA and OR State ambient air quality standards and is in “attainment.” No Statement of Conformity is needed in attainment areas, such as Umatilla, Benton, Franklin, and Walla Walla counties. Air quality would be negligibly impacted by the proposed MP Revision**.**

3.2.1 Land Use

Affected Environment

McNary Dam extends across the Columbia River and joins Umatilla County, Oregon with Benton County, Washington. Lake Wallula extends nine miles up the Snake River and therefore, some portions of the Project lie in Franklin and Walla Walla counties as well. The primary land use in Umatilla County is cropland (60%), pastureland (29%), and other land use makes up the remaining 11% (USDA 2017). The primary land use in Benton County is cropland (77%), pastureland (14%), with other land uses making up the remaining 9% (USDA 2017).

Chapter 4 of the MP (Land Allocation, Land Classification, and Project Easement Lands) provides an overview of the land classification nomenclature changes that have occurred from 1982 to 2023. The MP shows how the Project lands would be reclassified and discusses the management and use of the lands assigned to each land classification in connection with the appropriate resource objectives identified in Chapter 3 (Resource Objectives) of the MP.

Project lands are classified to designate the primary use for which those lands are managed. The classification process considers public input, and regional and Project specific resource requirements. Land classification also considers what resources are present, the accessibility of the site, and public desirability for the site.

Lands in the Project area are classified for recreation, wildlife habitat, and operational needs. Public recreation use of the Project lands is described below in Section 3.2.2 (Recreation). Lands classified as wildlife habitat can be used by the public for hunting, fishing, bird watching, and viewing. USACE manages these lands to provide wildlife with habitat and migration corridors as described in Section 3.2.4 (Wildlife).

Environmental Effects

Alternative 1 - No Action. Under the No Action Alternative, land classifications and land use potential on USACE managed properties would continue as currently implemented under the 1982 MP. There would be no short-term impacts to land use under this alternative, as the 1982 MNA MP would remain in place. However, long-term impacts could occur if land classified for recreation is developed and the potential for increased public access to USACE managed lands is realized. As undeveloped classified recreation land currently supports vegetation communities that create wildlife habitat, there would be moderate impacts to that land use as potential recreation areas are developed. Additionally, because the No Action Alternative is more focused on the development of recreational areas, there is less focus on the management, or protection of, natural and cultural resources, and those resources could be damaged or removed as more acres would be converted to recreation.

Future analysis of effects on land use would be conducted in a separate NEPA document if specific recreational land development was proposed. Therefore, although the No Action Alternative leaves the potential for recreational land development open, the No Action Alternative itself would not have a significant impact on land use.

Alternative 2 - Balanced Use Alternative. Short-term and long-term impacts to land use from the Balanced Use Alternative would be the same or similar to the No Action Alternative. Additionally, there would be long-term moderate beneficial direct and indirect impacts from the implementation of the Balanced Use Alternative because the Balanced Use Alternative focuses on balancing the protection of natural and cultural resources with recreational development. Land designated to protect natural and cultural resources would increase by 2,073.4 acres as shown in Table 3-2.

Table 3-2. Land Classification Changes from 1982 to 2023

Land Classification	Changes in acres
Project Operations	-504.5
High Density Recreation	+74.4
Environmentally Sensitive Area	+989.1
MRM – Wildlife Management	+969.3
MRM – Vegetative Management	+115.0
MRM – Low Density Recreation	-482.2
MRM – Future or Inactive Recreation Area	-487.5

Further, the Balanced Use Alternative would reclassify lands according to the required analysis for regional needs, resource capabilities and site suitability, and would provide a comprehensive recreation program. The Balanced Use Alternative would not substantially reduce, eliminate, or expand current public access to USACE managed lands in the Project area, only how those lands are managed and developed in the future; therefore, the Balanced Use Alternative would not have significant impacts to land use.

3.2.2 Recreation

Affected Environment

Lake Wallula above McNary Lock and Dam includes 13,562 land acres, 38,800 water acres, and 242 shoreline miles. The MP area includes 24 recreation areas, 423 picnic sites, 87 camping sites, 16 playgrounds, 8 swimming areas, 21 trails, 70 trail miles, 13 fishing docks and piers, 20 boat ramps, and 284 marina slips (USACE 2019). Recreational activities take place throughout the year, with the highest activity levels during the fair-weather periods of late spring, summer, and early autumn.

The HMUs offer wildlife hunting and viewing opportunities and some of the HMUs contain campsites and boat launches. Hunting opportunities include big game, upland gamebirds, and waterfowl.

Most recreation is related to the water resources presented by the Columbia and Snake Rivers such as boating. Much of the boating is related to fishing; however, waterskiing, tubing, wake boarding, jet skiing, sailing, kayaking, and canoeing are also important boating activities. Most anglers fish for steelhead, walleye, Chinook salmon, and smallmouth bass.

Sacajawea Heritage Trail is a 23-mile multi-use recreational trail that travels along the Columbia River forming a loop that connects Pasco, Richland, and Kennewick.

Environmental Effects

Alternative 1 – No Action. There would be negligible direct and indirect short- and long-term impacts to recreation from the No Action Alternative, because there are no sudden surges in recreational use predicted and because there are no planned changes to available recreational land.

Future analysis of effects on recreation would be conducted in a separate NEPA document if specific recreational land development was proposed. Therefore, although the No Action Alternative leaves the potential for recreational land development open, the No Action Alternative itself would not have a significant impact on recreation.

Alternative 2 – Balanced Use Alternative. Short-term impacts to recreation from the Balanced Use Alternative would be similar to the No Action Alternative. The Balanced Use Alternative would provide a comprehensive and efficient recreation program based

on public demand, while balancing the need to protect natural and cultural resources on Project lands. The popularity of low-impact recreational uses of Project lands, such as hiking, bird watching, and bicycling, has increased in recent years. Low density recreational use is allowed under all land classifications as secondary uses, except in instances where lands classified as Project Operations are closed to public for safety, security, or operational reasons. As an example, much of the levee system in Kennewick and Pasco is classified as Project Operations, but paved and unpaved trails run along the tops of the levees providing excellent recreational access. Therefore, there would be no significant impact to recreation.

3.2.3 Vegetation

Affected Environment

The Project area is located primarily in a grasslands/shrub-steppe zone. Shrub-steppe communities dominate the uplands surrounding the McNary Project. Gray rabbitbrush (*Ericameria nauseosa*) and green rabbitbrush (*Chrysothamnus viscidiflorus*) are the dominate species. Some big sagebrush species are present. Limited associations of sagebrush (*Artemisia tridentata*) and antelope bitterbrush (*Purshia tridentata*) are present, usually on flat benches. Introduced Cheatgrass (*Bromus tectorum*) has replaced most of the native bunch grasses.

Introduced plants are common in disturbed areas and in areas historically dominated by native grasses. Other common introduced plants include blackgrass (*Alopecuruscurus myosuroides),* squirreltail (*Elymus elymoides*), reed canarygrass (*Phalaris aruninacea*), mustard (*Alliaria petiolate*), dock (*Rumex spp*.), and pigweed (*Amaranrgus spp*.). The introduced invasive Russian olive (*Elaeagnus angustifolia*) has colonized the Yakima River delta area.

Three types of vegetation classes occur in the area adjacent to the Columbia River: riparian (lies adjacent to streams and rivers), wetlands (occur where groundwater saturates the surface layer of soil during a portion of the growing season), and upland (grassland/shrubland areas).

Riparian and Wetlands

Forested and scrub-shrub wetlands are found along the Lake Wallula shoreline, backwaters, sloughs, and tributaries. Approximately 4,000 acres of Forested and Scrub-Shrub wetlands are found within the McNary study area. Most wetlands occur just below the mouth of the Snake River, in Burbank Slough. Typical wetland taxa include black cottonwoods (*Populus trichocarp*) and willows (*Salix spp*.). The most extensive stand of cottonwood in the Project area is located at the mouth of the Walla Walla River. Other common tree species include white alder (*Alnus rhombifolia*), red alder (*Alnus rubra*), hackberry (Celtis occidentalis), and black locust (*Robinia pseudoacacia*). This vegetation provides critical cover and food for most of the wildlife species found in the study area.

Upland Community

The upland vegetation in the study area is typical of steppe communities in the Columbia Basin Province, which are dominated by rabbitbrush (*Chrysothamnus sp*.), cheatgrass (Bromus tectorum), and remnant bunchgrasses such as Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and Sandberg's bluegrass (*Poa secunda*), while shrub-steppe communities are co-dominated by sagebrushes, such as big sagebrush (*Artemisia tridenata*), gray rabbitbrush (*Ericameria nauseosa*), serviceberry (*Amelanchier alnifolia*), currant (*Ribes sp*.), antelope bitterbrush (*Purshia tridentata)* and non-native cheatgrass (*Bromus tectorum*) (USACE 2002).

Common forbs include arrowleaf balsamroot (*Balsamorhiza sagittata*), yarrow (*Achillea millefolium*), various buckwheats (*Polygonaceae sp.*), blanket flower (*Gaillardia sp*.), various parsleys (*Apiaceae sp.*), and lupines (*Lupinus sp.*).

Environmental Effects

Alternative 1 – No Action. The potential increase in recreational areas available to the public increases the potential for moderate direct and indirect long-term negative effects to vegetation. Trampling, unauthorized digging, and other ground disturbance related to recreational activity could all increase and have a negative direct impact on vegetation.

Future analysis of effects on vegetation would be conducted in a separate NEPA document if specific recreational land development was proposed. Therefore, although the No Action Alternative leaves the potential for recreational land development open, the No Action Alternative itself would not have a significant impact on vegetation.

Alternative 2 – Balanced Use Alternative. There would be both direct and indirect moderate beneficial long-term effects to vegetation from increasing the acres classified as MRM-WM, MRM-VM, and Environmentally Sensitive Areas.

Beneficial direct impacts would come from vegetation plantings on MRM-VM and MRM-WM lands and from new land management practices ensuring vegetation health. Indirect benefits would come from the decreased potential for recreational development and corresponding public use and the addition of 28.2 acres of Designated No Wake Zone which would reduce streambank erosion where vegetation grows. The Balanced Use Alternative would not have significant negative impacts, because the reclassification of the land and associated land management practices would be beneficial to vegetation.

3.2.4 Wildlife

Affected Environment

Lake Wallula terrestrial wildlife are an important resource for residents of the Tri-Cities and beyond. Various forms of wildlife are generally abundant close to riparian corridors.

Many species of mammals, birds, amphibians, and reptiles inhabit riparian corridors during different times of the year.

Mammals

Mule deer (*Odocoileus hemionus*), beavers (*Aplodontia rufa*), raccoons (*Procyon lotor*), and river otters (*Lutra canadensis*) are present in the proposed action area. Beaver (*Aplodontia rifa*) are found in association with the forested and scrub-shrub wetlands, especially where there is a high proportion of young trees and suitable banks for denning. Raccoon foraging and denning requirements are largely dependent on prey found in forest and scrub-shrub wetlands and adjacent shallow water areas. River otters use dens excavated by other species or riprap, where they are located close to water and are of suitable size. River otters depend on prey found in shallow waters and are also dependent on relatively dense bank cover of plants, woody debris, and large rocks.

Birds

The McNary Project area in the Columbia River drainage provides habitat for a wide variety of resident and migratory birds, including upland game, waterfowl, raptors, and passerines. Approximately 150 different species have been observed.

In addition to Canada geese, common waterfowl along Lake Wallula include the mallard, gadwall, northern shoveler (*Anas clypeata),* cinnamon teal (*Anas cyanoptera*), blue-winged teal (*Anas discors*), green-wing teal, redhead (*Aythya americana*), canvasback (*Aythya valisineria*), lesser scaup (*Aythya affinis*), ruddy duck (*Oxyura jamaicensis*), ring-necked duck (*Aythya collaris*), bufflehead (Bucephala albeola), and common goldeneye (*Bucephala clangula*), wood duck, pied-billed grebe (*Podilymbus podiceps*), red-necked grebe (*Podiceps grisegena*), and western grebe (*Aechmophorus occidentalis*).

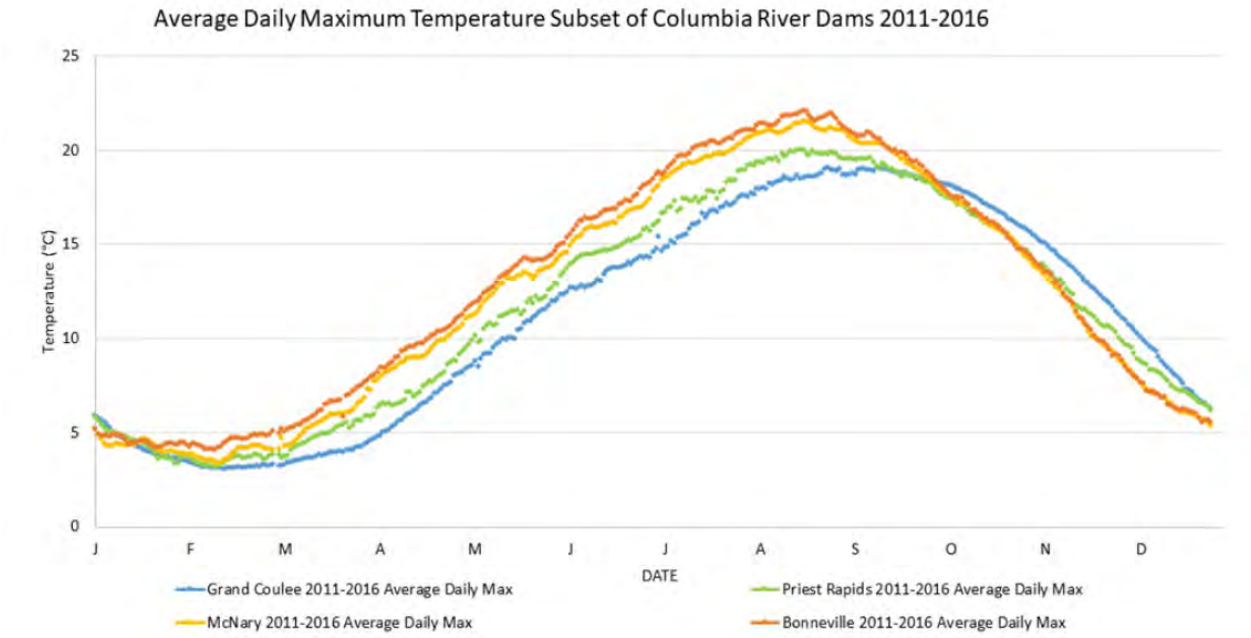

Figure 3-1. Columbia River warming as it flows from Grand Coulee (blue) to Bonneville (orange) (EPA 2020)

Environmental Effects

Alternative 1 – No Action. There would be no immediate direct impacts to wildlife species from the No Action Alternative. However, there could be moderate direct and indirect long-term impacts to wildlife as a result of increased human presence in HMUs and recreational areas if future development occurs as the 1982 MP would allow. Impacts to wildlife, such as loss of suitable habitat, degradation of food and water sources (less prey base), noise disturbance, heavy equipment and machinery in use, and the presence of humans could make these areas less hospitable for wildlife and drive them to search for alternative habitat areas which could be of lesser habitat value.

Future analysis of effects on wildlife would be conducted in a separate NEPA document if specific recreational land development was proposed. Therefore, although the No Action Alternative leaves the potential for recreational land development open, the No Action Alternative itself would not have a significant impact on wildlife.

Alternative 2 – Balanced Use Alternative. There would be direct moderate benefits to wildlife in the short-and long-term by implementing the Balanced Use Alternative. The Balanced Use Alternative would increase the amount of land that would be a direct benefit to wildlife in the area by 2117.9 acres and therefore, provide more food, shelter, and migration corridors (MRM-WM + MRM-VM + Environmentally Sensitive Areas in Table 3-2).

The Balanced Use Alternative would comply with new USACE guidance, and would provide analysis of use, demand, carrying capacity, and environmental and social effects of future proposed actions. Using the guidance and updated analysis would

assist in sustaining the long-term natural ecosystem process for many habitats and populations of wildlife species that use and/or require the habitat characteristics associated with Project lands.

The Balanced Use Alternative would not cause substantial loss of populations or habitat and therefore would have no significant impact. Overall, wildlife populations would benefit from the new land designations in the Balanced Use Alternative.

3.2.5 Water Quality

Affected Environment

The Columbia River in the McNary Dam Project area is listed by the Washington State Department of Ecology (Ecology) as “impaired” on the state’s Clean Water Act Section 303(d) list to include but not limited to temperature, total dissolved gas, and pH. Waters listed on the Section 303(d) list are those whose beneficial uses (drinking, recreation, aquatic habitat, and industrial use) are impaired by pollutants. Water temperatures in the Columbia River sometimes approach the upper limits of tolerance for cold water fishes, including salmon and steelhead. These warmer temperatures are higher than thermal water quality standards established for the Columbia River.

Water temperature is one of the most important characteristics of an aquatic system affecting dissolved oxygen (DO) levels. The solubility of oxygen decreases as water temperature increases, so cold water can hold more DO than warm water. In winter and early spring, when the water temperature is low, the concentration of DO is higher. In summer and fall, when the water temperature is high, the concentration of DO is low. Low DO levels correlate with poor water quality.

When water is released from a dam, ambient air is entrained in the water, which in turn increases the concentration of total dissolved gases downstream of the spillway (Bragg et al., 2003). Bragg et al. explains the excess dissolved gas concentrations can have adverse effects on freshwater aquatic life, such as a concentration above 110% saturation has been shown to cause gas bubble trauma in fishes. Gas bubble trauma is an environmentally/physically induced trauma caused by an increase in dissolved gas pressure above the ambient air pressure, also known as supersaturation.

Another measurement which is important to water quality is pH levels, which can determine if the water tested is acidic or basic. The scale goes from 0-14, with 7 being neutral, lower numbers are acidic, and higher numbers are basic. The pH of a body of water can affect organisms living in the water, and changes in pH can be an indicator of increasing pollution or some other environmental factor. Species distribution in a water body is determined by pH levels. Solubility and toxicity to chemicals and heavy metals in the water can also be affected by pH.

Environmental Effects

Alternative 1 – No Action. The No Action Alternative would result in no changes to land classifications. Actions associated with ongoing management would not result in significant impacts to water quality. There would be minor long-term indirect impacts to water quality from the No Action Alternative recreational activities that may contribute to short-term turbidity increases and nonpoint source pollution from boating and marinas. Nonpoint pollution refers to any water or air type pollution that does not come from a single discrete source. However, these impacts would not affect the parameters such as temperature, dissolved oxygen, and PCBs, for which the Columbia River is listed, so they would not adversely affect beneficial uses or result in non-compliance with water quality standards.

Any future development of recreation lands would have minor direct and indirect impacts to water quality in the short-term from construction activities and in the long-term from any increase in impermeable and paved surfaces, which would increase runoff of oils, sediment, and other contaminants. Existing vegetation, including riparian and wetland vegetation, may be removed during construction which could cause localized, short-term soil erosion and subsequent storm water runoff into the Columbia River. However, standard best management practices would be applied to minimize impacts.

If specific recreational land development was proposed, future analysis of effects on water quality would be conducted in a separate NEPA document. Therefore, although the No Action Alternative leaves the potential for recreational land development open, the No Action Alternative itself would not have a significant impact on water quality.

Alternative 2 – Balanced Use Alternative. Management of USACE lands upon implementation of proposed land classifications would be consistent with the designated beneficial uses for the Columbia River. The proposed land classifications would not exacerbate water quality conditions for parameters included in regional total maximum daily loads (TMDLs), including temperature, dissolved gases, PCBs, heavy metals, and bacteria. Long-term benefits to water quality would come from the increases in lands classified as Environmentally Sensitive Areas, MRM-VM, and MRM-WM.

Environmentally Sensitive Areas, MRM-VM, and MRM-WM are generally more protective of water quality due to decreased development, lack of impermeable surfaces, and increased emphasis on healthy vegetation communities. New plantings on shoreline habitat lands could slightly reduce water temperature in areas that currently have little shade from vegetation. Designated No Wake Zones would help reduce stream bank erosion and reduce turbidity caused by motorboats (see Land Classification for definition).

3.2.6 Aquatic Resources

Affected Environment

Lake Wallula fish and aquatic resources are diverse. Plants and animals are important to the health and biodiversity of an ecosystem by providing a service of natural

maintenance. A loss of any species often leads to a downward spiral in the overall health, biodiversity, and functionality of the ecosystem. Scholz et al. (2014) indicate that 46 species and 14 families of fishes occur in Lake Wallula (Table 3-3).

Table 3-3. Fish species found in Lake Wallula by family and common name

Family	Common Name
Petromyzontidae	River lamprey, Western brook lamprey, Pacific lamprey;
Acipenseridae	White Sturgeon
Clupeidae	American Shad
Cyprinidae	chiselmouth, carp, grass carp, peamouth, northern pikeminnow, longnose dace, leopard dace, speckled dace, Umatilla dace, redside shiner, tench;
Catastomidae	longnose sucker, bridgelip sucker, largescale sucker, mountain sucker;
Ictaluridae	brown bullhead, channel catfish, flathead catfish, tadpole madtom;
Salmonidae	mountain whitefish, coho salmon, steelhead/rainbow trout, sockeye salmon, Chinook salmon, bull trout;
Percopsidae	Sandroller
Poeciliidae	Western Mosquitofish
Fundulidae	Banded Killifish
Gasterosteidae	threespine stickleback;
Cottidae	prickly sculpin, mottled sculpin, torrent sculpin;
Centrarchidae	pumpkinseed, bluegill, smallmouth bass, largemouth bass, white crappie, black crappie;
Percidae	yellow perch, walleye.

The most extensive aquatic vegetation beds likely occur in ponds. Common aquatic plants are flowering rush (*Butomus umbellatus*) and Eurasian milfoil (*Myriophyllum spicatum*).

Environmental Effects

Alternative 1 – No Action. The No Action Alternative would result in no changes to land classifications. Vegetation, wetlands, wildlife, and species of concern would all continue to be managed and conserved through existing USACE regulations and according to federal, state and local laws. Although there would be no significant adverse effects to biological resources under the No Action Alternative, management would be inefficient in the absence of up-to-date guidance regarding regulations and the presence of sensitive biological resources.

Any future development of recreation lands would have minor direct and indirect impacts to aquatic species in the short-term from construction activities (e.g., temporary increases in turbidity, low level pollutants, etc.) and long-term from any increase in impermeable and paved surfaces. Any future construction may require the removal of

existing vegetation, including riparian and wetland vegetation, which would cause the potential for soil erosion and subsequent stormwater runoff into the Columbia River and the potential for local water temperature increases from minor reductions in riparian shade.

If specific recreational land development was proposed, future analysis of effects on aquatic resources would be conducted in a separate NEPA document. Therefore, although the No Action Alternative leaves the potential for recreational land development open, the No Action Alternative itself would not have a significant impact on aquatic resources.

Alternative 2 – Balanced Use Alternative. Management of USACE lands upon implementation of proposed land reclassifications would have both minor beneficial and negative impacts. There would be minor beneficial indirect long-term impacts to aquatic resources from implementation of the Balanced Use Alternative. Large increases in lands classified as Environmentally Sensitive Areas, MRM-VM, and MRM-WM would drive these positive impacts.

Lands classified as Environmentally Sensitive Areas, MRM-VM, and MRM-WM are generally more protective of the river itself due to decreased development, lack of impermeable surfaces, and increased emphasis on healthy vegetation communities. New plantings on shoreline habitat lands could slightly reduce water temperature in areas that currently have little shade from vegetation. Because motorboat-caused stream bank erosion and the resulting turbidity is detrimental to fish, the Designated No-Wake zones (see definition under Land Classification) would be a benefit to aquatic resources along the shoreline. Minor negative impacts would include temporary noise and human presence during any construction activities, minor loss of vegetation, or temporary and localized turbidity and low level of pollutants from in-water or near-water projects. The Balanced Use Alternative would not cause substantial loss of aquatic species populations or habitat or inhibit the movement or migration of fish. For these reasons, the Balanced Use Alternative would have no significant impact to aquatic resources.

3.2.7 Threatened and Endangered Species

Affected Environment

USACE reviewed the list of threatened and endangered species that pertains to the Project area under the jurisdiction of the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). ESA-listed terrestrial species that could be found within the proposed action area include western yellow-billed cuckoo (*Coccyzus americanus*), and the gray wolf (*Canis lupus*). There is no suitable habitat in the proposed project area for yellow-billed cuckoo or gray wolf, and neither would be impacted by either of the proposed alternatives: therefore, these species are not discussed in detail and are excluded from analysis.

ESA-listed aquatic species that can be found within the proposed action area include bull trout (*Salvelinus confluentus*), steelhead (*Oncorhynchus mykiss*), Chinook salmon (*Oncorhynchus tshawytscha*), and sockeye salmon (*Oncorhynchus nerka*).

Upper Columbia River Steelhead

Upper Columbia River (UCR) steelhead were listed as endangered under the ESA in August 1997, changed to threatened in January 2006, changed back to endangered by court decision in June 2007, and then back to threatened in June 2009. The UCR steelhead Distinct Population Segment (DPS) consists of naturally spawned anadromous steelhead from Columbia River tributary systems upstream of the Yakima River to the Canadian border, and fish from hatchery programs that support these areas.

UCR steelhead require food, ample high-quality water (cool, free of pollutants, high dissolved oxygen concentrations, low sediment content), clean spawning substrate, and unimpeded migratory access (with resting areas) to and from spawning and rearing areas. UCR Steelhead use Lake Wallula mainly as a migration corridor. Current pressures on UCR steelhead include loss of quality habitat, predation, poor ocean conditions, and harvest by humans. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Middle Columbia River Steelhead

On March 25, 1999, Middle Columbia River (MCR) steelhead were listed as threatened under the ESA. Protective regulations for MCR steelhead were issued under the ESA, Section 4(d), June 28, 2005 (70 FR 37160). The listing was confirmed as threatened January 5, 2006 (71 FR 834), then updated on April 14, 2014. As defined, the MCR steelhead DPS does not include the resident form (rainbow trout), which co-occur with these steelhead.

MCR steelhead exhibit one of the most complex groups of life history traits of any species of Pacific salmonid. MCR steelhead spawn in clear, cool streams with suitable gravel size, depth, and current velocity.

Current pressures on MCR steelhead include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Upper Columbia River Spring Chinook

The Upper Columbia River (UCR) spring Chinook salmon were listed as an endangered species on March 24, 1999, and their endangered status was reaffirmed on June 28, 2005. Several different strains of Chinook salmon can be found in Lake Wallula during part of the year. Unlisted UCR fall Chinook salmon are the most common. However, UCR spring Chinook, Snake River spring/summer Chinook salmon, and Snake River fall

Chinook salmon are also present. UCR spring Chinook salmon biological requirements include food; high quality, flowing water; clean spawning substrate, resting habitat and unimpeded migratory access to and from spawning and rearing areas.

Current pressures on UCR spring Chinook salmon include loss of quality habitat, predation, poor ocean conditions, and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery. UCR Spring Chinook use the mainstem Columbia River to migrate to and from the ocean, and all are affected by the mainstem Federal dams, as well as by other forms of development that alter the river environment.

Snake River Spring/Summer Chinook Salmon

The Snake River spring/summer Chinook salmon was listed as threatened on April 22, 1992, (67 FR 14653) and reaffirmed in 2005 and 2012. Juvenile Chinook salmon feed on small aquatic invertebrates in both fresh and salt water, primarily arthropods in freshwater and crustaceans in marine environments. As they grow in saltwater, they quickly change to a fish diet (Quinn 2005).

Current pressures on Snake River spring/summer Chinook salmon include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery. Snake River Spring/Summer Chinook salmon use the mainstem Columbia River and Lower Snake River to migrate to and from the ocean, and all are affected by the mainstem Federal dams, as well as by other forms of development that alter the river environment.

Snake River Fall Chinook Salmon

NMFS listed Snake River fall Chinook salmon as threatened on April 22, 1992 (57 CFR 14653) and their threatened status was reaffirmed on June 28, 2005 (70 CFR 37160). Current pressures on Snake River fall Chinook salmon include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery. Snake River fall Chinook salmon use the mainstem Columbia River and Lower Snake River to migrate to and from the ocean, and all are affected by the mainstem Federal dams, as well as by other forms of development that alter the river environment.

Snake River Sockeye Salmon

NMFS listed Snake River sockeye salmon as endangered on April 22, 1992 (57 FR 14653) and their endangered status was reaffirmed on June 28, 2005, and 2013. Current pressures on Snake River sockeye salmon include loss of quality habitat, predation, poor ocean conditions and limited fishing pressure. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery. Snake River sockeye use the mainstem Columbia River

and Lower Snake River to migrate to and from the ocean, and all are affected by the mainstem federal dams, as well as by other forms of development that alter the river environment.

Snake River Steelhead

Snake River steelhead were listed as threatened under the ESA on August 18, 1997 (62 FR 43937) and protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Their threatened status was reaffirmed on January 5, 2006 (71 FR 834) and again on April 14, 2014 (79 FR 20802).

Snake River steelhead migrate a substantial distance from the ocean (up to 940 miles) and use high elevation tributaries (up to 6,562 feet above sea level) for spawning and juvenile rearing. Snake River steelhead occupy habitat that is considerably warmer and drier (on an annual basis) than other steelhead distinct population segments.

All populations of Snake River steelhead use the mainstem Columbia River and Lower Snake River to migrate to and from the ocean, and all are affected by the mainstem federal dams, as well as by other forms of development that alter the river environment. Snake River conditions include impaired fish passage, altered water temperature and thermal refuges, and changes in mainstem nearshore habitat. Increases in competition with other fish species and predation from non-native fishes and birds continue to limit recovery of salmonid species in the Snake River. The limited amount of suitable habitat available, caused by habitat degradation and passage barriers is the main factor limiting recovery.

Bull Trout

The USFWS issued a final rule listing the Columbia River population of bull trout as threatened on June 10, 1998 (63 FR 31647), while critical habitat for this species was listed on September 30, 2010. Bull trout are currently listed throughout their range in the United States as a threatened species.

Bull trout are estimated to have occupied about 60 percent of the Columbia Basin and presently occur in only about 45 percent of their historic range. The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices and the introduction of non-native species. Declining salmon and steelhead populations could also negatively impact bull trout populations by reducing the number of juvenile salmon and steelhead available to bull trout for prey.

Environmental Effects

Alternative 1 – No Action. Future analysis of effects on aquatic resources would be conducted in a separate NEPA document if specific recreational land development was proposed. Effects to aquatic threatened and endangered species would be the same or similar to the impacts discussed in Section 3.2.6 (Aquatic Resources). Therefore, although the No Action Alternative leaves the potential for recreational land

development open, the No Action Alternative itself would not have a significant impact on aquatic resources.

Alternative 2 – Balanced Use Alternative. Land classification changes that provide additional natural resource protections would have indirect minor beneficial long-term impacts to threatened and endangered species. For example, increases in acreage of Environmentally Sensitive Areas, which are managed to protect ecological features, provide additional long-term benefits to terrestrial threatened and endangered species; yellow-billed cuckoo are not currently present in the Project area, but the establishment of Environmentally Sensitive Areas would maintain potential habitat integrity should they return.

Increases to MRM-WM and MRM-VM lands would indirectly benefit threatened and endangered species through native vegetation plantings and invasive species management, especially in riparian areas. Minor negative impacts would be the same or similar to the impacts discussed in Section 3.2.6 (Aquatic Resources). The Balanced Use Alternative would not have a significant impact, because it would not put threatened or endangered populations in jeopardy or adversely modify critical habitat as defined by the ESA.

3.2.8 Geological Features and Soils

Much of the lower half of Lake Wallula is bordered by steep topography and riprap. The shorelines bordering the upper half of the reservoir are relatively flat, especially on the east side between the mouths of the Snake and Walla Walla Rivers. This provides for the creation of extensive mudflats when the pool is operated at or near its minimum. Erosion and landslide potential is minimal throughout the area.
The use of soils in the McNary Project vicinity is limited by their texture, depth, and the effect of climatic conditions on them. These soils may be grouped under three general headings according to physiographic areas: soils of the uplands, soils of escarpments and steep canyons, and soils of bottomlands and low terraces.

The soils of the uplands, which lie above the reservoir and outside of the Project boundary, are formed from loess and are mostly deep, well drained, and medium textured. This group of soils also contains enough volcanic ash to be highly susceptible to wind erosion. These soils often develop blowouts, which is a sandy depression caused by winds on loose soils which get blown away. These areas often have experienced a loss of vegetation leaving the soil bare, and usually are not wetted. Climatic conditions limit the use of these soils mainly to a winter wheat/summer fallow cropping system or permanent vegetative cover.

Soils found in escarpments and steep canyons are formed in a mixture of loess and fragments of basalt that overlay basalt bedrock. The surface is broken by numerous shallow, rocky outcrops. These soils are too rocky for cultivation and are used for pasture.

Soils found in bottomlands and low terraces are formed from riverwash sediment that has washed from the uplands or from landslides. Some of the areas classified as

riverwash and alluvial land are below the high-water line and are subject to flooding in the spring. They are also subject to shoreline erosion. Soils that occupy the broad, gently sloping terraces are excessively drained and coarse textured.

Environmental Effects

Alternative 1 – No Action. The No Action Alternative would result in no changes to land classifications. Minor erosion of stream banks in localized areas due to boat wakes, wind, and fluctuating water levels would likely continue.

Future analysis of effects on geological features and soils would be conducted in a separate NEPA document if specific recreational land development was proposed. Although the No Action Alternative leaves the potential for recreational land development open, the No Action Alternative itself would not have a significant impact on geological features and soils.

Alternative 2 – Balanced Use Alternative. Management of USACE lands upon implementation of proposed land classifications not significantly impact mineral resources, seismic concerns, or significant geologic features within the planning area, nor would the changes result in additional sedimentation or erosion in most instances. By increasing the amount of lands managed as MRM: Vegetative Management by 115 acres, and lands managed as Environmentally Sensitive Area by 989.1 acres, the land classification updates may result in moderate beneficial impacts to soils.

Minor, localized impacts could occur in the 74.4 acres that would be reclassified as HDR if more intense use of such areas resulted in more use of boats, development of social trails, or unauthorized vehicle use. The overall trend of the land classification updates is towards greater protection of natural resources and improved management of recreation, impacts associated with erosion and sedimentation would likely be beneficial and minor.

There would be minor long-term indirect benefits to soils due to increased plantings that would reduce soil erosion and acreage set aside for preservation of environmentally sensitive resources would protect soils from human activities such as digging, excavating, or compaction from vehicle or foot traffic. Additionally, Designated No Wake Zones would help reduce stream bank soil erosion. Since mostly beneficial impacts are expected, the Balanced Use Alternative would not have a significant impact on geological features and soils.

3.2.9 Socioeconomics and Environmental Justice

McNary Lock and Dam Project is located in Umatilla County, Oregon and Benton, County, Washington. The dam itself spans the Columbia River. The Project lands also extend into Franklin and Walla Walla counties in Washington. The Tri-Cities (made up of Pasco, Kennewick, and Richland) is the largest metropolitan area in the vicinity, although several small towns such as Umatilla and Hermiston in Oregon, and Burbank, Finley, and Plymouth in Washington are near-by.

Population and Demographics

Umatilla County, Oregon currently has an estimated population of 80,075 residents. Hermiston is the largest city within Umatilla County with about 19,973 residents. McNary Dam is one mile east of the town of Umatilla with 4,609 residents and 8 miles north of Hermiston.

Benton County, Washington currently has an estimated population of 210,025 residents. The nearest city on the Washington side is Kennewick, with an estimated population of 84,488 residents. Plymouth is the nearest town, which is 5 miles west, with an estimated population of 286 residents. As of July 1, 2022, Franklin County, Washington has an estimated population of 98,678 residents. The largest city is Pasco, which is part of the Tri-Cities area, which also includes Kennewick and Richland. Walla Walla County, Washington has an estimated population of 62,584 residents with Walla Walla being the largest city in the county.

Table 3-4. Education and Income, Umatilla and Benton Counties (U.S. Census 2021)

Demographic	Umatilla County, OR	State of Oregon	Benton County, WA	Franklin County, WA	Walla Walla County, WA	State of Washington	National
Persons under 18	24.9%	20.5%	26.3%	39.6%	26%	21.7%	22.2%
Persons Over 65	16.1%	18.6%	15.5%	9.9%	19.1%	16.2%	16.8%
High School Graduates	83.2%	91.5%	90.3%	75.9%	88.4%	91.9%	88.9%
Four-Year Degree or Higher	18.2%	35%	32.1%	19.8%	38.4%	37.3%	33.7%
Percent in Labor Force	57.6%	62.5%	61.7%	66.1%	56.8%	63.7%	63.1%
Median Household Income	$63,123	$70,084	$76,612	$72,452	$63,686	$82,400	$69,021

Environmental Justice

As outlined in Executive Order 12898, federal agencies must evaluate environmental justice issues related to any action proposed for implementation. This evaluation includes identification of minority and low-income populations, identification of any negative impacts that would disproportionately affect these minority groups or low-income, and proposed mitigation to offset the projected negative impacts. The evaluation of environmental justice issues includes identification of minority and low-income populations in the Project area.

Section 160 of the Water Resources Development Act (WRDA) of 2020 directs the Secretary to define the term “economically disadvantaged community” for the purpose of the Act and the amendments made by the Act. An economically disadvantaged community is defined as meeting one or more of the following:

- Low per capital income – The area per capita income of 80% or less of the national average.
- Unemployment rate above national average – The area has an unemployment rate that is, for the most recent 24-month period for which data are available, at least 1% greater than the national average unemployment rate.
- Indian country as defined in 18 U.S.C. 1151 or in the proximity of an Alaska Native Village.
- U.S. Territories, or
- Communities identified as disadvantaged by the Council on Environmental Quality’s Climate and Economic Justice Screening Tool. (https://screeningtool.geoplatform.gov)

According to the Climate and Economic Justice Screening Tool (CEJST), accessed on August 24, 2023, each of the counties within the Project area are considered at a disadvantage because they meet one or more burden threshold and the associated socioeconomical threshold. Please see Appendix for further details and a breakdown of the census tracts in the Project area.

Minority Groups

While less racially diverse than other areas of the country, the four counties are home to people of a broad variety of races. Most of the population in the four counties is white. The second highest racial identity is Hispanic or Latino (Table 3-5).

Table 3-5. Racial Identification in the Two Counties Compared to States

Race	Umatilla County	Oregon State	Benton County	Franklin County	Walla Walla County	Washington State
White	90.1%	86.2%	89.5%	39.9%	91.1%	77.5%
Black or African American	1.3%	2.3%	1.8%	2.8%	2.2%	4.5%
American Indian and Alaskan Native	4.4%	1.9%	1.5%	1.7%	1.5%	2%
Asian	1.2%	5%	3.4%	2.8%	1.9%	10%
Native Hawaiian and Other Pacific Islander	0.2%	0.5%	0.3%	0.5%	0.4%	0.8%
Hispanic or Latino	28.6%	14%	24%	53.6%	22.6%	13.7%

Note that percentages do not add to 100, as categories are not mutually exclusive (U.S. Census Bureau 2021 data).

Low-income

Both Benton (10.6%) and Umatilla (13.2%) counties have higher poverty rates than both the Washington State (9.9%) and Oregon State averages (12.2%), they are also both higher than the national (10.5%) average.

Environmental Effects

Alternative 1 – No Action. USACE land management would continue as normal and would not require additional employees for maintenance or operational tasks. Visitors would continue to utilize Project facilities without disparity for economic considerations.

The No Action Alternative would not lead to actions that exceed the capacity of the surrounding communities to absorb or result in the unfair treatment of specific income or minority groups. The No Action Alternative would not have significant impacts to socioeconomics or environmental justice for these reasons.

Alternative 2 –Balanced Use Alternative. The Balanced Use Alternative would provide the required analysis for regional needs, resource capabilities and suitability, and a comprehensive recreation program. As such, the Balanced Use Alternative would better serve the needs of the public by providing the types of opportunities the public expressed they want. The Balanced Use Alternative increases lands available for hunting and fishing in the HMUs and parks.

The Balanced Use Alternative would have minor long-term benefits by increasing public access to Project lands. Increased MRM-WM and MRM-VM lands could lead to more planting and land management contracts or increase the need for new hires by USACE to perform these tasks internally; and increased HDR and MRM lands would create more areas accessible for free recreational opportunities. The Balanced Use Alternative would not lead to the unfair treatment of specific income or minority groups or result in the disproportional distribution of environmental impacts or benefits among communities. The implementation of the Balanced Use Alternative would not have significant impacts to socioeconomics or environmental justice for these reasons.

3.2.10 Cultural and Historic Resources

Affected Environment

Cultural resources are usually identified as the remnants of past human lifeways, such as archaeological sites, artifacts, graves, historic buildings, trails, and other inanimate objects or areas. However, cultural resources also include areas of ongoing importance and use by Tribes and the public.

The Project area is part of the homeland of multiple Tribes, including the Confederated Tribes and Bands of the Yakama Nation (Yakama), the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Confederated Tribes of the Colville Reservation (Colville), the Nez Perce Tribe, and the Wanapum band. Important camps

and village sites are found along the Columbia and Snake Rivers, as well as locations used for fishing, hunting, and gathering of food, medicines, toolstones, and other resources (Hunn et al. 2015, Scheuerman and Trafzer 2015, Nez Perce Tribe 2003). The river forms an important travel corridor, and trails lead through and across USACE land to the prairies and high country where resources were found at different times of the year. Salmon and other fish were and continue to be an important source of food to all these Tribes.

Historic period sites are also present, including those related to agriculture, transportation, industry, and trade. USACE awarded the first construction contract for McNary Dam on the Columbia River at Umatilla in 1947, and the dam was constructed between 1948 and 1954 (Preston 1970). Small communities at Attalia, Wallula, and Hover were to be affected by the rising reservoir waters, as were numerous homesteads, ranches, and farms. Railroads and roads were relocated, levees were constructed in populated areas, and dozens of known archaeological sites (and more likely hundreds of unrecorded archaeological sites) were inundated by the rising waters.

Cultural resource studies in the McNary area really began in earnest in the mid-twentieth century, largely related to dam building, but there are earlier works that provide information on the resources and inhabitants of the area. Euro-American explorers, missionaries, and ethnographers reported on their interactions with the Cayuse, Umatilla, Yakama, Nez Perce, and Palus people living in the McNary Project area throughout the 1800s, and into the 1900s.

Following passage of the National Historic Preservation Act (NHPA) in 1966, archaeological investigations began anew in the McNary Project area. In the mid-1970s, archaeological surveys were conducted along the shoreline to see if the sites mentioned in the older reports were still present, or if they had totally been inundated by the rising waters. Many sites were relocated along the shorelines, and as the Project lands were inventoried additional sites were documented. Large excavations were conducted by archaeologists from local universities, often with the assistance of volunteer archaeological groups. Huge archaeological collections were made from these sites, and often the recovery of artifacts was deemed more important than the study of said artifacts, therefore some of the archaeological reports for these collections are being written in the present day.

Most of the Project lands located above high water were archaeologically surveyed or resurveyed during two surveys conducted by the CTUIR Cultural Resources Protection Program in 1998 and 2010, with smaller surveys conducted by agency staff and contractors (Dickson 1999, Dickson 2011). Remaining unsurveyed areas are being surveyed on a case-by-case basis, as many of the remaining areas still identified for survey are highly developed, inaccessible, or the ground surface is not routinely visible due to vegetation and other limiting factors. Other surveys, documentation, and excavations have been conducted prior to proposed development, maintenance, or habitat management projects. Archaeological sites are visited on a regular basis to determine if they have been harmed by natural, visitor, or

USACE actions. USACE has archaeologists on staff that conduct cultural archaeological surveys, write reports, and contract with private or Tribal cultural resources management firms as needed to comply with federal law regarding agency cultural resources responsibilities under NHPA.

The NHPA requires that USACE identify and evaluate historic properties for listing on the NRHP, and that the agency consider the effects to historic properties from activities (also called undertakings). Historic properties include districts, sites, buildings, structures, and objects. Eligible properties would typically be greater than 50 years old and have an association with an important event, person, interesting architecture, or in the case of archaeological sites, have the potential for further study. Numerous historic properties have been identified at McNary, including archaeological sites, an archaeological district, TCPs or Historic Properties of Religious and Cultural Significance to Indian Tribes, several structures, and objects.

Under the NHPA, USACE is responsible for examining the sites on its land and seeing if they are significant and meet criteria for listing on the NRHP. Twenty-three archaeological sites at McNary have been formally listed on the NRHP, and another 20 archaeological sites have been found eligible through an agreement with the SHPO but have not been formally nominated to the NRHP. Thirteen archaeological sites have been found not eligible for the NRHP, and 80 sites have not been evaluated. Many of the unevaluated sites are inundated and have not been evaluated because only limited information is available since they cannot be physically visited.

TCPs, which includes Historic Properties of Religious and Cultural Significance to Indian Tribes, are areas tied to beliefs, customs, and practices of a living community. They may coincide with the boundaries of archaeological sites or be comprised of a number of landscape features. TCPs have been identified at McNary by the CTUIR, the Yakama, the Wanapum band, and the Colville. The CTUIR, Yakama, and Colville all prepared at least one study discussing TCPs at McNary, and some of the Tribes have prepared forms and conducted preliminary eligibility review, while others will be evaluated for NRHP eligibility in the future.

Historic built resources, including buildings, structures, and objects, have been documented to a limited extent on project lands. McNary Lock and Dam was concurred eligible for listing on the NRHP by the Washington State Department of Archeology and Historical Preservation in 2011 and the Oregon SHPO in 2004. Other structures have also been documented, including levees, well houses, substations, pumping plants, a campground, and park buildings. Several bridges are also present within McNary Project, but they are managed by other entities.

In summary, evidence of thousands of years of human prehistory and history are represented at McNary Project. The area contains great cultural significance to numerous Tribes. USACE would continue to document historic properties as they are found and evaluate them for effects from ongoing and proposed activities in consultation with the Washington Department of Archaeology and Historic Preservation, the Oregon State Historic Preservation Officer, and the Tribes.

Environmental Consequences

Alternative 1 – No Action. Under the No Action Alternative, there would be no changes to any process affecting cultural resource management. Actions implemented under the No Action Alternative would continue to be subject to consultation under Section 106 of the NHPA, which provides for the avoidance, minimization, and mitigation of potential impacts. Cultural resources would continue to be affected by natural processes, recreation, USACE land management, and other uses. As the existing land use classifications are only a blueprint to guide future work, the continued use of the current land classification system would have no significant impacts to cultural resources.

Alternative 2 – Balanced Use Alternative. Impacts to historic and cultural properties would be the same or like the No Action Alternative because the land use classifications only create a blueprint for potential future actions. However, the designation of areas as environmentally sensitive may have a moderate, beneficial effect regarding the cumulative effects of future land use activity or limitation of activities. The establishment of 1148.6 acres of land classified as Environmentally Sensitive Areas (classified for cultural or natural resource benefits) could provide beneficial long-term moderate, cumulative impacts to historic and cultural properties by limiting the types of authorized uses in these areas. USACE would continue to review individual proposed actions and consult with the Washington SHPO and affiliated Tribes in accordance with Section 106 of the NHPA. Cultural resources would continue to be affected by natural processes, recreation, USACE land management, and other uses. As the proposed land use classifications are only a blueprint to guide future work, the Balanced Use Alternative would have no significant impacts to cultural resources.

3.3 Climate Change Analysis

Affected Environment

Earth’s climate is now changing faster than at any point in the history of modern civilization. Climate shapes where and how people live and the environment. Natural ecosystems, agricultural systems, water resources, and the benefits they provide to society are adapted to past climate conditions and their natural range of variability. The U.S. Global Change Research Program (2023), defines climate change as “changes in the global environment (including alterations in climate, land productivity, the ocean or other water resources, atmospheric chemistry, and ecological systems) that may alter the capacity of the Earth to sustain life.”

The Columbia Basin experiences seasonal variations in temperature and geographic variations in precipitation. The Project area lies in the path of prevailing westerly winds and is largely influenced by air from the Pacific Ocean. Winters are generally damp and foggy with an average daily high of 32 degrees Fahrenheit (°F) in January. Occasionally, polar outbreaks of cold air pass over the Rocky Mountains, resulting in short periods of extremely low temperatures.

Future precipitation trends are more uncertain, but a general upward trend is likely for the rest of the twenty-first century, particularly in the winter months. Already dry summers could become drier. Average winter snowpacks are very likely to decline over time as more winter precipitation falls as rain instead of snow, especially on the United States side of the Columbia River Basin. By the 2030s, higher average fall and winter flows, earlier peak spring runoff, and longer periods of low summer flows are very likely. The River Management Joint Operating Committee (RMJOC) -II report concludes that "such precipitation increases, along with a warming climate, could have profound implications on both the magnitude and seasonality of future streamflows" (CRSO 2020).

Natural ecosystems have adapted to past climate conditions and their natural range of variability. Changes in the climate could impact ecosystems and water resources and the benefits they provide. RMJOC report (RMJOC 2018) presents the most recent and best available scientific information on the future hydroclimate for the Columbia River Basin that covers the 2020 to 2049 time period (referred to as the 2030s).

Temperatures in the northwest have warmed about 1.5 degrees Fahrenheit (0.8 degree Celsius) since the 1970s and are expected to warm another 1 to 4 degrees Fahrenheit (0.6 to 2.2 degrees Celsius) by the 2030s (RMJOC 2018). Warming in the region is likely to be greatest in the interior with a greater range of possible outcomes. Less pronounced warming is projected near the coast (CRSO 2020).

Climate change has the potential to affect all missions of USACE. The Climate Preparedness and Resilience Community of Practice develops and implements practical, nationally consistent, and cost-effective approaches and policies to reduce potential vulnerabilities to the Nation's water infrastructure resulting from climate change and variability.

USACE operations and water management control activities provide the largest challenge given future climate change and variability. In order to ensure continued effective and efficient water operations in both the short (5-10 years) and longer term (10-50 years), nationally consistent but regionally tailored water management adaptation strategies and polices are needed. Such policies must balance Project operations and water allocations within authorized Project purposes with changing water needs and climate-driven changes to operating parameters. This must be accomplished while working in close coordination with a wide variety of intergovernmental stakeholders and partners.

Environmental Effects

Alternative 1 – No Action. The No Action Alternative would result in no changes to land classifications. Actions associated with ongoing management of recreational, cultural, and natural resources would result in minimal direct greenhouse gas (GHG) emissions. Minor impacts to climate change are anticipated from the No Action Alternative

However, the continued progression of climate change could have moderate impacts to USACE managed lands and land uses by non-project related changing weather patterns and flow regimes. Changing weather could shift flow regimes to earlier in the year if more precipitation falls as rain instead of snow. If the water regimes change, the flow regimes through the dams would change. Flood peaks could shift to earlier in the season and flows could further decrease during already low flow periods.

Hotter summers could dry out vegetation, reducing wildlife habitat value, and shifting recreational use to cooler seasons. Increasing air temperatures may increase the temperature of the water in the summer and lower the amount of dissolved oxygen which would further degrade water quality and negatively impact aquatic life habitat.

There are no federal, state, or local thresholds of significance for climate change impacts and therefore no definitive determination of significance is given in this EA for the No Action Alternative. Any future construction activities that could emit greenhouse gasses or in other ways affect climate change would be assessed separately at that time.

Alternative 2 – Balanced Use Alternative. Impacts to climate change from implementing the Balanced Use Alternative would be negligible or de minimus. Although changing land classifications may result in more intensive use of some areas (e.g., 74.4 acres of HDR) resulting in increased localized emissions of GHGs from vehicular sources, there would be reduced use in other areas with decrease in LDR acres (482.2), so the overall effect to GHG would be minimal. The Balanced Use Alternative reduces the potential to develop land for recreational uses, which reduces the carbon emissions from construction equipment's combustible engines in the Project area. Impacts from climate change would be slightly alleviated by increasing MRM-WM and MRM-VM lands and by increasing the amount of overwater vegetation shade.

Any future construction activities that could emit greenhouse gasses or in other ways affect climate change would be assessed separately at that time. There are no federal, state, or local thresholds of significance for climate change impacts and therefore no definitive determination of significance is given in this EA for the Balanced Use Alternative.

3.4 Cumulative Effects

Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (470 CFR § 1508.7).

The primary goal of a cumulative effects analysis is to determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative effects of other past, present, and reasonably foreseeable future actions.

USACE used the technical analysis in Section 3 of this EA to identify and focus on cumulative effects that may be “truly meaningful” in terms of local and regional importance. While this EA addresses the effects of alternatives on the range of resources representative of the human and natural environment, not all of those resources need to be included in the cumulative effects analysis – just those that are relevant to the decision to be made. As technology and knowledge expand with time, things of the past tend to become outdated. The 1982 MP does not provide current regional analysis of recreation and ecosystem needs, project resource capabilities, and recreation program analysis, which are essential to the balanced approach and requirements of current USACE MP policy.

USACE identified the following resources that are notable for their importance to the area and potential for cumulative effects. Those resources are:

- Land Use
- Recreation

There would be no cumulative effects to other resources from implementation of the Proposed Action in combination with past, present, and reasonably foreseeable future actions.

Resources are discussed in terms of their cumulative effect boundary (spatial and temporal), the historic condition and impacts to the resources, present condition and impacts to the resources, reasonably foreseeable future actions that may affect the resources, and the effects to the resource by the MP alternatives when added to other past, present, and future actions.

This section evaluates the cumulative effects of actions that could potentially affect the same environmental resources as those discussed earlier in this EA. The scope of this analysis extends beyond the Project to other areas that sustain the resources of concern. A resource may be differentially impacted in both time and space. The implication of those impacts depends on the characteristics of the resource, the magnitude, and scale of the action’s impacts, and the environmental setting (EPA 1999).

Geographic and Temporal Scope of Cumulative Effects Analysis

Guidance for setting appropriate boundaries for a cumulative effect analysis is available from CEQ (1997) and EPA (1999). Generally, the scope of cumulative effects analysis should be broader than the scope of analysis used in assessing direct or indirect effects. “Geographic boundaries and time periods used in cumulative impact analysis should be based on all resources of concern and all of the actions that may contribute, along with the project effects, to cumulative impacts” (EPA 1999). The analysis should delineate appropriate geographic areas including natural ecological boundaries, whenever possible, and should evaluate the time period of the project’s effects. The Projects primary zone has been determined to be a 25-mile radius.

A temporal or time boundary is the duration that impacts from the proposed project or other actions affecting the resources would last. The boundary can vary per resource. Predicting the effects of future actions can be difficult and highly speculative. USACE

identified the temporal boundary as 71 years as the time frame for analysis of cumulative effects (based on completion of the Project in 1957, 66 years ago, and an additional five years into the future). Only reasonably foreseeable future actions are included. To be reasonably foreseeable, there must be a strong indication that an action even will occur or be conducted. Strong indication means the action is planned, or budgeted, or has NEPA coverage completed.

The geographic boundary for the cumulative effects analysis includes actions taking place along the Columbia River at Lake Wallula and nine miles up the Snake River to Ice Harbor Lock and Dam which has been designated as part of the Project area. Growth in towns and cities within or just outside of the Project boundary can also influence associated land use management as populations in these areas grow. Tri-Cities, Washington is outpacing the state of Washington with a 4.3% growth increase which was estimated in late June of 2023. Similarly, Umatilla County, Oregon had an increase of 5.1% in 2021 and in 2022 Hermiston, Oregon was titled the fastest growing city in eastern Oregon.

Discussed below are the past, present, and reasonably foreseeable future actions that were considered for the cumulative effects analysis, the effects of the actions of the resources assessed, and a summary of the cumulative effects of the alternatives.

Past, Present, and Reasonably Foreseeable Future Actions and Implications for the Resource Considered

Past Actions

As development increased in the middle Columbia River Basin, the amount of human-caused impact on the rivers and associated resources increased. Development in the region included building numerous dams throughout the watershed and the subsequent formation of their reservoirs, including the construction of McNary Lock and Dam. Additional past actions included construction of marinas, highways, roads and railroads, urban development; industrial growth; installation of underground irrigation lines; installation of overhead powerlines and associated infrastructure; agriculture; navigation; fish hatcheries; channelization and flood risk reduction levees; and introductions of invasive species. Many past actions were related to the construction and operation of McNary Lock and Dam and associated facilities. The construction of the dam resulted in Lake Wallula being formed with slack water extending up the Columbia River. A variety of recreational sites were created at that time.

Effects of Past Actions on Resources

Land Use

The construction of dams and creation of reservoirs and their operations has historically changed the function and landscape of the Columbia River Basin. The McNary MP Project lands have undergone several changes, most of which were never formalized with a MP revision or supplement.

The 1982 MP does not provide a balanced designated visitor use with recreational, natural, and cultural resource sustainability. While at the time it provided a sufficient blueprint, it fails to categorize all of the approximate 7,578 acres of land and water, and did not include these primary components:

- Response to regional needs and expressed public interests.
- Management of the Project's recreational, environmental, and cultural resources.
- Compliance with current USACE policy environmental laws and regulations.

Recreation

Recreational opportunities dramatically increased with the creation of Lake Wallula. Recreational facilities offering picnicking, hiking, boating, camping, hunting, wildlife viewing, and many other activities were developed. As a result, tourism and associated economic benefits in the area increased.

Non-beneficial effects to recreation due to past actions in the Project area, were increased construction impacts due to the ongoing development and operation and maintenance of facilities, such as noise disturbance, air quality affected by dust, vegetation removal, the displacement of wildlife, impaired water quality as a result of stormwater run-off due to ground disturbance, which in turn affected aquatic resources.

Present Actions

Project lands surrounding Lake Wallula are used for public recreation purposes, wildlife habitat, and water-connected industrial development. These lands include fee lands that are federally owned and managed by USACE in addition to 14,627 acres of easement and 71 acres of permit lands adjacent to the Project, to which USACE has specific rights or easements (such as flowage or access).

Present actions include regular operation and maintenance activities at USACE recreational facilities, such as lawn maintenance (mowing, trimming, sprinkler repair), recreation site maintenance (tables, grills, tent pads, restroom cleaning and upkeep), building repair, gate and fence repair, playground, sign, and lighting maintenance, etc. There is ongoing vegetation upkeep and plantings at the Project HMUs. The regular treatment to control and eradicate invasive plants is occurring under the provisions of the USACE Programmatic Pest Management Plan (USACE 2013b). Other present actions include lock and dam operations, use of roads and railroads, and agricultural practices on surrounding lands.

Effects of Present Actions on Resources

Land Use

Beneficial effects to land use would occur as USACE strives to balance the protection of natural and cultural resources with recreational development. The adoption of the revised MP would increase these lands by 2,073.4 acres. Currently, land use is affected

by other non-point sources of pollution. Lands that use herbicides and pesticides, such as private yards, and farm and agricultural lands, have the potential for runoff of these substances. In return the runoff could cause concern for water quality, such as an increase in turbidity, an excess of nutrients, such as nitrogen and phosphorus, into surrounding lakes, streams, rivers, and groundwater supplies. Other sources of runoff are roadways, boat ramps, train tracks and airport facilities.

Recreation

Effects to recreation as a result of present actions, would be minimal as lands surrounding Lake Wallula are currently being managed responsibly by USACE and in compliance with applicable laws and regulations. Effects caused by recreational use and activities are discussed in Section 3.2.2 (Recreation).

Reasonably Foreseeable Future Actions

Cumulative effects analyses must consider the effects of "reasonably foreseeable future actions regardless of what agency…or person undertakes such…action" (40 CFR §1508.7). Future actions that are speculative are not considered reasonably foreseeable (EPA 1999). Documented planned and permitted or funded actions by local, state or federal government agencies, private entities, or individuals are considered "reasonably foreseeable." Similarly, USACE considerers the continuation of existing programs, without major changes in policy, law, regulations, or funding as reasonably foreseeable.

A list of foreseeable future actions for the City of Pasco in Washington that may have an effect on Project lands and/or recreation is provided below. For more information visit https://www.pasco-wa.gov/364/Major-Planning-Projects (Accessed on August 23, 2023).

- Bike-Ped Plan
- Boat Basin/Marine Terminal Plan
- Broadmoor Master Plan 2023
- Comprehensive Plan Update 2018-2038
- Planning for Housing
- Shoreline Master Program
- Transportation System Master Plan

A list of foreseeable future actions for the City of Kennewick in Washington that may have an effect on Project lands and/or recreation is provided below. For more information visit https://www.go2kennewick.com/1093/Current-Projects & https://www.go2kennewick.com/599/Future-Projects (Accessed August 23, 2023).

- Duffy's Pond Path
- W. 4th Ave & W 4th Ave. Storm Drain Retrofit
- 2023 City Wide Asphalt Overlay
- Southridge Settlement Trench Repair
- Mataline & Keller/Johnson/Irby Sewer Replacement

A list of foreseeable future actions for the City of Richland in Washington that may have an effect on Project lands and/or recreation is provided below. For more information visit https://cleargov.com/washington/benton/city/richland/projects (Accessed on August 23, 2023).

- Landfill Renewable Natural Gas Project
- Center Parkway South Extension
- Vintage Highway Pathway – Phase 2
- Electrifying the North Horn Rapids Industrial Park
- Hains Ave and Goethals Dr Stormwater Quality Retrofit
- North Horn Rapids Sewer Extension
- Badger Mountain South Fire Station 76
- Island View to Vista Field Trail System

Currently, Walla Walla County, Washington does not have any scheduled projects within the boundaries of the Project that may have an effect on Project lands and/or recreation. For further information visit https://www.co.walla-walla.wa.us/government/public_works/active_projects.php (Accessed August 24, 2023).

Currently, Oregon's City of Hermiston does not have any scheduled planned projects that may have an effect on Project lands and/or recreation. There is a list of projects titled "as revenues allow," however, no projects are funded. For more information visit https://www.hermiston.or.us/commdev/page/planned-projects (Accessed on September 24, 2023).

A list of foreseeable future actions for the City of Umatilla in Oregon that may have an effect on Project lands and/or recreation is provided below. For more information visit https://www.umatilla-city.org/city-projects (Accessed on August 24, 2023).

- Business Center Development
- Columbia River Pumping Plant and Pipeline Development
- Columbia River Water Treatment Facility Development
- Festival Improvements – Back Nine Installation
- Hash Parks Sports Complex Development
- Umatilla Marina and RV Park (marina replacement)
- Nugent Boat Ramp & Lower Parking Improvements
- Pedestrian Bridge and Waterline
- Power City/Brownell Area Sewer Improvements
- Power City/Brownell Area Water Improvements
- Project PATH Practical Assistance through Transitional Housing
- Trail #2 Development
- Wastewater Facilities Plan

Effects of Reasonably Foreseeable Future on Resources

Land Use

Reasonably foreseeable future actions in the Project area have the potential to be both beneficial and non-beneficial for land use. Land classification updates would increase the acres of land managed with conservation management as a guideline. The foreseeable future actions listed above could be beneficial as well. The updating or creation of Master Plans, the installation of renewable energy sources, improvements to stormwater quality/conveyance systems and retention basins, sewer, water, wastewater facilities, and marinas. all have the potential to cause temporary disturbances within the Project area, but ultimately carry long-term benefits. Some of the temporary disturbances would be increased runoff leading to higher turbidity in local waterways that join the Columbia River, increased noise levels due to construction activities, and detrimental effects to air quality from vehicles, machinery, and heavy equipment. The foreseeable future developments in the Project area could reduce greenspace, and in return provide less natural area for plants, animals, and natural lands.

Any foreseeable future actions proposed by USACE would be subject to additional environmental analysis as required by NEPA.

Recreation

Future population growth in the Tri-Cities area would increase the use of recreation facilities. Increased visitation would require USACE management to help prevent user conflicts where there are physical limitations based on total recreation lands available. Improved wildlife habitat could increase hunting opportunities and an increase in riparian vegetation could increase desirable fishing locations.

As listed above there are foreseeable future actions regarding recreation which are likely to occur within the Project primary zone. The creation of new recreational areas

has the potential to be both beneficial and non-beneficial. Some potential beneficial effects of recreation are providing opportunities to promote physical fitness, can promote tourism, enhance property values, and open space. Some of the non-beneficial effects are development and maintenance of facilities, requiring continuous space, impacts to soil, air quality, vegetation, wildlife, and social.

Any foreseeable future actions proposed by USACE would be subject to additional environmental analysis as required by NEPA.

Summary of Cumulative Effects of Past, Present, and Reasonably Foreseeable Future Actions on Resources

Cumulative Effects of Alternatives

The cumulative effects analysis considers how the direct and indirect effects of the alternatives would contribute to the cumulative effects of past, present, and future actions and change the conditions that have and are expected to result from those actions.

Alternative 2: Balanced Use Alternative

Cumulative effects of past actions have resulted in managing the McNary Project lands under a MP that was adopted in 1982. Present and reasonably foreseeable future actions would be expected to continue this pattern of land use management unless the proposed action is approved. The effects of Alternative 2 on land use and recreation, when combined with past, present, and reasonably foreseeable future actions, would slightly change current conditions. This would include a redistribution of USACE managed land into seven categories, acknowledging some changes which have already been made in the past. Acknowledging the actions that have taken place since the 1982 MP would ensure that these recreational areas are properly documented and accounted for, especially when it comes to management and maintenance.

3.5 Selection of Preferred Alternative

Revising the 1982 MP to incorporate the Balanced Use Alternative is the Preferred Alternative. The intent of the Balanced Use Alternative is to develop a guide for the sustainable use of resources at McNary Project. The EP 1130-2-550, (USACE 2013) provides the following MP guidance: “A current, approved MP is necessary before any new development, construction, consolidation, or land use change can be pursued. These activities will not be included in budget submissions unless they are included in an approved MP.” The primary objective of implementing the Balanced Use Alternative is to publish a clear, concise, and strategic land use document that will guide the comprehensive management and development of all McNary Project recreational, natural, and cultural resources.

The Balanced Use Alternative would provide conceptual guidelines for the effective management of the Project. Guidelines were developed in accordance with USACE

master planning process. Preparation of the revised MP required: (1) an appraisal of the natural and human-related resource conditions of the Project and the surrounding region, and (2) an examination of environmental and administrative constraints and influences. The revised MP seeks to balance the use of recreational, natural, and cultural resources of the Project based on resource objectives, public needs, and operational efficiency.

The revised MP would be a living document establishing the basic direction for management and development of the McNary Project in agreement with the capabilities of the resource and public needs. The revised MP would be flexible in that supplementation can be achieved through a formal process that addresses unforeseen needs. The revised MP would be reviewed every five years to facilitate the evaluation and utilization of new information as it becomes available.

Section 4: Compliance with Applicable Environmental Laws, Regulations, and Executive Orders

Section 4 identifies the legal, policy, and regulatory requirements applicable to the Preferred Alternative. The updated MP will not, when adopted, authorize any new site-specific actions. Site-specific actions may require subsequent NEPA review and would be identified in future OMPs or similar plans. The following paragraphs address the principal environmental review and consultation requirements applicable to the proposed updated MP. Pertinent federal treaties, statutes, and Executive Orders are included.

4.1 TREATIES AND NATIVE AMERICAN TRIBES

Treaties are legally binding contracts between sovereign nations that establish those nations' political and property relations. Treaties between Native American tribes and the United States confirm each nation's rights and privileges. It is important to be clear that "the rights of sovereign Indian tribes pre-existed their treaties; they were not granted them by treaties or by the United States government. Rather, the treaties gave their rights legal recognition." (Hunn et al. 2015:58). These reserved rights were retained by the tribes and are exercised by their members today.

The MP is a planning document providing conceptual guidance regarding NRM and does not cause any new site-specific actions. Individual site-specific undertakings would be subject to review under applicable federal laws. Treaties with the Nez Perce (Treaty of June 11, 1855, Treaty with the Nez Perces, 12 Stat. 957 (1859); Treaty of June 9, 1863, Treaty with the Nez Perces, 14 Stats. 647 (1867)), the CTUIR (Treaty of June 9, 1855 with the Walla Walla, Cayuse, etc, 12 Stat. 945 (1859)), and the Yakama (Treaty of June 9, 1855, Treaty with the Yakama, 12 Stat. 951) established reservations and explicitly reserved unto the Tribes certain rights, including the exclusive right to take fish in streams running through or bordering reservations, the right to take fish at all usual and accustomed places in common with citizens of the territory, amongst other rights. Like other treaty obligations of the United States, Indian treaties are "the supreme law of the land," and they are the foundation upon which federal Indian law and the federal Indian trust relationship is based.

Implementation of Alternative 2, the Balanced Use Alternative, would not affect treaty rights or resources.

4.2 FEDERAL LAWS

4.2.1 National Environmental Policy Act

As required by NEPA and subsequent implementing regulations promulgated by the Council on Environmental Quality, this EA was prepared in order to determine whether the proposed action constitutes a "…major Federal action significantly affecting the quality of the human environment…" and whether an Environmental Impact Statement is required.

This EA considers and describes potential environmental effects associated with adoption of an updated MP for management of recreational, natural, and cultural resources at McNary Project. USACE released the Draft Finding of No Significant Impact (FONSI) and this EA to other federal and state agencies, Tribes, and the public for a 30-day review and comment period beginning on July 10, 2023, and concluding on August 10, 2023. While preparing the EA, USACE did not identify any impacts that would significantly affect the quality of the human environment. If no such impacts are identified during the public review process, compliance with NEPA would be achieved upon the signing of the FONSI which would be posted to the USACE website and available to the public.

Implementation of Alternative 2, the Balanced Use Alternative would comply with this Act. Subsequent actions would be subject to further tiered review under NEPA.

4.2.2 Endangered Species Act

The ESA established a national program for the conservation of threatened and endangered fish, wildlife and plants and the habitat upon which they depend. Section 7(a)(2) of the ESA requires federal agencies to consult with the USFWS and the National Marine Fisheries Service (NMFS) (the Services), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats. Section 7(c) of the ESA and the federal regulations on endangered species coordination (50 CFR §402.12) require that federal agencies prepare biological assessments of the potential effects of major actions on listed species and their critical habitat.

The revised MP includes concepts, not details of design or administration. Detailed management and administration functions would be addressed in an OMP or similar plan, which implements the concepts of the MP into operational actions. Due to the lack of details, it is not possible to determine what effects there might be to ESA-listed species. Development of the revised MP would have no effect on ESA-listed species and no ESA consultation is required at this time.

4.2.3 Magnuson-Stevens Fishery Conservation and Management Act - Essential Fish Habitat

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

Chinook and Coho salmon are the only species in the area protected by the MSA. Implementation of the Balanced Use Alternative would have no adverse effect on Chinook, or Coho EFH and would comply with this Act.

4.2.4 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) requires consultation with USFWS and state fish and wildlife agencies to evaluate the impacts to fish and wildlife species where the “waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted…or otherwise controlled or modified” by any agency under a federal permit or license. The FWCA also requires equal consideration and coordination of wildlife conservation with other water resources development programs.

The Lower Snake River Fish and Wildlife Compensation Plan was developed under the FWCA. Many environmental decisions and improvements on USACE lands stem from this plan. While the Lower Snake River Fish and Wildlife Compensation Plan does not directly apply to McNary Project lands, it did inform the planting, design, and wildlife management activities of HMUs in the McNary pool.

Implementing future plans or actions would require subsequent review to ensure compliance with the FWCA. Implementation of Alternative 2 would not be subject to the Act as it would not result in the control or modification of a natural stream or body of water.

4.2.5 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703-712, as amended) prohibits the taking of and commerce in migratory birds (live or dead), any parts of migratory birds, their feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. There is also a Memorandum of Understanding between the Department of Defense and the USFWS, signed July 31, 2006, to promote the conservation of migratory birds.

Depending on the nature or type of proposed future actions, subsequent environmental compliance would be required to ensure compliance with the MBTA. A wide variety of species listed under the MBTA occur on USACE managed lands within the McNary Project area. There would be no take of migratory birds and the proposed action would not conflict with the purpose of the MBTA. The adoption of the revised MP would comply with the MBTA.

4.2.6 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions, primarily for Native

American Tribes. Take under the BGEPA includes both direct taking of individuals and take due to disturbance. Disturbance is further defined in 50 CFR 22.3.

Bald and golden eagles are known to nest and roost on USACE managed lands in the McNary Dam Project area. While all nest sites have not been formally documented in the USACE District, locations of some nests are known.

Depending on the nature or type of proposed future actions, subsequent environmental compliance would be required to ensure compliance with the BGEPA. Implementation of the Balanced Use Alternative would comply with the BGEPA and would not result in disturbance or take of bald or golden eagles.

4.2.7 National Historic Preservation Act

The NHPA of 1966 as amended directs federal agencies to assume responsibility for all cultural resources under their jurisdiction. Section 106 of NHPA requires agencies to consider the potential effect of their actions on properties that are listed, or are eligible for listing, on the NRHP. The NHPA implementing regulations, 36 CFR Part 800, requires that the federal agency consult with the State Historic Preservation Officer (SHPO), Tribes and interested parties to ensure that all historic properties are adequately identified, evaluated, and considered in planning for proposed undertakings.

USACE has previously acknowledged that the ongoing operation of McNary Dam is an adverse effect under NHPA as part of the Federal Columbia River Power System (FCRPS) Programmatic Agreement (BPA et al. 2009). The FCRPS is a series of 14 hydroelectric power projects in the Columbia River Basin located on the mainstem Columbia River and in several of its major tributaries that provide about one-third of the electricity used in the Pacific Northwest. The 2009 FCRPS Programmatic Agreement outlines that some of the effects to cultural resources include "inundation, erosion, exposure, and other factors" (BPA et al. 2009:2).

The Programmatic Agreement outlines a series of "standards, requirements, and obligations for compliance with Section 106 of NHPA" that must be met by USACE, BPA, and Bureau of Reclamation (BPA et al. 2009:4). As part of the program, USACE has responsibility to address compliance requirements (i.e. review undertakings, seek to minimize adverse effects, and conduct mitigation if they cannot be minimized); collaborate with consulting parties; adhere to professional standards; provide public benefit from resource management; maintain confidentiality; and comply with these principles during the 20-year lifespan of the Programmatic Agreement.

Implementation of site-specific actions would be identified in future OMPs or similar plans. Those actions would require tiered NEPA review and compliance specific to all applicable laws. The revised MP would not authorize any new site-specific actions, and therefore does not have the potential to cause effects to historic properties. The land use classifications provide a blueprint for management actions that may be appropriate in different areas on USACE land. Since specific actions having the potential to affect

cultural resources would be reviewed separately, the revised MP has no potential to cause effects.

4.2.8 American Indian Religious Freedom Act

The American Indian Religious Freedom Act (AIRFA) of 1978 (42 USCA 1996) established protection and preservation of Native Americans' rights of freedom of belief, expression, and exercise of traditional religions. Courts have interpreted AIRFA to mean that public officials must consider Native Americans' AIRFA interests before undertaking actions that might harm those interests.

Individual site-specific proposed actions would be subject to review under applicable federal laws, including AIRFA.USACE respects AIRFA and is receptive to tribal comments at any time. Implementation of Alternative 2, the Balanced Use Alternative, complies with AIRFA. The MP is a planning document providing conceptual guidance regarding NRM and does not cause any new site-specific actions or changes to tribal access for exercising religious freedoms.

4.2.9 Clean Water Act

The Federal Water Pollution Control Act (33 U.S.C. §1251 et seq., as amended) is more commonly referred to as the Clean Water Act (CWA). This act is the primary legislative vehicle for federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The act was established to restore and maintain the chemical, physical, and biological integrity of the Nation's waters and sets goals to eliminate discharges of pollutants into navigable water, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment. The act has been amended numerous times and given several titles and codifications.

Future site-specific actions would be reviewed, as appropriate, for compliance with the CWA. Revision of the MP would not require or trigger compliance with the CWA.

4.2.10 Clean Air Act

The Clean Air Act (CAA) of 1970, as amended, established a comprehensive program for improving and maintaining air quality throughout the United States. Its goals are achieved through permitting of stationary sources, restricting the emission of toxic substances from stationary and mobile sources, and establishing National Ambient Air Quality Standards. Title IV of the CAA includes provisions for complying with noise pollution standards.

Revision of the MP would have no adverse impacts on air quality and would comply with the CAA. Future site-specific actions would require subsequent review to ensure compliance with the CAA.

4.3 Executive Orders (EO)

4.3.1 EO 11988 and EO 13690, Floodplain and Flood Risk Management

These EO's outline the responsibilities of federal agencies in the role of floodplain and flood risk management. Each agency must evaluate the potential effects of actions on floodplains and aim to improve the Nation's preparedness and resilience against flooding and avoid undertaking actions that directly or indirectly induce development in the floodplain or adversely affect natural floodplain values.

These EOs also include the need to improve the resilience of communities and federal assets ageing the effects of flooding, which are anticipated to increase over time due to the effects of climate change and other threats. Losses caused by flooding affect the environment, the economy, and public health and safety, each of which affects our national security.

A detailed review of potential future site-specific actions would be completed to ensure floodplains values and functions would not be affected. The proposed action of revising the MP would not change floodplain function or increase floodplain development in the proposed action area.

4.3.2 EO 11990, Protection of Wetlands

This EO requires federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

A detailed review of potential future site-specific actions would be completed to ensure wetland values and functions would not be affected. Wetlands would not be detrimentally impacted by implementation of the Balanced Use Alternative.

4.3.3 EO 12898, Environmental Justice

This EO requires federal agencies to consider and minimize potential impacts to subsistence, low income, or minority communities. The goal is to ensure that no person or group of people shoulder a disproportionate share of negative environmental impacts resulting from the execution of the country's domestic and foreign policy programs.

The revised MP is a conceptual planning document for strategic land management and development of project recreation, natural and cultural resources. It is intended for responsible stewardship and sustainability of resources. The revised MP would not direct specific actions that would cause a disproportionate share of negative environmental impacts to a person or group of people.

Implementing future plans or actions would require subsequent review to ensure compliance with this EO. Revision of the MP would not conflict with requirements of this EO.

4.3.4 EO 13007, Native American Sacred Sites

EO 13007 directs federal agencies to accommodate access to and ceremonial use of tribal sacred sites by tribal religious practitioners. Agencies are to avoid adversely affecting the physical integrity of such sacred sites and to maintain the confidentiality of sacred sites when appropriate. The Act encourages government-to-government consultation with tribes concerning sacred sites. Some sacred sites may qualify as historic properties under the NHPA.

The revised MP is a planning document and does not authorize any new site-specific actions. USACE would continue to consult with Native American Tribes regarding Sacred Sites on McNary Project Lands. Revision of the MP would have no potential to affect any Native American sacred sites.

4.3.5 EO 13175, Consultation and Coordination with Indian Tribal Governments, November 6, 2000, and Presidential Memorandum, "Government to Government Relations with Native American Tribal Governments", April 29, 1994

EO 13175 sets forth guidelines for all federal agencies to establish regular and meaningful consultation and collaboration with Indian tribal officials in the development of federal policies that have tribal implications; strengthen the United States government-to-government relationships with Indian tribes; and reduce the imposition of unfunded mandates on Indian tribes.

The Presidential Memorandum of 1994 states in part that, "each…department and agency shall consult, to the greatest extent practicable and permitted by law, with tribal governments prior to taking actions that affect federally recognized tribal governments."

Site-specific actions would be identified in future OMPs or similar plans, and those actions may require tiered NEPA review and compliance specific to all applicable laws. The revised MP would not authorize any new site-specific actions, which could have tribal implications or affect tribal governments.

4.3.6 EO 13112, Invasive Species

EO 13211 directs federal agencies to prevent the introduction of invasive species, to provide their control and to minimize the economic, ecological, and human health impacts from invasive species.

Reducing and restricting the spread of invasive and nuisance species would be achieved by monitoring, assessment, and an integrated pest management approach to treatment according to the USACE Integrated Pest Management Plan (IPMP). This

includes the use of chemical, mechanical, and biological control methods, as well as reseeding and planting with appropriate plant species.

4.4 State and Local Regulations

State, county, and/or local laws and regulations may also be applicable to any potential action, based on aspects of the individual action. On a case-by-case basis, these types of requirements would be addressed for site specific actions under the OMPs. The proposed action of revising the MP would not trigger compliance with any state, county, or local laws and regulations.

Section 5 – Public Involvement and Tribal Consultation

5.1 Public Involvement

5.1.1 Scoping

A 30-day public scoping process for the McNary Master Plan revision was initiated on May 2, 2022 and concluded on June 2, 2022. USACE sent approximately 120 letters and emails to stakeholders (community groups, elected officials, government agencies, and interested parties) inviting them to comment on the scope of the Master Plan update. In addition, to publicize the scoping process, ads were placed in a local newspaper, news releases were published and sent to local news outlets and radio stations, and notices were posted to the Walla Walla District and McNary Facebook pages.

Public scoping meetings were held on May 10, 2022, at the Red Lion Inn in Kennewick, Washington, and on May 11, 2022, at the Pacific Salmon Visitor Information Center in Umatilla, Oregon. A stakeholder meeting was held on May 10, 2022, at the Red Lion Inn in Kennewick before the public meeting. More than 20 people attended the meetings.

The scoping process was an opportunity to get input from the public and agencies about the vision for the Master Plan update and the issues that the Master Plan should address, where possible. During the scoping period, USACE received suggestions and comments from about 30 people related to management issues and recreation at the Project.

5.1.2 Draft Document Review

The Draft MP, Draft FONSI and this EA was released to the public, Tribes, agencies and interested parties on July 10, 2023, for a 30-day review and comment period which was closed on August 10, 2023. USACE received one comment during the 30-day review and comment period. Documents will be available on the USACE website at: https://www.nww.usace.army.mil/Locations/District-Locks-and-Dams/McNary-Lock-and-Dam/McNary-Master-Plan/

5.2 Tribal Consultation

On April 20, 2022, USACE sent a letter offering Government-to-Government Consultation to the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, the Wanapum Band, and the Nez Perce Tribe to initiate consultation for the update to the McNary Master Plan. USACE held a private meeting for local, Tribal, and government officials on Tuesday, May 10, 2022, in Kennewick, Washington from 1 – 3 pm. Followed by two open houses in which the public were welcome to attend, May 10, 2022, in Kennewick, Washington from 4 – 7 pm, and the second open house on May 11, 2022, in Umatilla, Oregon from 4 – 7 pm. At these meetings, USACE provided information and accepted comments on

the update to the Master Plan and the accompanying Environmental Assessment. Scoping comments were accepted from May 2 through June 2, 2022.

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McNary Master Plan EA
Appendix

McNary Master Plan Environmental Justice – Climate and Economic Justice Screening Tool Data Tables

McNary Master Plan Environmental Justice – Climate and Economic Justice Screening Tool Data Tables

Environmental Burdens and Associated Socioeconomic Burdens in the Area of **Benton County, Washington** Associated with the McNary Project Area

Tract #53005011600

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	Expected Population Loss Rate (93rd, exceeds 90th percentile)	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Unemployment (90th, exceeds 90th percentile)	High School Education (27%, exceeds 10%)

Tract #53005011401

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	Asthma (94th, exceeds 90th percentile)	Low Income (87th, exceeds 65th percentile)
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Low Median Income (91st, exceeds 90th percentile)	High School Education (24%, exceeds 10%)

Tract #53005011200

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	Asthma (94th, exceeds 90th percentile)	Low Income (93rd, exceeds 65th percentile)
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Linguistic Isolation (91st, exceeds 90th percentile) Low Median Income (93rd, exceeds 90th percentile) Poverty (93rd, exceeds 90th percentile)	High School Education (32%, exceeds 10%)

Tract #53005011300

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	Proximity to Risk Management Plan Facilities (96th, exceeds 90th percentile)	Low Income (79th, exceeds 65th percentile)
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	High School Education (22%, exceeds 10%)

Tract #53005011002

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	Asthma (93rd, exceeds 90th percentile)	Low Income (79th, exceeds 65th percentile)
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	High School Education (15%, exceeds 10%)

Tract #53005010902

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	Asthma (91st, exceeds 90th percentile)	Low Income (72nd, exceeds 65th percentile)
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	High School Education (16%, exceeds 10%)

Tract #53005011001

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	Asthma (90th, exceeds 90th percentile)	Low Income (89th, exceeds 65th percentile)
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	High School Education (13%, exceeds 10%)

Tract #53005010500

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	Projected Flood Risk (90th, exceeds 90th percentile)	Low Income (77th, exceeds 65th percentile)
Energy	-	-
Health	Low Life Expectancy (93rd, exceeds 90th percentile)	Low Income (77th, exceeds 65th percentile)
Housing	Lead Paint (93rd, exceeds 90th percentile)	Low Income (77th, exceeds 65th percentile)
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	-

Tract #53005010400

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	Projected Wildfire Risk (99th, exceeds 90th percentile)	Low Income (76th, exceeds 65th percentile)
Energy	-	-
Health	Asthma (90th, exceeds 90th percentile)	Low Income (76th, exceeds 65th percentile)
Housing	Lead Paint (96th, exceeds 90th percentile)	Low Income (76th, exceeds 65th percentile)
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	Wastewater Discharge (96th, exceed 90th percentile)	Low Income (76th, exceeds 65th percentile)
Workforce Development	-	-

Tract #53005010703

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	Projected Wildfire Risk (93rd, exceeds 90th percentile)	Low Income (68th, exceeds 65th percentile)
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	-

Environmental Burdens and Associated Socioeconomic Burdens in the Area of **Walla Walla County, Washington** Associated with the McNary Project Area

Tract #53071920000

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	Formerly Used Defense Sites	Low Income (73rd, exceeds 65th percentile)
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	High School Education (20%, exceeds 10%)

Environmental Burdens and Associated Socioeconomic Burdens in the Area of **Franklin County, Washington** Associated with the McNary Project Area

Tract #53021020100

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	Proximity to Risk Management Plan Facilities (99th, exceeds 90th percentile) Proximity to Superfund Sites (91st, exceeds 90th percentile)	Low Income (90th, exceeds 65th percentile)
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Linguistic Isolation (98th, exceeds 90th percentile) Unemployment (92nd, exceeds 90th percentile)	High School Education (56%, exceeds 10%)

Tract #53021020400

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	Projected Flood Risk (93rd, exceeds 90th percentile)	Low Income (92nd, exceeds 65th percentile)
Energy	-	-
Health	-	-
Housing	Lack of Indoor Plumbing (98th, exceeds 90th percentile)	Low Income (92nd, exceeds 65th percentile)
Legacy Pollution	Proximity to Risk Management Plan Facilities (97th, exceeds 90th percentile)	Low Income (92nd, exceeds 65th percentile)
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Linguistic Isolation (98th, exceeds 90th percentile) Low Median Income (92nd, exceeds 90th percentile)	High School Education (44%, exceeds 10%)

Tract #53021020200

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	Proximity to Risk Management Plan Facilities (99th, exceeds 90th percentile)	Low Income (92nd, exceeds 65th percentile)
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Linguistic Isolation (99th, exceeds 90th percentile) Poverty (90th, exceeds 90th percentile)	High School Education (47%, exceeds 10%)

Tract #53021020300

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	Proximity to Risk Management Plan Facilities (99th, exceeds 90th percentile)	Low Income (89th, exceeds 65th percentile)
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Linguistic Isolation (96^{th,} exceeds 90th percentile)	High School Education (38%, exceeds 10%)

Tract #53021020800

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Linguistic Isolation (94th, exceeds 90th percentile)	Low Income (76th, exceeds 65th percentile) High School Education (33%, exceeds 10%)

Environmental Burdens and Associated Socioeconomic Burdens in the Area of **Umatilla County, Oregon** Associated with the McNary Project Area

Tract #41059951000

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	-	-
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	Unemployment (91st, exceeds 90th percentile)	Low Income (66th, exceeds 65th percentile) High School Education (25%, exceeds 10%)

Tract #41059950900

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	Proximity to Risk Management Plan Facilities (90th, exceeds 90th percentile)	Low Income (86th, exceeds 65th percentile)
Transportation	-	-
Water and Wastewater	-	-
Workforce Development	-	High School Education (20%, exceeds 10%)

Tract #41059950800

Category	Burden	Associated Socioeconomic Burden (Low Income or High School Education)
Climate Change	-	-
Energy	-	-
Health	-	-
Housing	-	-
Legacy Pollution	-	-
Transportation	Transportation Barrier (91st, exceeds 90th percentile)	Low Income (80th, exceeds 65th percentile)
Water and Wastewater	-	-
Workforce Development	-	High School Education (21%, exceeds 10%)

FINAL FINDING OF NO SIGNIFICANT IMPACT

MCNARY MASTER PLAN REVISION

Benton, Franklin, and Walla Walla Counties, Washington and Umatilla County, Oregon

September 2023

The U.S. Army Corps of Engineers, Walla Walla District (USACE) is proposing to revise/update the 1982 McNary Project (Project) Master Plan (MP) Revision and therefore has written an environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. The EA identifies, describes, and analyzes potential environmental effects associated with the proposed action of revising/updating the 1982 MP for management of recreational, natural, and cultural resources at the Project on the Columbia River, encompassing portions of Benton, Franklin, and Walla Walla Counties, Washington and Umatilla County, Oregon. The Revised MP, incorporated into the EA by reference made here, would be a strategic land use management document that guides the comprehensive management and development of all recreation, natural and cultural resources of the Project. The final Revised MP can be viewed at: https://www.nww.usace.army.mil/Locations/District-Locks-and-Dams/McNary-Lock-and-Dam/McNary-Master-Plan/

The EA incorporated herein by reference and made a part hereof, considered five alternatives for strategic Project development and management including the No Action alternative. The other four alternatives considered, were focused on cultural resources protection, recreation, wildlife management, and an alternative that balances the three.

Screening criteria helped eliminate those alternatives that could not reasonably or practically meet the proposed action purpose and need. When setting up screening criteria, USACE closely re-evaluated the purpose and need of the proposed action, which is “to manage all McNary recreational, natural, and cultural resources in a comprehensive manner that complies with applicable laws and USACE policies, including current USACE land classification standards.” After screening, the Balanced Use Alternative (Proposed Action) was carried forward for further environmental analysis, as well as the “No Action/change” alternative for comparison purposes. If implemented, the Proposed Action Alternative could provide for regional needs, resource capabilities and site suitability, and a comprehensive recreation program.

Potential effects to the following resources were evaluated for the No Action Alternative and the Proposed Action Alternative:

Resource	In-depth evaluation conducted	Brief evaluation due to minor effects	Resource unaffected by action
Aesthetics and Visual Resources	-	-	☒
Noise	-	-	☒
Air Quality	-	-	☒
Land Use	☒	-	-
Recreation	☒	-	-
Vegetation	☒	-	-
Wildlife	☒	-	-
Water Quality	-	☒	-
Aquatic Resources	-	☒	-
Threatened and Endangered Species	-	☒	-
Geologic Features and Soil	☒	-	-
Socioeconomics and Environmental Justice	-	☒	-
Cultural and Historic Resources	-	☒	-

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed. Refer to Section 4 (Compliance with Applicable Environmental Laws and Regulations) in the EA. USACE considered effects under treaty rights, NEPA, Endangered Species Act, Clean Water Act, the Clean Air Act, the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Native American Graves Protection and Repatriation Act, the Fish and Wildlife Coordination Act, and American Indian Religious Freedom Act and found the Proposed Action in compliance. USACE also considered Executive Orders 11988 (Floodplain Management), 11990 (Protection of Wetlands), 12898 (Environmental Justice), 13007 (Native American Sacred Sites), and 13175 (Consultation and Coordination with Indian Tribal Governments) and found the Proposed Action in compliance.

The Revised MP includes concepts, not details of design or administration. Detailed management and administration functions would be addressed in future Operational Management Plans (OMP), which implements the concepts of the MP into operational actions. Due to the lack of details, it is not possible to determine what effects there might be to the human or natural environment from implementing the OMP. Additionally, the Revised MP would not authorize any new site-specific actions, and therefore does not have the potential to cause effects to historic properties covered under the National Historic Preservation Act. Separate environmental compliance would be completed prior to implementation of proposed OMP actions, as appropriate.

A 30-day joint public, state, tribal, and agency review of the Draft FONSI and EA was completed on 10 August 2023. The EA and land use maps were made available for review at the following location: https://www.nww.usace.army.mil/Locations/District-Locks-and-Dams/McNary-Lock-and-Dam/McNary-Master-Plan/.

All comments submitted during the public review period were considered in further development of the EA, and responses to the comments are provided in the Public Comment Response Document in the Appendix.

Technical, environmental, and economic criteria were used in the formulation of alternative plans as specified in the Engineering Pamphlet (EP) 1130-2-550 Recreation Operations and Maintenance Guidance and Procedures. All applicable laws, executive orders, regulations, regional needs, and expressed public interests were considered in evaluation of alternatives. Based on this EA, the reviews by other federal, state, and local agencies, Tribes, input from the public, and the review by my staff, it is my determination that the Proposed Action Alternative would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required. The District will update/revise the McNary Master Plan as outlined in the EA and preferred (Balanced) alternative at the earliest possible opportunity, subject to availability of resources and funding.

10/26/23
Date

KINGSLACK.SHAILIN.YNACAY.1241230283
2023.10.26 10:41:46 -07'00'

SHAILIN KINGSLACK
Lieutenant Colonel, Corps of Engineers
District Commander

Attachment 1: Public Comment Response Document

FONSI for McNary Master Plan

Attachment 1

Public Comment Response Document

The following was the only comment that USACE received during the Public Review and Comment Period, July 10, 2023 – August 10, 2023.

Comment received via email:

Corps of Engineers,

Thank you for the opportunity to provide comment on the McNary Shoreline Management Plan. The City of Richland provided feedback on the draft plan in 2022 and submits the following comments on the current 2023 draft.

1. Pg. 105. Only portions of Howard Amon Park are outgranted to the City of Richland.
2. Pg 106. Only portions of Columbia Point Marina Park are outgranted to the City of Richland.
3. Pg 121. The Chamna Natural Preserve is not leased to the Tapteal Greenway Association.

Thank you and please don't hesitate to reach out.

Response via email:

Thank you for your important input. The wording in the Master Plan has been adjusted to reflect the information provided for those three areas.

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APPENDIX C

LEGISLATIVE HISTORY OF McNARY LOCK AND DAM PROJECT

Item 1 - Legislative History

The legislative history leading to the construction of McNary Lock and Dam dates back to March 2, 1945, when Congress by Public Law 14, 79th Congress, First Session, authorized construction. This legislation included no requirements for local cooperation. Additional legislation later provided that Federal water resource projects shall be developed and operated for public recreation, wildlife, and other collateral purposes. This additional legislation does, in certain instances, encourage and/or require local cooperation. Authority

a. Rivers and Harbors Act of 1945

Public Law 14, Seventy-Ninth Congress, First Session, authorized construction of McNary Lock and Dam and specified the primary purposes of the McNary project to be navigation, power development, and irrigation. Other laws have authorized development and use of the lands and waters for recreational purposes.

(1) Washington, D.C., Public Hearings

Proponents of House Document 704 held a public hearing in Washington, D.C., in 1945, where they presented voluminous data in support of immediate slackwater navigation to Lewiston; and the economic consequences to the nation and the region which would be caused by any delay.

(2) Local Public Hearings

At that time, local interests in general wanted the adoption of a comprehensive plan in the interest of navigation for the coordinated development of the Columbia and Snake Rivers, through a series of locks and dams from The Dalles, Oregon, to Lewiston, Idaho.

(3) Fishing Interests

The fishery interests, in general, did not oppose the adoption of a comprehensive plan of improvement, but desired that further developments on the Columbia and Snake Rivers be held in abeyance until the effect on the fishing industry of Bonneville and Grand Coulee Dams was determined.

b. House Document 531

At the request of Congress, the Corps of Engineers undertook a complete review of the original reports on the Columbia River and tributaries. Studies for that review were carried on during the last half of the 1940s, and resulted in House Document No. 531, Eighty-First Congress, Second Session, dated March 20, 1950.

Item 2 – Authorities

Authorities specifically related to the management of recreation and public access are found in statutes, public laws, federal regulations; Executive Orders (EO); and the Corps ERs, Engineer Manuals (EM), and EPs. They include, but are not necessarily limited to, those listed below:

36 CFR § 79	Curation of Federally Owned and Administered Archaeological Collections, July 1, 2012
36 CFR § 327	Rules and Regulations Governing Public Use of Corps of Engineers Water Resources Development Projects, February 11, 2000
PL 78-534	Flood Control Act of 1944, December 22,1944
PL 79-14	River and Harbor Act of 1945
PL 88-578	Land and Water conservation Fund Act of 1965, September 3,1964
PL 96-95	Archaeological Resources Protection Act (ARPA) of 1979
PL 101-601	Native American Graves Protection and Repatriation Act (NAGPRA)
PL 102-575	National Historic Preservation Act (NHPA) of 1966
EO 11989	Off-Road Vehicles in Public Lands, May 24, 1977 (amends EO 11644)
EO 13751	Safeguarding the Nation from the Impacts of Invasive Species, December 8, 2016
EO 14008	Tackling the Climate Crisis at Home and Abroad, January 27, 2021
EM 385-1-1	Safety and Health Requirements (Corps 2014b)
EM 1110-2-410	Design of Recreation Areas and Facilities Access and Circulation, December 1982 (Corps 1982)
EP 310-1-6	Graphic Standards Manual, September 1994 (Corps 1994)
EP 1130-2-540	Environmental Stewardship Operations and Maintenance Guidance and Procedures, November 1996 (Corps 1996a)
EP 1130-2-550	Recreation Operations and Maintenance Guidance and Procedures,

	November 1996 (revised January 2013) (Corps 1996b)
ER 200-1-5	Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers Environmental Operating Principles (EOP) and Doctrine, October 2003 (Corps 2003)
ER 405-1-12	Real Estate Handbook, Chapter 8, November 1985 (Corps 1985)
ER 1105-2-100	Planning Guidance Notebook, April 2000 (Corps 2000)
ER 1110-2-400	Design of Recreation Sites, Areas, and Facilities, May 1988 (Corps 1988)
ER 1130-2-540	Environmental Stewardship Operations and Maintenance Policies, November 1996 (Corps 1996c)
ER 1130-2-550	Recreation Operations and Maintenance Policies, November 1996 (Corps 1996d)
ER 1165-2-400	Recreation Planning, Development, and Management Policies, August 1985 (Corps 1985b

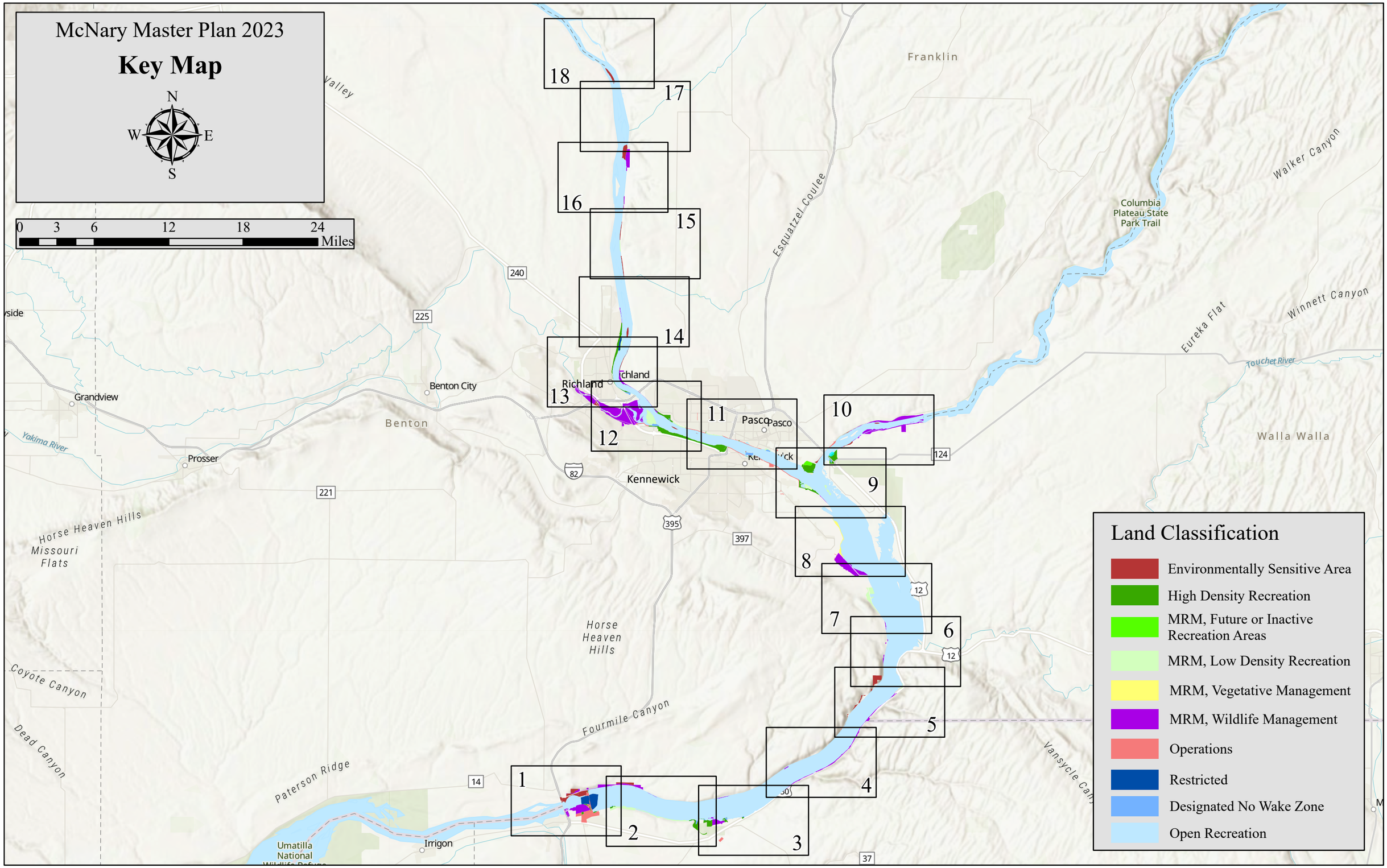
APPENDIX D

MCNARY LOCK AND DAM PROJECT LIST OF DESIGN MEMORANDA

Table D-1. McNary Design Memoranda

No.	Cover Title	Cover Date
1	Levee Operations and Maintenance Building; Paint and Oil Storage Shed; Pumping Plants Warning System Phase 1 GDM: McNary Lock and Dam Second Powerhouse Phase 2 GDM: McNary Lock and Dam Second Powerhouse	September 2, 1955 October 1979 November 1983
2	Preliminary Cost Allocation Studies	November 22, 1954
3	Kennewick Levees 15D and 5D, Interior Drains	October 15, 1954
4	Kennewick Levees 4A and 6B, Seepage Control	October 21, 1954
5	Navigation Lock Gate Fender	December 8, 1954 September 15, 1958
6	Revetment Repair	May 6, 1955
7	Pasco Levee 12, Seepage Control	September 9, 1955
8	Security Building and Fire Station	March 23, 1956
9	Irrigation Development Plan, Project Area	December 7, 1956 December 18, 1958
10	Permanent Water Supply	July 24, 1957
11	Landscaping and Grounds Development	February 1, 1957 January 2, 1959
12	Recreation Facilities Supplement to Recreation Facilities	April 26, 1957 February 5, 1960
13	Fencing Ponding Area, Kennewick Levee 5D	June 24, 1955
14	Project Maintenance Roads and Parking Facilities	March 28, 1956
15	Security Floodlighting, Warehouse Area	June 29, 1955
16	Sandblasting Facilities	May 7, 1958
18	Visitors' Shelter	April 15, 1957
20	Synchronization of Lock Filling Valves	December 21, 1955
21	Security Floodlighting, Project Area	April 27, 1956
22	Bank Protection, Richland Park	December 10, 1957

No.	Cover Title	Cover Date
24	McNary Master Plan: A Plan for Development & Management of the Natural & Manmade Resources of Lake Wallula	1982
25	Modification of Main Unit Controls and Annunciation	July 7, 1957
26	Remote Operation of Spillway Gates	July 31, 1959
27	Modification of Station Service Controls and Annunciation	October 3, 1960
28	Modification of Northern Pacific Railway Bridge No. 3, Snake River	December 1, 1966
28C	McNary Master Plan Supplement No. 1: Sediment Control Wallula Park Small Boat Harbor Area	September 9, 1964
29	Reservoir Recreation Facilities	November 21, 1968
29.1	Expansion of Lake Wallula Recreation Facilities Supplement 1: Expansion of Lake Wallula Recreation Facilities	October 2, 1970 May 7, 1971 January 9, 1981
30	Pumping Plant 12-1A	October 10, 1967
31	Data Acquisition and Control System	October, 1987
33	Turbine Intake Screening System Supplement No. 1: Turbine Intake Screening System	March, 1994 November, 1997
34	Turbine Intake Screening System Screen Rehabilitation Facility	December, 1995


McNary Master Plan 2023
Key Map
N
W
E
S
0 3 6 12 18 24
Miles
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Franklin
Esquatzel Coulee
Walker Canyon
Columbia Plateau State Park Trail
Eureka Flat
Winnett Canyon
Touchet River
Walla Walla
Richland
Benton City
Benton
Grandview
Yakima River
Prosser
Pasco
Kennewick
Horse Heaven Hills
Missouri Flats
Coyote Canyon
Dead Canyon
Paterson Ridge
Fourmile Canyon
Horse Heaven Hills
Umatilla National
Irrigon
Vansycle Can
240
225
221
82
395
397
124
12
14
37
Land Classification
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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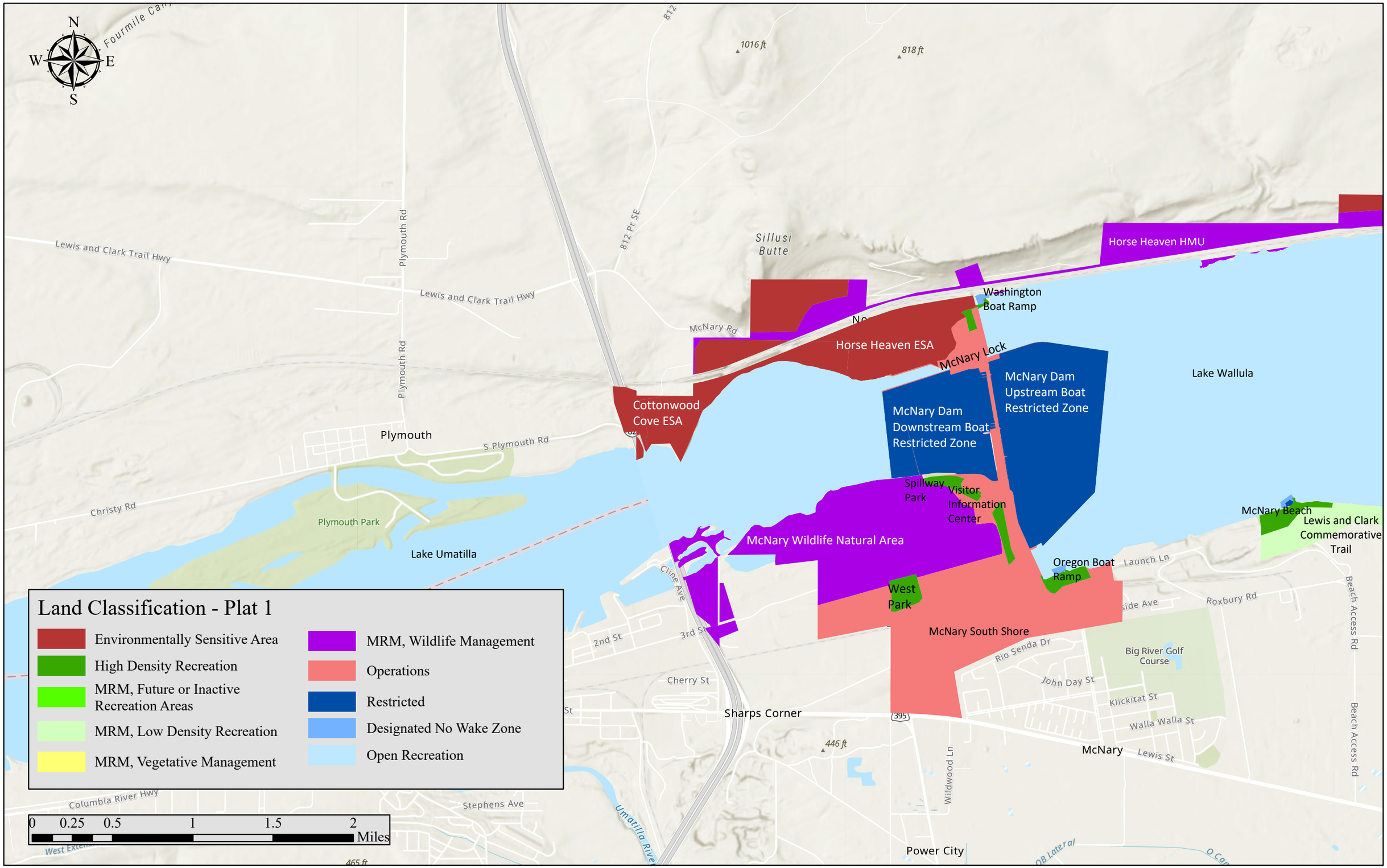
N
W
E
S
Fourmile Canyon
1016 ft
818 ft
812
812 Pr SE
Sillusi Butte
Lewis and Clark Trail Hwy
Lewis and Clark Trail Hwy
Plymouth Rd
Plymouth Rd
McNary Rd
Horse Heaven HMU
Washington Boat Ramp
Horse Heaven ESA
McNary Lock
McNary Dam Upstream Boat Restricted Zone
Lake Wallula
Cottonwood Cove ESA
McNary Dam Downstream Boat Restricted Zone
Plymouth
S Plymouth Rd
Spillway Park
Visitor Information Center
Christy Rd
Plymouth Park
Lake Umatilla
McNary Wildlife Natural Area
McNary Beach
Lewis and Clark Commemorative Trail
Oregon Boat Ramp
Launch Ln
West Park
Roxbury Rd
Beach Access Rd
McNary South Shore
Cline Ave
2nd St
3rd St
Cherry St
Rio Senda Dr
Big River Golf Course
John Day St
Klickitat St
Walla Walla St
Sharps Corner
395
446 ft
McNary
Lewis St
Wildwood Ln
Columbia River Hwy
Stephens Ave
Umatilla River
Power City
465 ft
Land Classification - Plat 1
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
0 0.25 0.5 1 1.5 2
Miles

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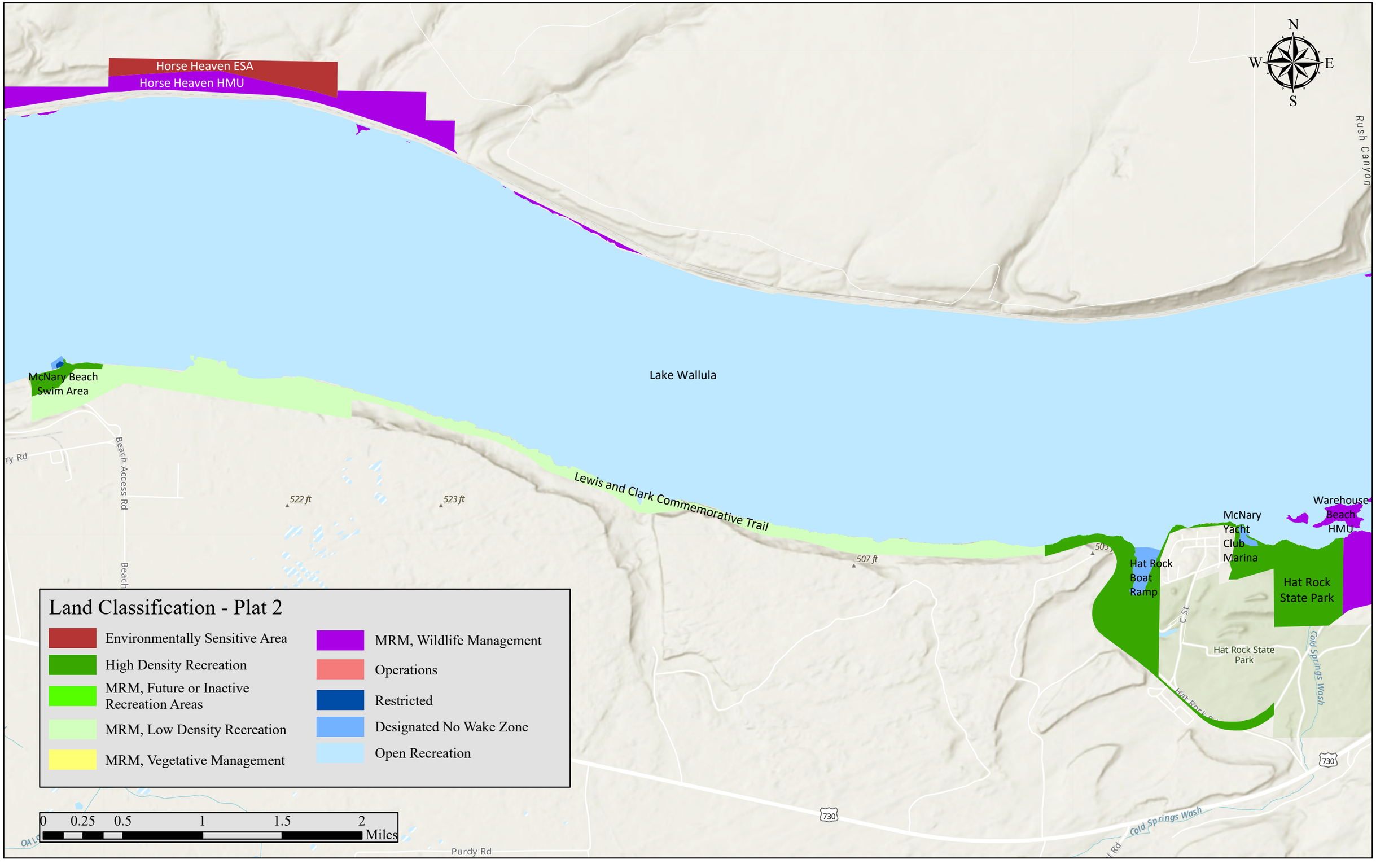
Horse Heaven ESA
Horse Heaven HMU
N
W
E
S
Rush Canyon
Lake Wallula
McNary Beach
Swim Area
Beach Access Rd
522 ft
523 ft
Lewis and Clark Commemorative Trail
507 ft
Warehouse
Beach
HMU
McNary
Yacht
Club
Marina
Hat Rock
Boat
Ramp
Hat Rock
State Park
C St
Hat Rock State
Park
Cold Springs Wash
730
Purdy Rd
Land Classification - Plat 2
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
0 0.25 0.5 1 1.5 2
Miles

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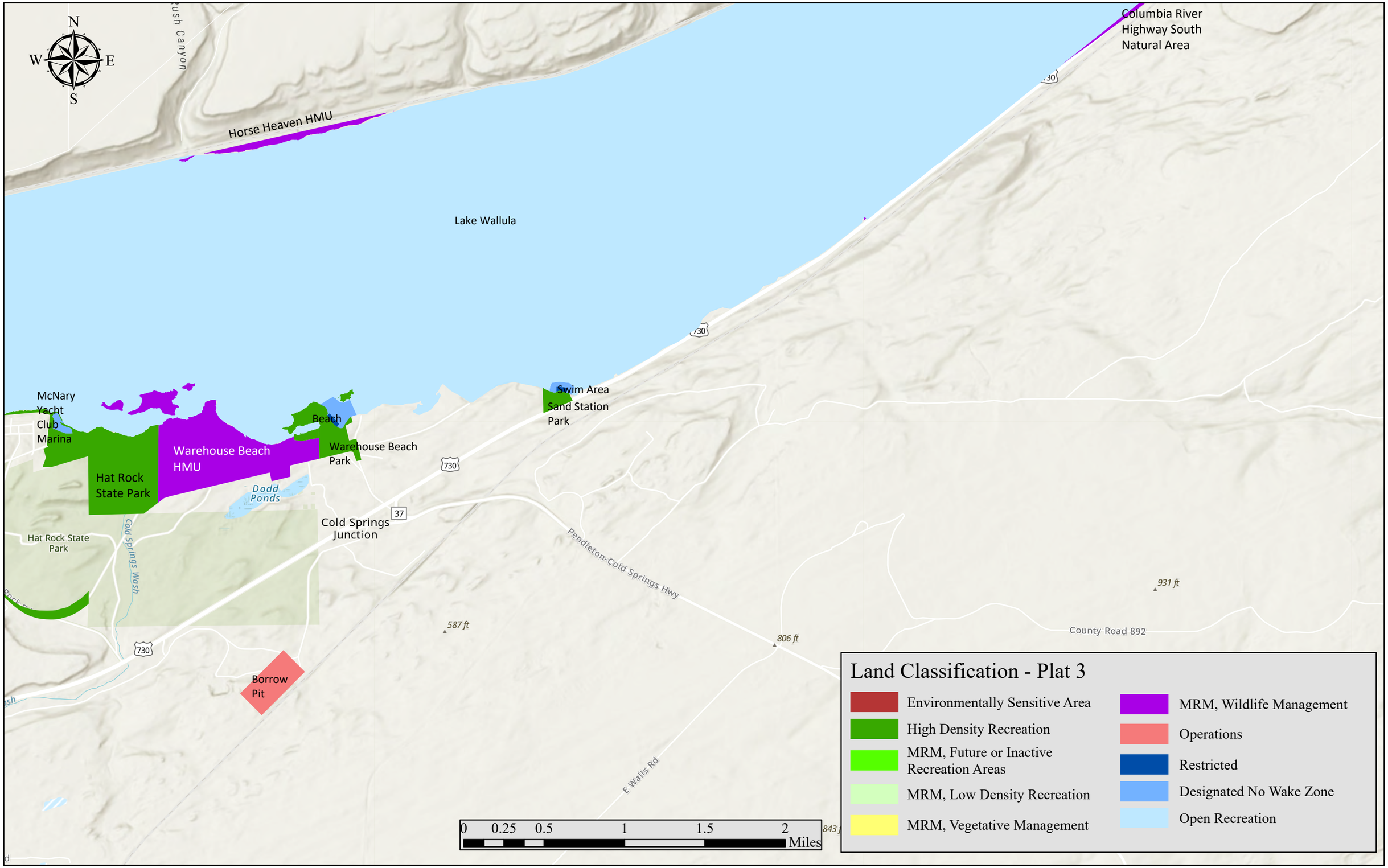
N
W
E
S
Rush Canyon
Horse Heaven HMU
Lake Wallula
Columbia River
Highway South
Natural Area
730
McNary
Yacht
Club
Marina
Hat Rock
State Park
Warehouse Beach
HMU
Beach
Warehouse Beach
Park
Swim Area
Sand Station
Park
Dodd
Ponds
Cold Springs
Junction
37
Hat Rock State
Park
Cold Springs Wash
Pendleton-Cold Springs Hwy
587 ft
806 ft
931 ft
County Road 892
Borrow
Pit
E Walls Rd
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 3
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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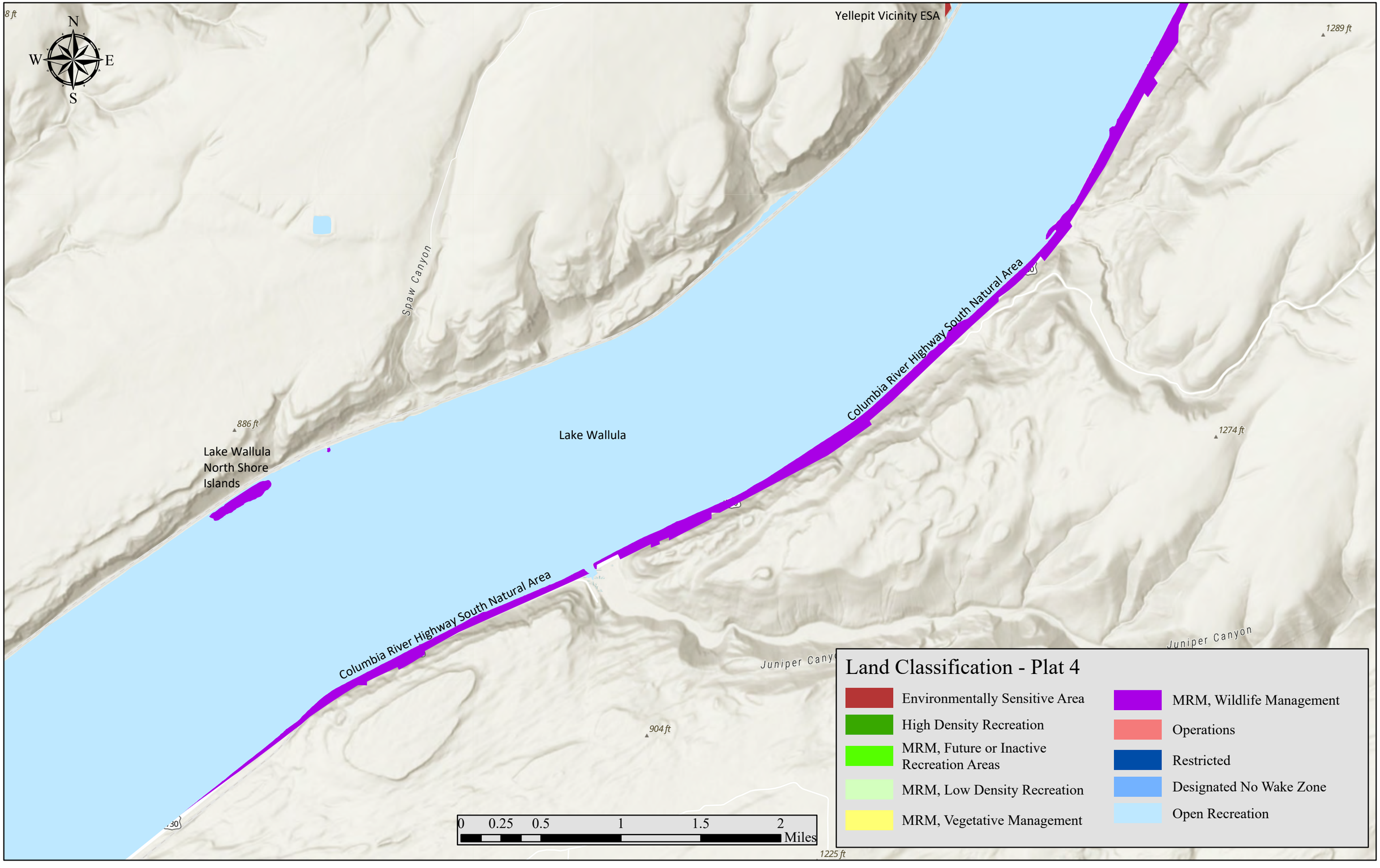
N
W
E
S
8 ft
Yellepit Vicinity ESA
1289 ft
Spaw Canyon
Columbia River Highway South Natural Area
886 ft
Lake Wallula
Lake Wallula North Shore Islands
1274 ft
Columbia River Highway South Natural Area
Juniper Canyon
Juniper Canyon
904 ft
1225 ft
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 4
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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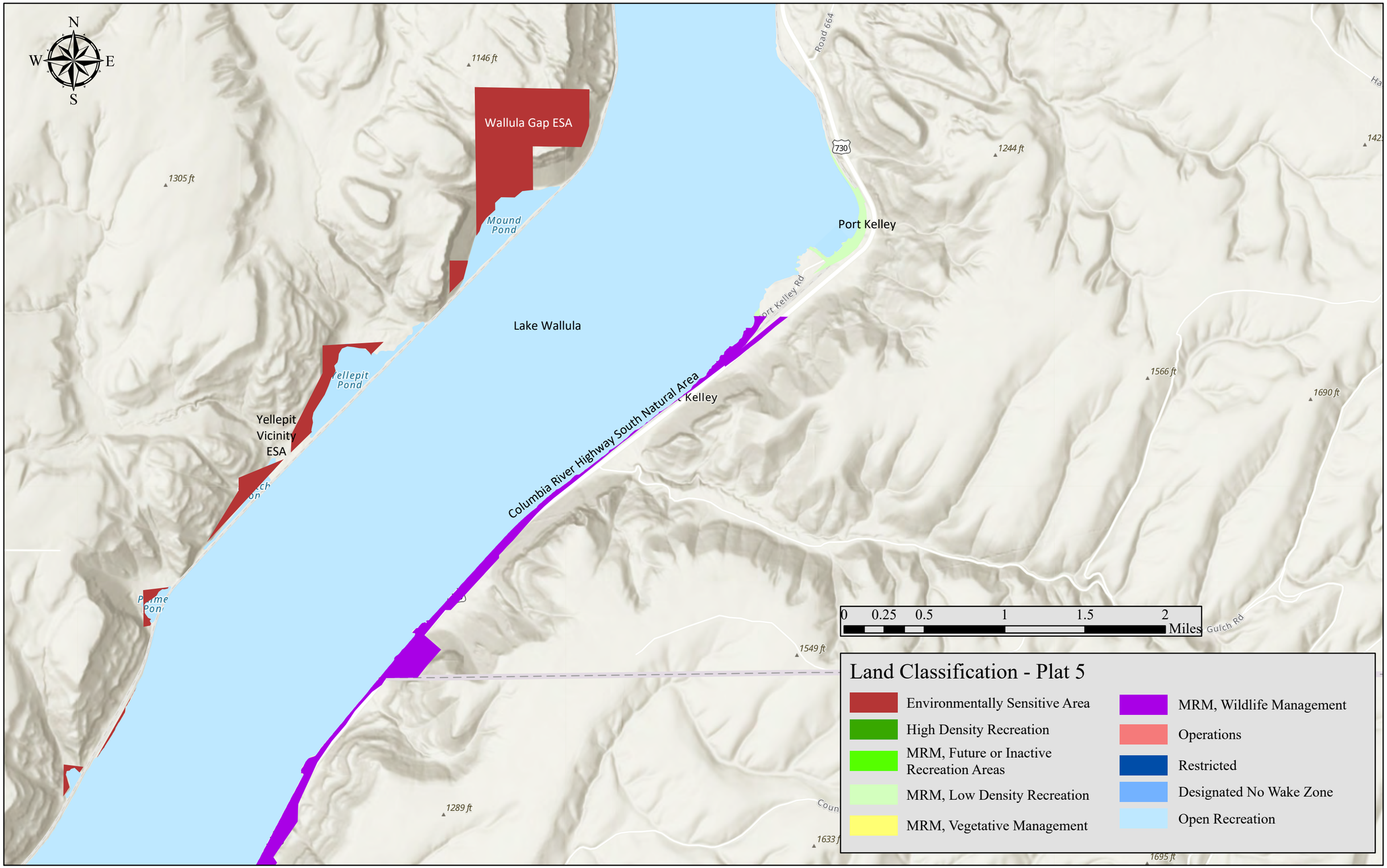
N
W
E
S
1146 ft
1305 ft
1244 ft
1566 ft
1690 ft
1549 ft
1289 ft
1633 ft
1695 ft
Wallula Gap ESA
Mound Pond
Lake Wallula
Port Kelley
Road 664
730
Port Kelley Rd
Yellepit Pond
Yellepit Vicinity ESA
Columbia River Highway South Natural Area
Gulch Rd
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 5
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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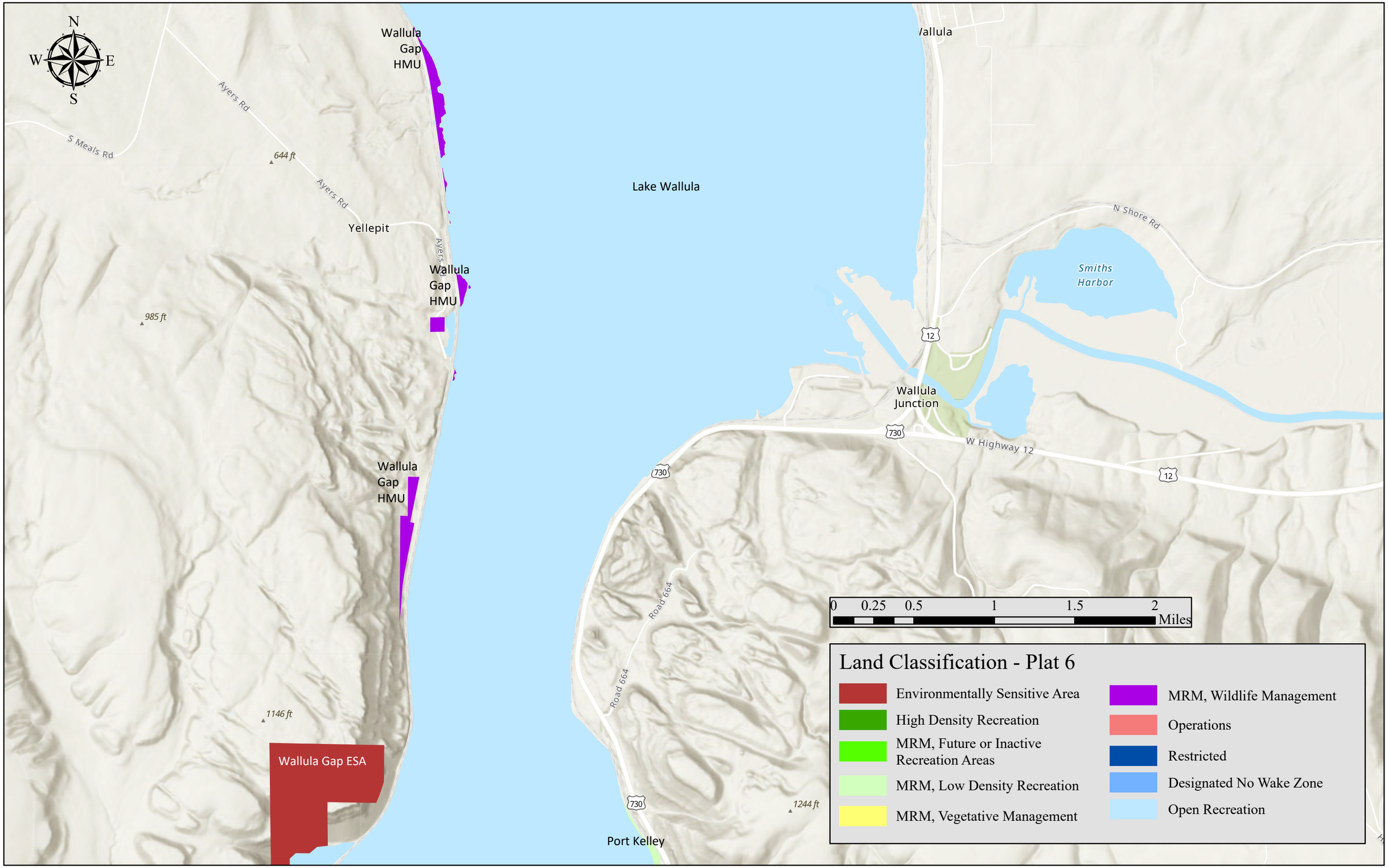
N
W
E
S
Wallula Gap HMU
Ayers Rd
S Meals Rd
644 ft
Ayers Rd
Yellepit
Ayers Rd
Wallula Gap HMU
985 ft
Lake Wallula
Wallula
N Shore Rd
Smiths Harbor
12
Wallula Junction
730
W Highway 12
12
730
Road 664
Road 664
Wallula Gap HMU
1146 ft
Wallula Gap ESA
730
1244 ft
Port Kelley
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 6
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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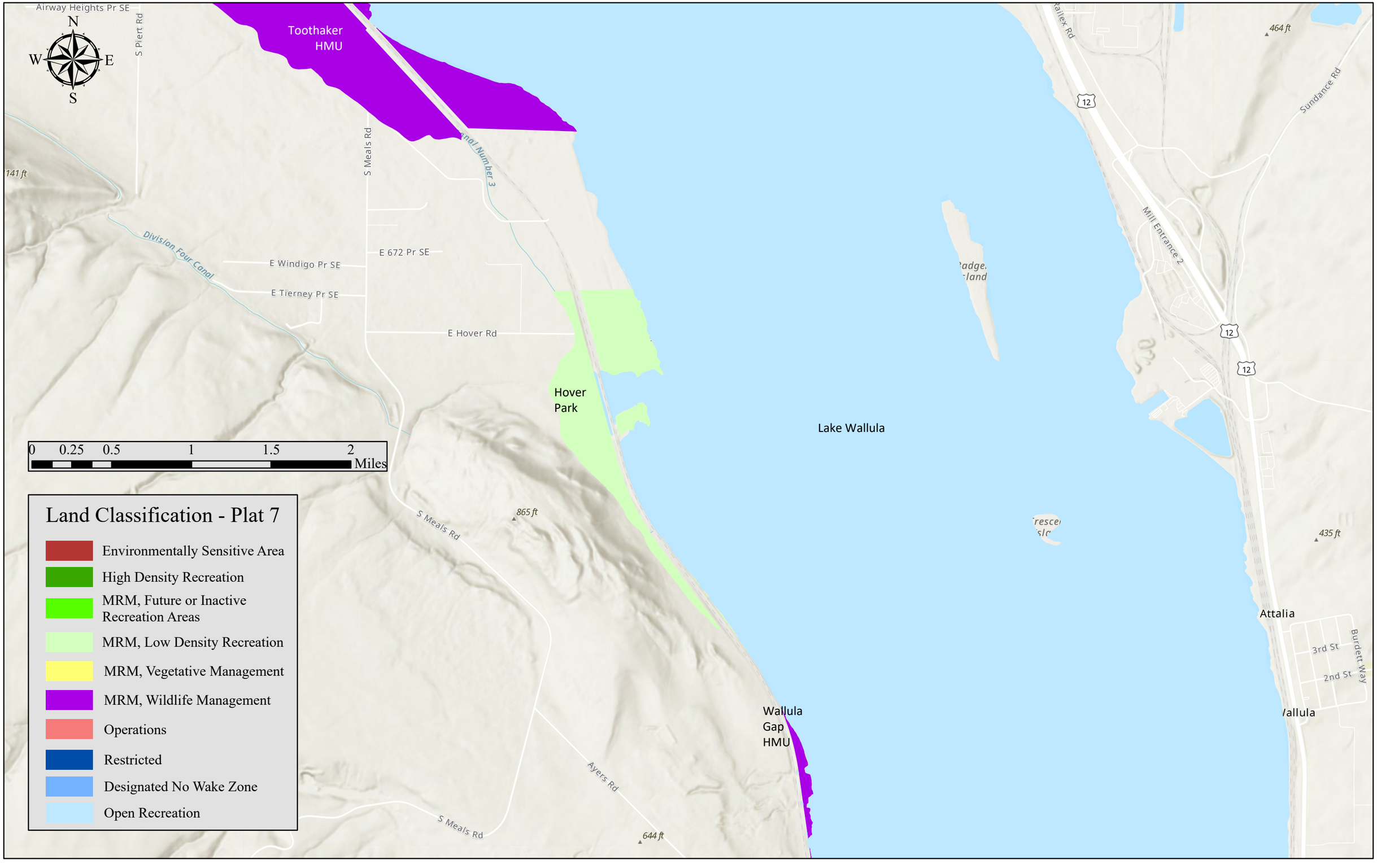
N
W
E
S
Airway Heights Pr SE
S Pfiert Rd
Toothaker HMU
S Meals Rd
141 ft
Division Four Canal
E Windigo Pr SE
E Tierney Pr SE
E 672 Pr SE
E Hover Rd
Hover Park
Lake Wallula
Railex Rd
464 ft
Sundance Rd
12
Mill Entrance 2
435 ft
Attalia
3rd St
2nd St
Burdett Way
Wallula
Wallula Gap HMU
865 ft
Ayers Rd
644 ft
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 7
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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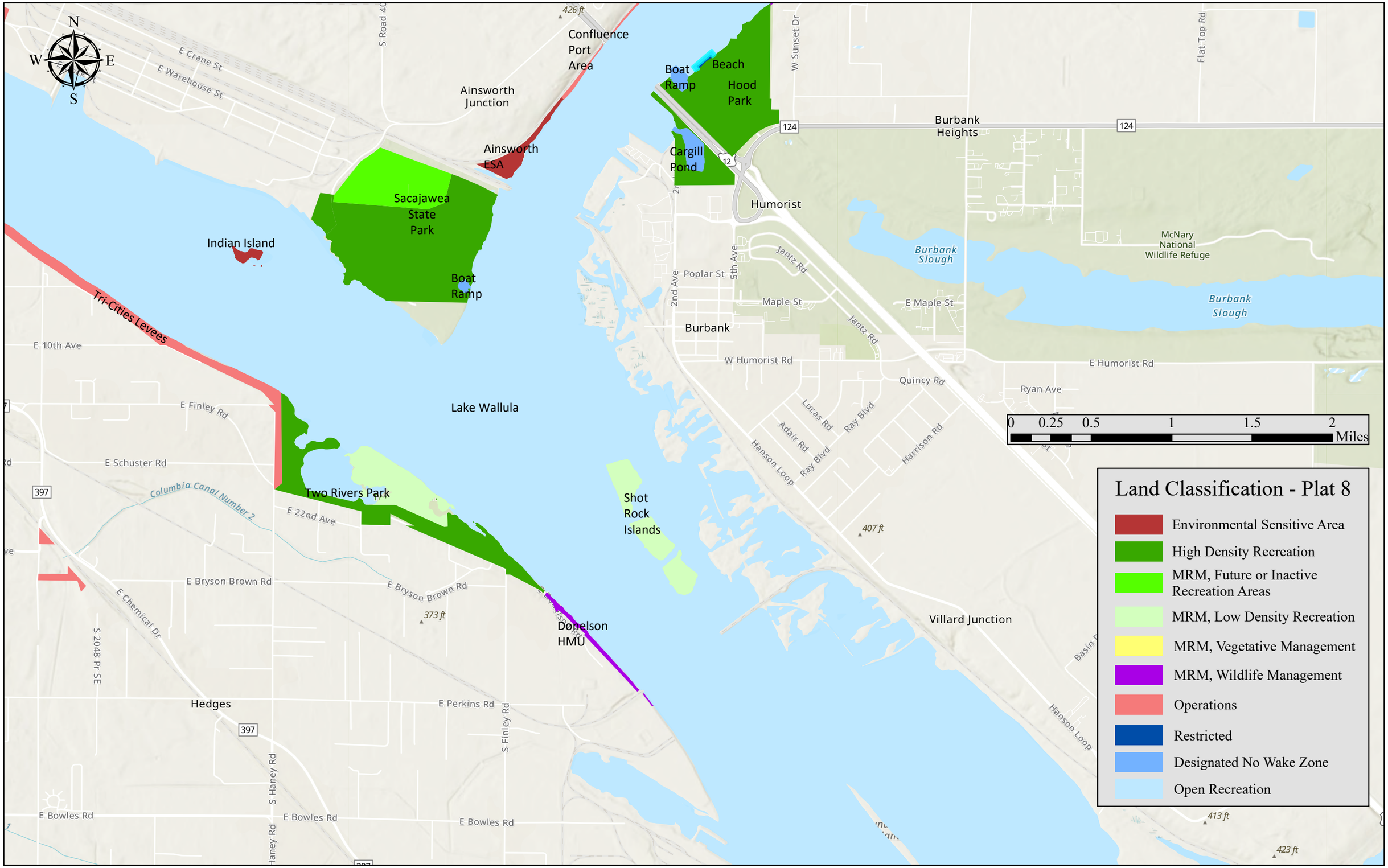
N
W
E
S
E Crane St
E Warehouse St
S Road 40
426 ft
Confluence Port Area
Ainsworth Junction
Ainsworth ESA
Sacajawea State Park
Boat Ramp
Indian Island
Tri-Cities Levees
E 10th Ave
E Finley Rd
E Schuster Rd
397
Columbia Canal Number 2
Two Rivers Park
E 22nd Ave
E Bryson Brown Rd
373 ft
Chemical Dr
S 2048 Pr SE
Hedges
E Perkins Rd
S Haney Rd
S Finley Rd
E Bowles Rd
Lake Wallula
Shot Rock Islands
Donelson HMU
Villard Junction
Boat Ramp
Beach
Hood Park
W Sunset Dr
Flat Top Rd
124
Burbank Heights
Cargill Pond
Humorist
Burbank Slough
McNary National Wildlife Refuge
2nd Ave
5th Ave
Poplar St
Maple St
Burbank
Jantz Rd
E Maple St
W Humorist Rd
E Humorist Rd
Quincy Rd
Ryan Ave
Lucas Rd
Ray Blvd
Adair Rd
Hanson Loop
Harrison Rd
407 ft
413 ft
423 ft
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 8
Environmental Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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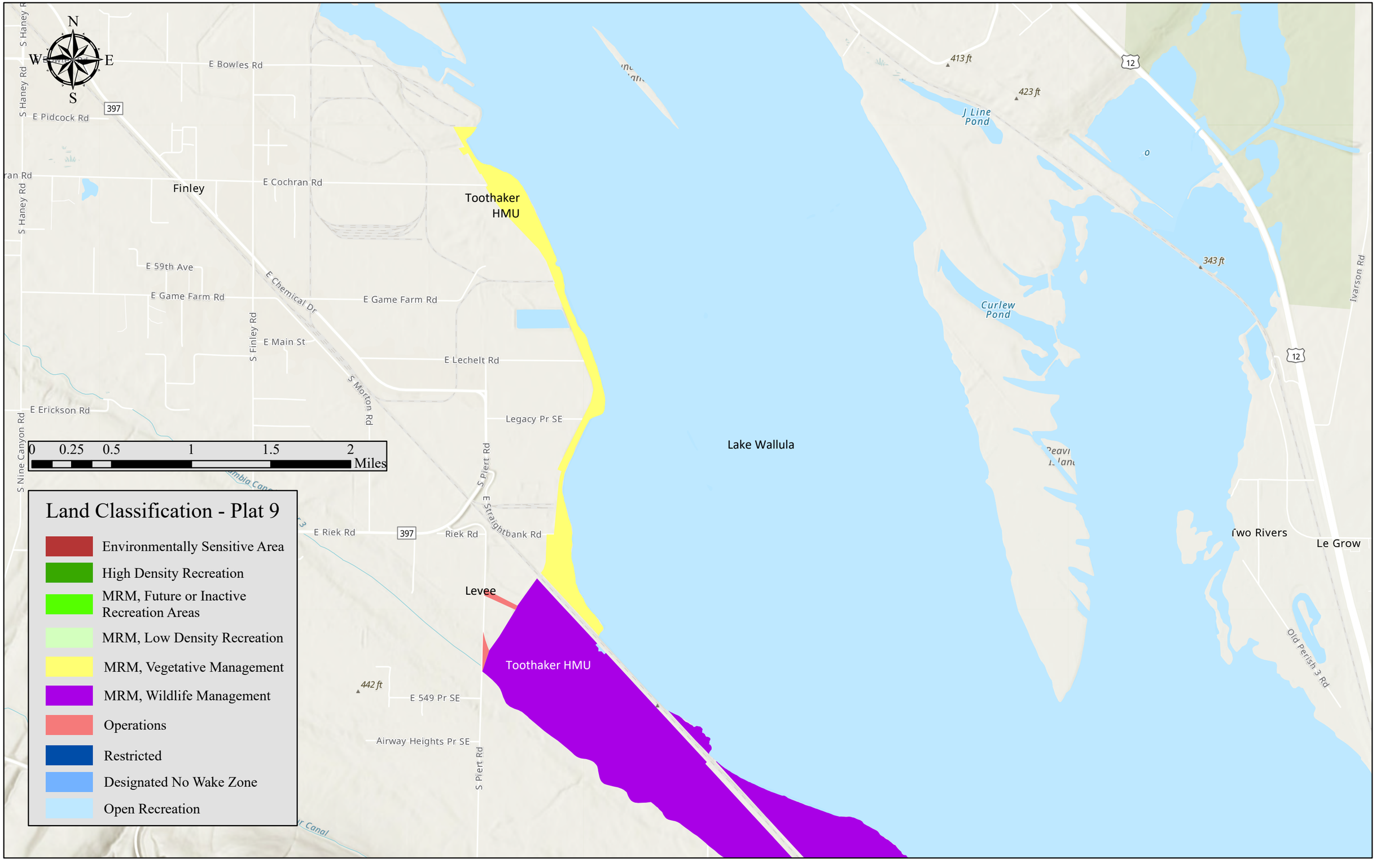
N
W
E
S
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 9
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
Toothaker HMU
Levee
Toothaker HMU
Lake Wallula
Finley
E Bowles Rd
E Pidcock Rd
E Cochran Rd
E 59th Ave
E Game Farm Rd
E Chemical Dr
S Finley Rd
E Main St
E Lechelt Rd
S Morton Rd
E Erickson Rd
Legacy Pr SE
S Piert Rd
E Riek Rd
Riek Rd
Straightbank Rd
E 549 Pr SE
Airway Heights Pr SE
S Haney Rd
S Nine Canyon Rd
397
12
413 ft
423 ft
343 ft
442 ft
J Line Pond
Curlew Pond
Ivarson Rd
Old Perish 3 Rd
Two Rivers
Le Grow

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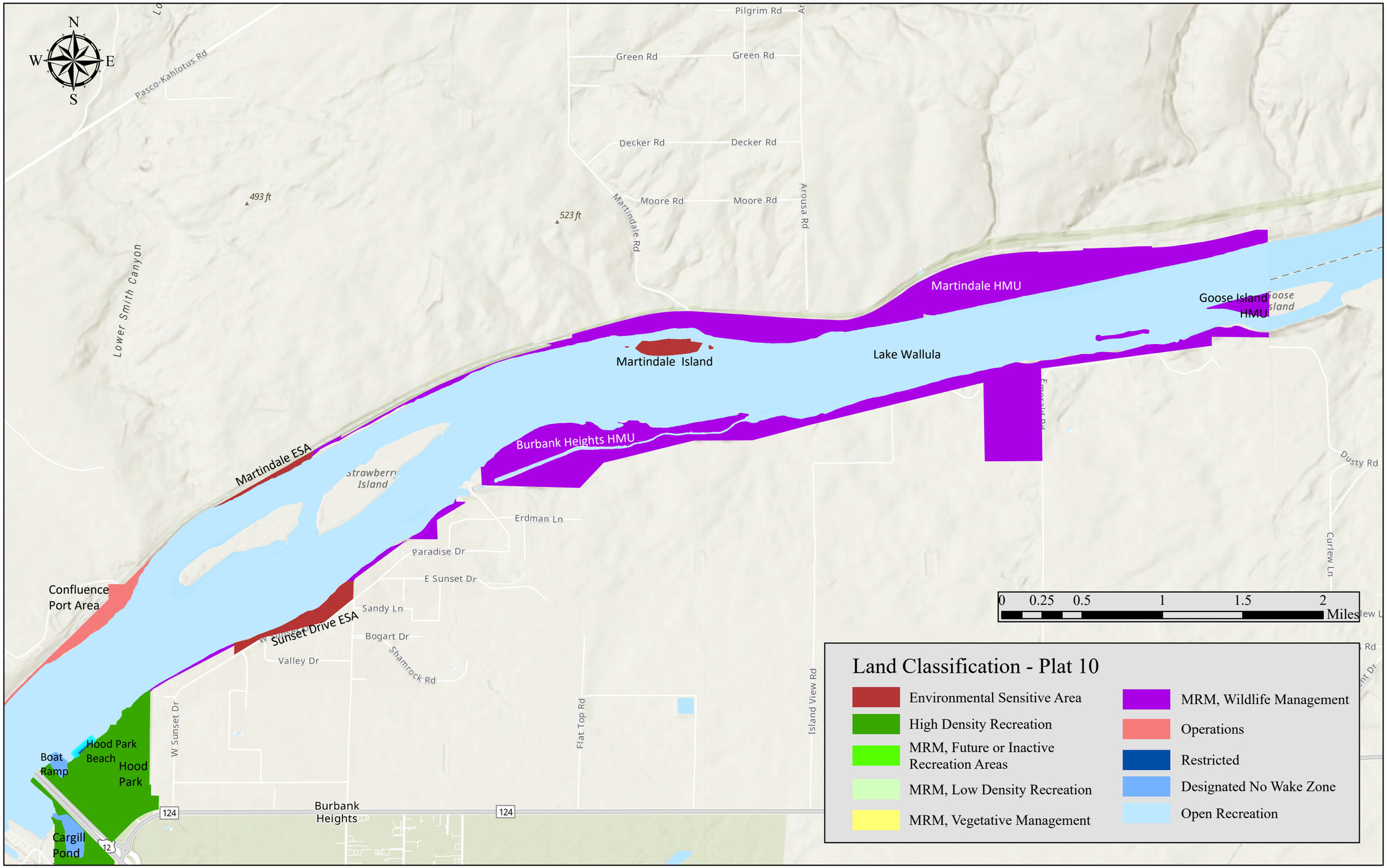
N
W
E
S
Pasco-Kahlotus Rd
Pilgrim Rd
Green Rd
Green Rd
Decker Rd
Decker Rd
Moore Rd
Moore Rd
Martindale Rd
Arousa Rd
493 ft
523 ft
Lower Smith Canyon
Martindale HMU
Goose Island HMU
Goose Island
Martindale Island
Lake Wallula
Burbank Heights HMU
Martindale ESA
Strawberry Island
Erdman Ln
Paradise Dr
E Sunset Dr
Sandy Ln
Bogart Dr
Valley Dr
Shamrock Rd
Sunset Drive ESA
Confluence Port Area
W Sunset Dr
Flat Top Rd
Island View Rd
Dusty Rd
Curlew Ln
Hood Park Beach
Boat Ramp
Hood Park
Burbank Heights
Cargill Pond
124
124
12
0 0.25 0.5 1 1.5 2
Miles
Land Classification - Plat 10
Environmental Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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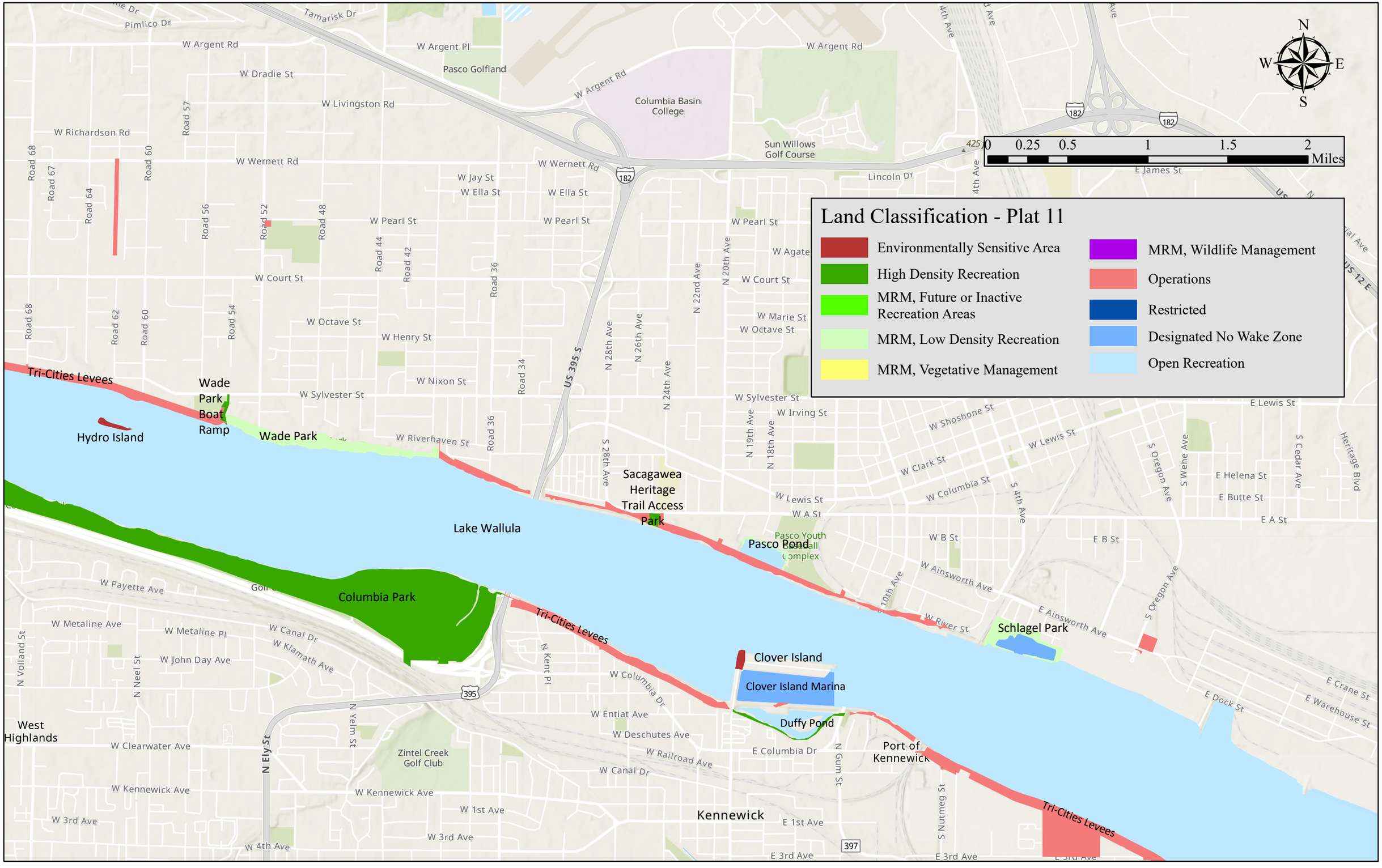
Land Classification - Plat 11
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
0 0.25 0.5 1 1.5 2 Miles
N
W
E
S
Tri-Cities Levees
Wade Park Boat Ramp
Hydro Island
Wade Park
Lake Wallula
Columbia Park
Sacagawea Heritage Trail Access Park
Pasco Pond
Pasco Golfland
Columbia Basin College
Sun Willows Golf Course
Pasco Youth Baseball Complex
Clover Island
Clover Island Marina
Duffy Pond
Schlagel Park
Port of Kennewick
Kennewick
West Highlands
Zintel Creek Golf Club
W Argent Rd
W Dradie St
W Livingston Rd
W Richardson Rd
W Wernett Rd
W Jay St
W Ella St
W Pearl St
W Court St
W Agate
W Marie St
W Octave St
W Henry St
W Nixon St
W Sylvester St
W Riverhaven St
W Irving St
W Shoshone St
W Lewis St
W Clark St
W Columbia St
W A St
W B St
E Lewis St
E Helena St
E Butte St
E A St
E James St
Lincoln Dr
W Payette Ave
W Metaline Ave
W Metaline Pl
W John Day Ave
W Canal Dr
W Klamath Ave
W Entiat Ave
W Deschutes Ave
W Railroad Ave
W Clearwater Ave
W Kennewick Ave
W 1st Ave
W 3rd Ave
W 4th Ave
E 1st Ave
E 3rd Ave
W Ainsworth Ave
E Ainsworth Ave
W River St
E Dock St
E Crane St
E Warehouse St
Tamarisk Dr
Pimlico Dr
Road 68
Road 67
Road 64
Road 60
Road 57
Road 56
Road 54
Road 52
Road 48
Road 44
Road 42
Road 36
Road 34
Road 62
N Volland St
N Neel St
N Ely St
N Yelm St
N Kent Pl
N 28th Ave
N 26th Ave
N 24th Ave
N 22nd Ave
N 20th Ave
N 19th Ave
N 18th Ave
N Gum St
S Nutmeg St
S 28th Ave
S Oregon Ave
S Wehe Ave
S Cedar Ave
Heritage Blvd
4th Ave
182
395
397
US 395 S
US 12 E

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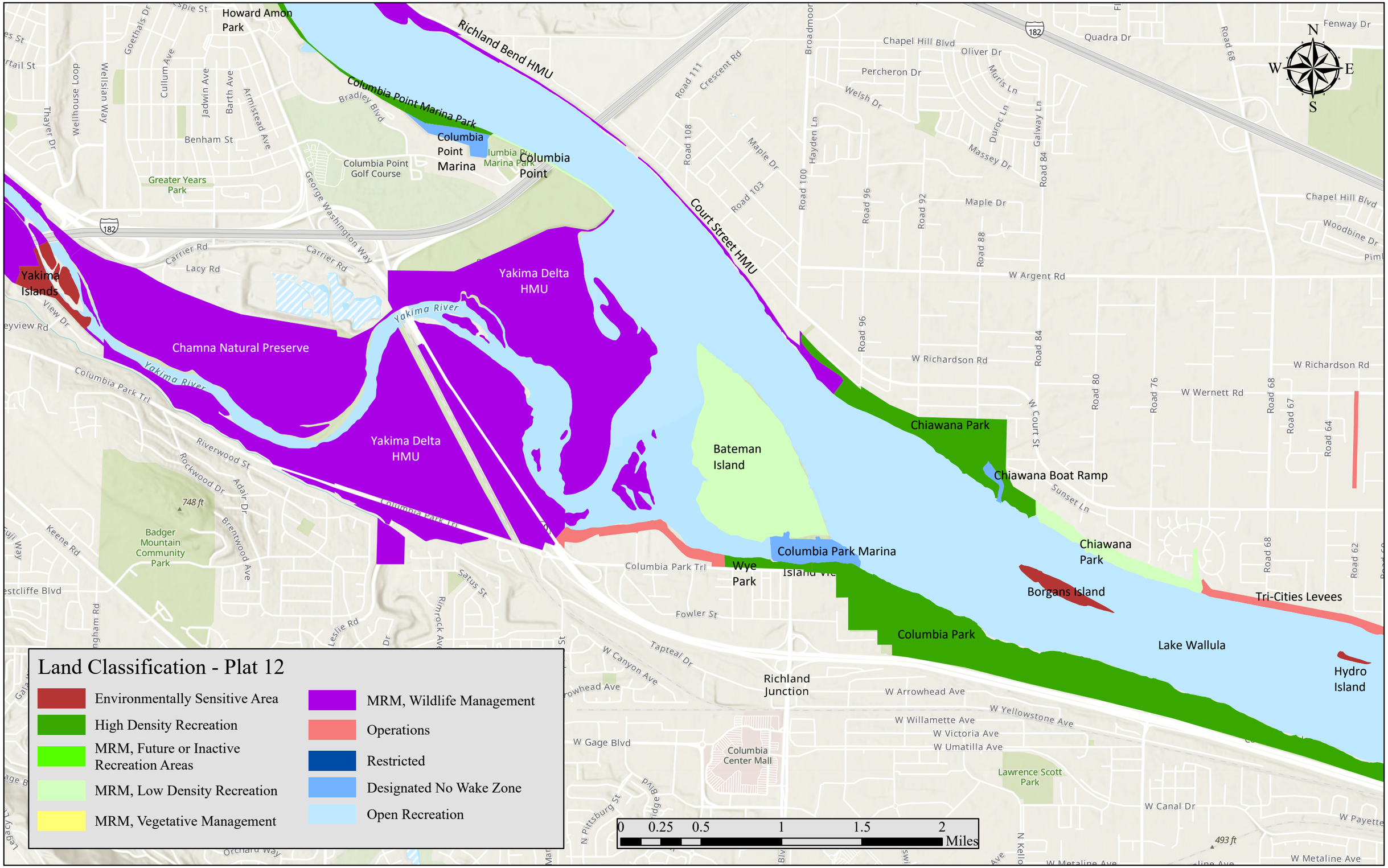
Howard Amon Park
Richland Bend HMU
Columbia Point Marina Park
Columbia Point Marina
Columbia Point
Columbia Point Golf Course
Greater Years Park
Court Street HMU
Yakima Islands
Yakima Delta HMU
Chamna Natural Preserve
Yakima River
Bateman Island
Chiawana Park
Chiawana Boat Ramp
Columbia Park Marina
Wye Park
Chiawana Park
Borgans Island
Tri-Cities Levees
Columbia Park
Lake Wallula
Hydro Island
Richland Junction
Columbia Center Mall
Lawrence Scott Park
Badger Mountain Community Park
748 ft
493 ft
Benham St
Carrier Rd
Lacy Rd
Columbia Park Trl
Fowler St
W Canyon Ave
Tapteal Dr
W Arrowhead Ave
W Willamette Ave
W Victoria Ave
W Umatilla Ave
W Yellowstone Ave
W Gage Blvd
W Canal Dr
W Metaline Ave
W Argent Rd
W Richardson Rd
W Wernett Rd
Chapel Hill Blvd
Maple Dr
Oliver Dr
Percheron Dr
Welsh Dr
Massey Dr
Quadra Dr
Fenway Dr
Woodbine Dr
Sunset Ln
Orchard Way
Keene Rd
Leslie Rd
Rockwood Dr
Riverwood St
Adair Dr
Brentwood Ave
Rimrock Ave
N Pittsburg St
Road 111
Road 108
Road 100
Road 96
Road 92
Road 88
Road 84
Road 80
Road 76
Road 68
Road 67
Road 64
Road 62
Hayden Ln
Crescent Rd
Broadmoor
Duroc Ln
Galway Ln
Murris Ln
Thayer Dr
Wellhouse Loop
Wellsian Way
Goethals Dr
Cullum Ave
Jadwin Ave
Barth Ave
Armistead Ave
Bradley Blvd
George Washington Way
View Dr
Columbia Park Trl
Land Classification - Plat 12
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
0 0.25 0.5 1 1.5 2 Miles
N
S
E
W

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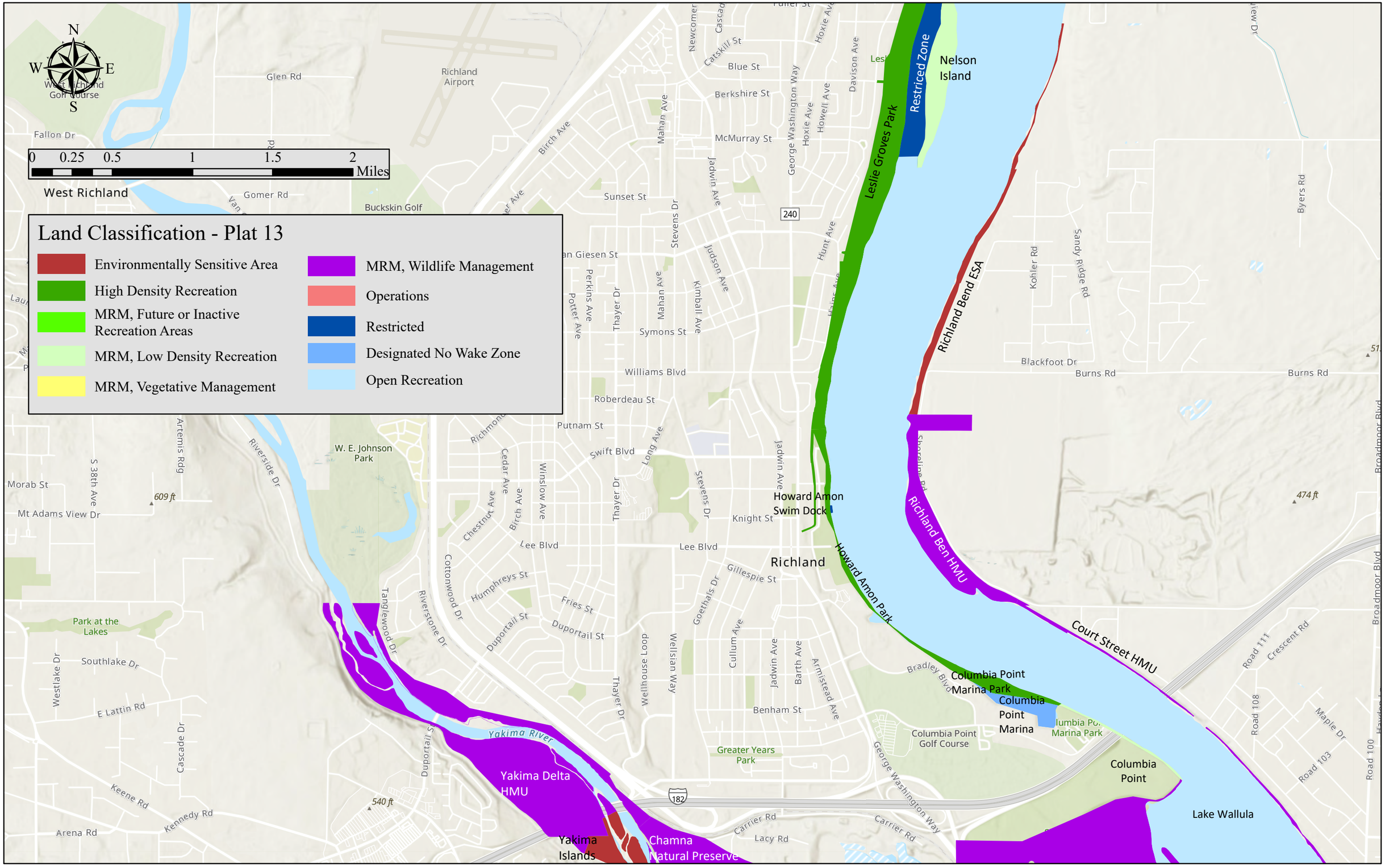
N
W
E
S
West Richland Golf Course
0 0.25 0.5 1 1.5 2 Miles
West Richland
Land Classification - Plat 13
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
Glen Rd
Richland Airport
Fallon Dr
Gomer Rd
Buckskin Golf
Birch Ave
Mahan Ave
Newcomer
Catskill St
Blue St
Berkshire St
McMurray St
Sunset St
George Washington Way
Hoxie Ave
Howell Ave
Davison Ave
Jadwin Ave
240
Stevens Dr
Judson Ave
Hunt Ave
Perkins Ave
Potter Ave
Thayer Dr
Symons St
Kimball Ave
Williams Blvd
Roberdeau St
Putnam St
Swift Blvd
Long Ave
Richmond
Cedar Ave
Winslow Ave
Chestnut Ave
Lee Blvd
Knight St
Gillespie St
Humphreys St
Fries St
Duportail St
Cottonwood Dr
Riverstone Dr
Tanglewood Dr
Goethals Dr
Wellsian Way
Wellhouse Loop
Cullum Ave
Barth Ave
Armistead Ave
Benham St
Bradley Blvd
Nelson Island
Restriced Zone
Leslie Groves Park
Richland Bend ESA
Howard Amon Park
Howard Amon Swim Dock
Richland Ben HMU
Court Street HMU
Columbia Point Marina Park
Columbia Point Marina
Columbia Point Golf Course
Columbia Point
Lake Wallula
Greater Years Park
Yakima River
Yakima Delta HMU
Yakima Islands
Chamna Natural Preserve
182
Carrier Rd
Lacy Rd
George Washington Way
Kohler Rd
Sandy Ridge Rd
Blackfoot Dr
Burns Rd
Byers Rd
Road 111
Crescent Rd
Road 108
Road 103
Road 100
Maple Dr
Broadmoor Blvd
Haydee Ln
W. E. Johnson Park
Park at the Lakes
Southlake Dr
Westlake Dr
E Lattin Rd
Cascade Dr
Keene Rd
Kennedy Rd
Arena Rd
Artemis Rdg
S 38th Ave
Morab St
Mt Adams View Dr
Riverside Dr
609 ft
540 ft
474 ft

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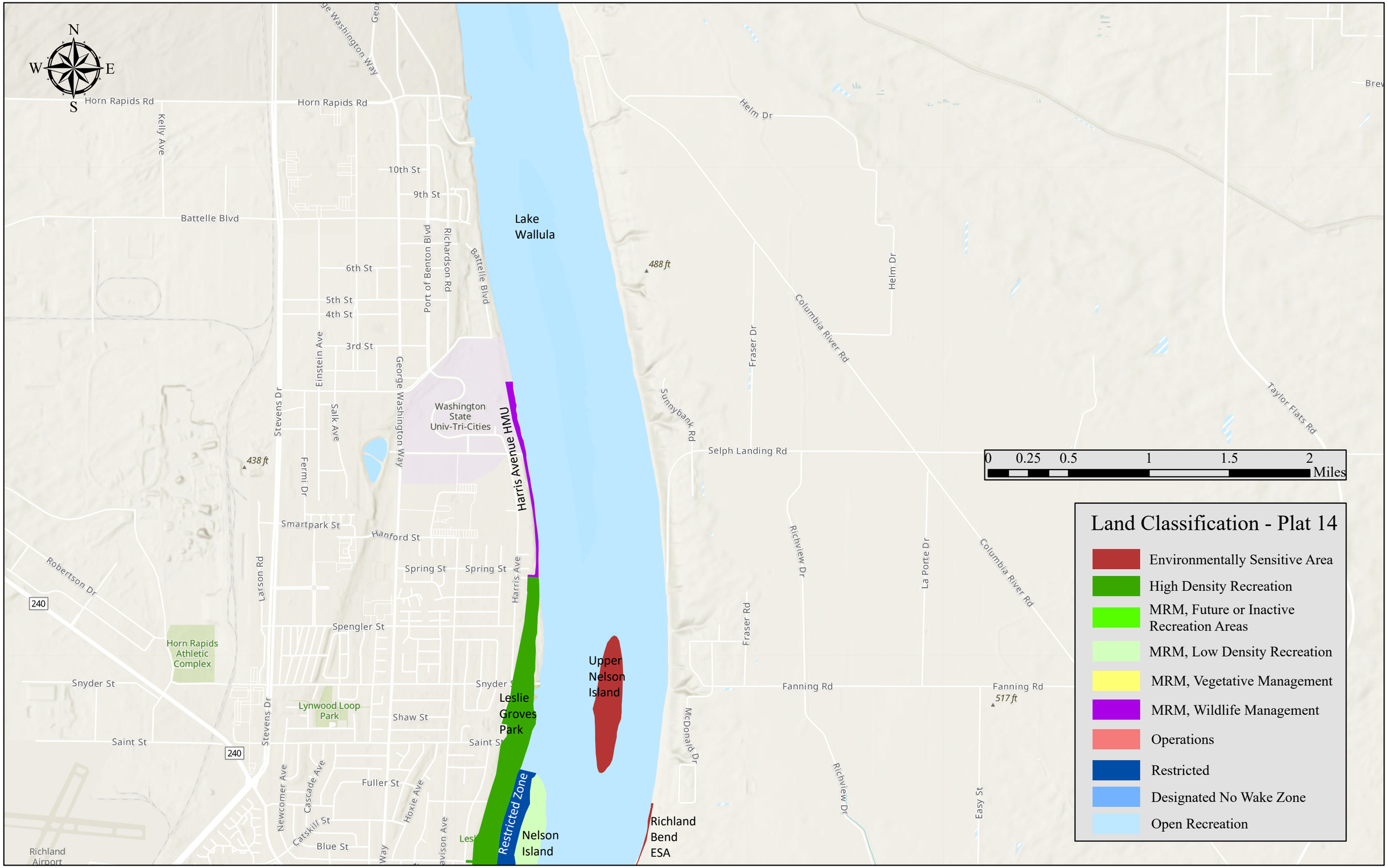
N
W
E
S
Horn Rapids Rd
Horn Rapids Rd
George Washington Way
Kelly Ave
10th St
9th St
Battelle Blvd
Lake Wallula
6th St
5th St
4th St
3rd St
Port of Benton Blvd
Richardson Rd
Battelle Blvd
Einstein Ave
George Washington Way
Stevens Dr
Salk Ave
Fermi Dr
438 ft
Washington State Univ-Tri-Cities
Harris Avenue HMU
Helm Dr
488 ft
Columbia River Rd
Helm Dr
Fraser Dr
Sunnybank Rd
Selph Landing Rd
Taylor Flats Rd
0 0.25 0.5 1 1.5 2 Miles
Smartpark St
Hanford St
Spring St
Spring St
Harris Ave
Larson Rd
Robertson Dr
240
Spengler St
Horn Rapids Athletic Complex
Snyder St
Lynwood Loop Park
Shaw St
Saint St
240
Stevens Dr
Newcomer Ave
Cascade Ave
Catskill St
Fuller St
Hoxie Ave
Blue St
Richland Airport
Leslie Groves Park
Restricted Zone
Nelson Island
Upper Nelson Island
Richland Bend ESA
Richview Dr
Fraser Rd
La Porte Dr
Columbia River Rd
Fanning Rd
Fanning Rd
517 ft
McDonald Dr
Richview Dr
Easy St
Land Classification - Plat 14
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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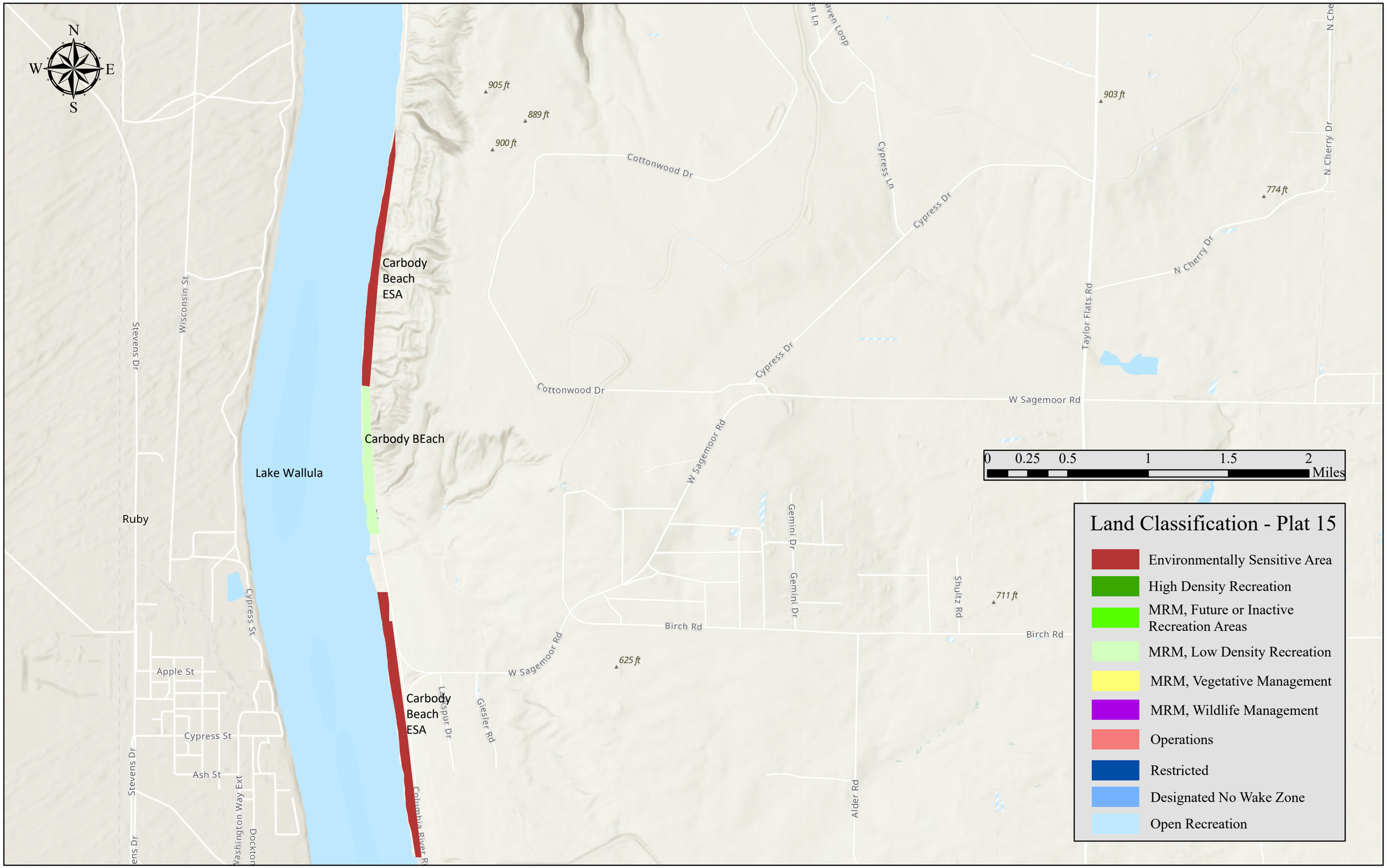
N
W
E
S
905 ft
889 ft
900 ft
903 ft
774 ft
711 ft
625 ft
Cottonwood Dr
Cypress Ln
Cypress Dr
N Cherry Dr
Taylor Flats Rd
W Sagemoor Rd
Gemini Dr
Shultz Rd
Birch Rd
Alder Rd
Giesler Rd
Larkspur Dr
Columbia River R
Carbody Beach ESA
Carbody BEach
Lake Wallula
Ruby
Stevens Dr
Wisconsin St
Cypress St
Apple St
Ash St
Washington Way Ext
0 0.25 0.5 1 1.5 2 Miles
Land Classification - Plat 15
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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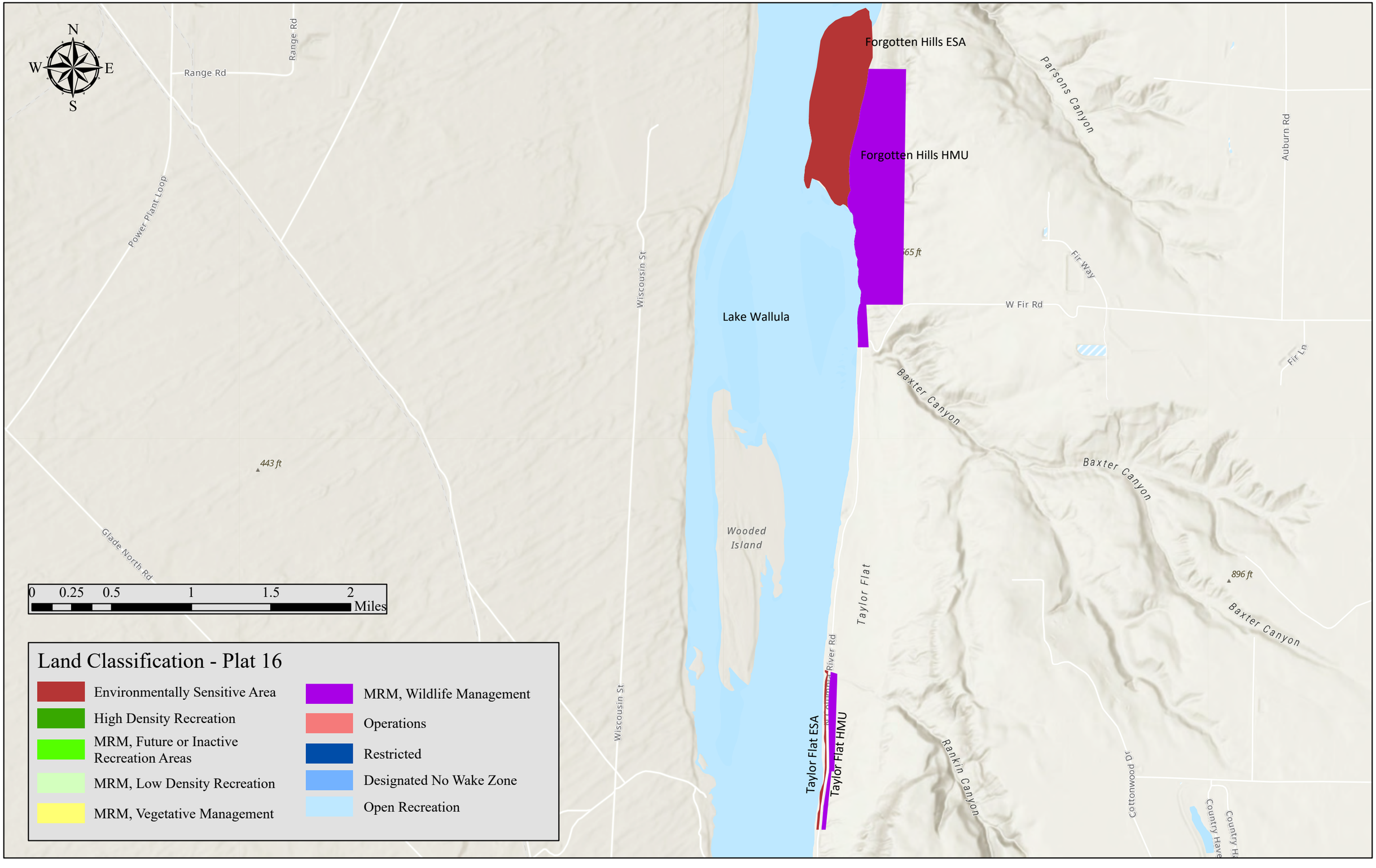
N
W
E
S
Range Rd
Range Rd
Power Plant Loop
Wiscousin St
Forgotten Hills ESA
Forgotten Hills HMU
Parsons Canyon
Auburn Rd
665 ft
Fir Way
W Fir Rd
Lake Wallula
Baxter Canyon
Fir Ln
443 ft
Glade North Rd
Wooded Island
Taylor Flat
896 ft
Baxter Canyon
Columbia River Rd
Taylor Flat ESA
Taylor Flat HMU
Rankin Canyon
Cottonwood Dr
Country Have
0 0.25 0.5 1 1.5 2 Miles
Land Classification - Plat 16
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation

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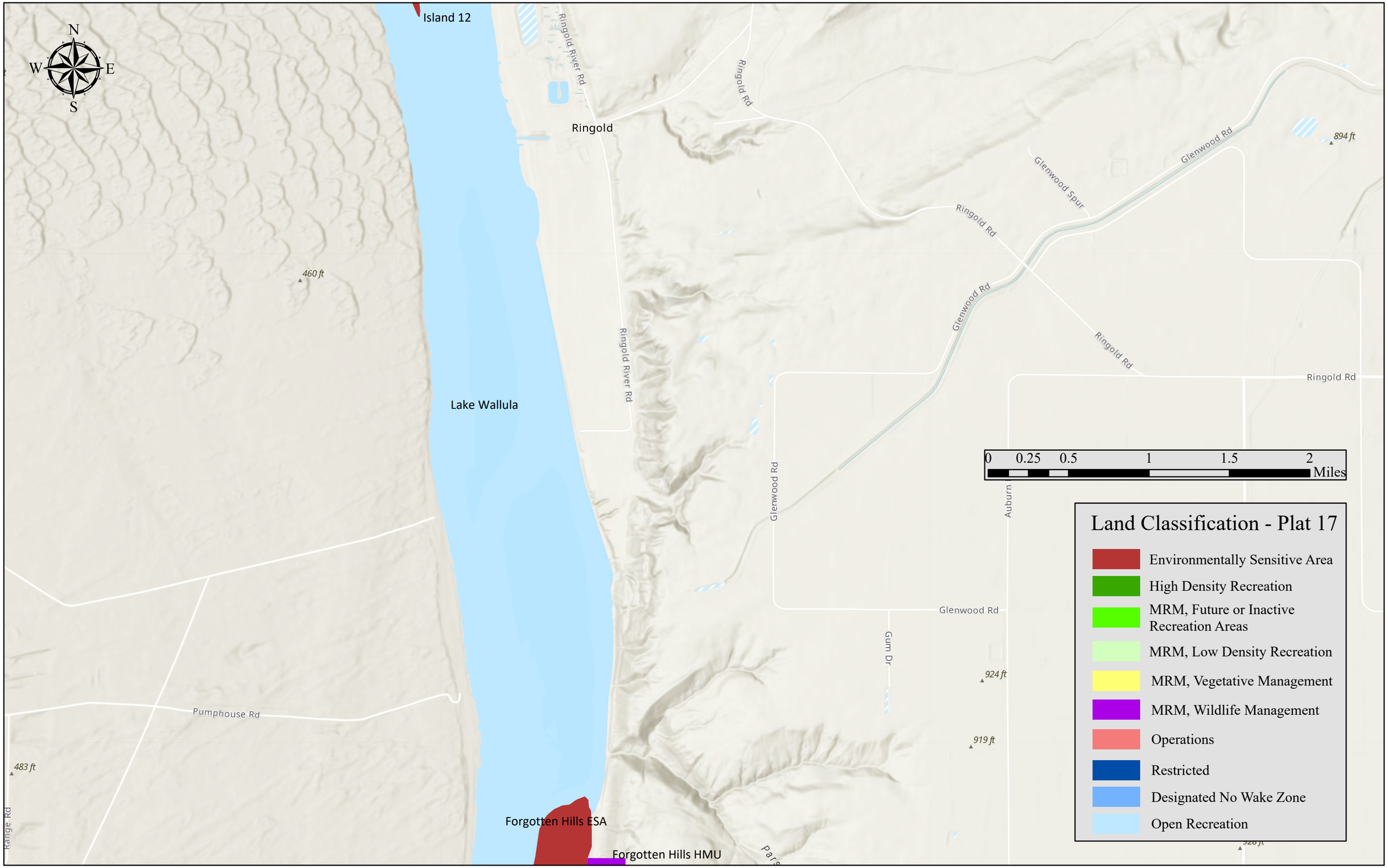
N
W
E
S
Island 12
Ringold River Rd
Ringold
Ringold Rd
894 ft
Glenwood Rd
Glenwood Spur
Ringold Rd
460 ft
Glenwood Rd
Ringold River Rd
Ringold Rd
Ringold Rd
Lake Wallula
0 0.25 0.5 1 1.5 2
Miles
Glenwood Rd
Auburn
Land Classification - Plat 17
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
Glenwood Rd
Gum Dr
924 ft
919 ft
Pumphouse Rd
483 ft
Range Rd
Forgotten Hills ESA
Forgotten Hills HMU

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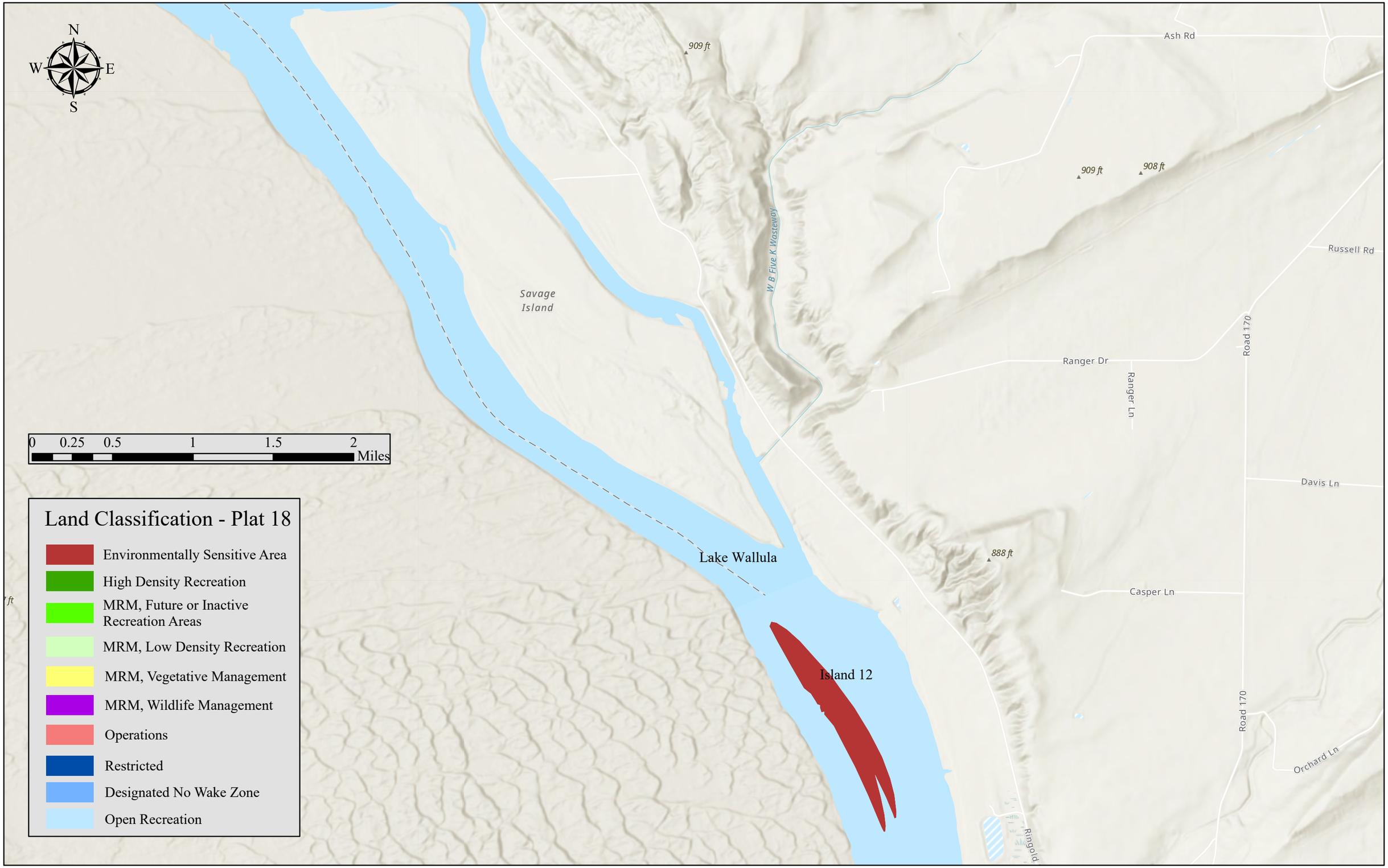
N
W
E
S
0 0.25 0.5 1 1.5 2 Miles
Land Classification - Plat 18
Environmentally Sensitive Area
High Density Recreation
MRM, Future or Inactive Recreation Areas
MRM, Low Density Recreation
MRM, Vegetative Management
MRM, Wildlife Management
Operations
Restricted
Designated No Wake Zone
Open Recreation
909 ft
908 ft
888 ft
Savage Island
W B Five K Wasteway
Lake Wallula
Island 12
Ash Rd
Russell Rd
Ranger Dr
Ranger Ln
Road 170
Davis Ln
Casper Ln
Orchard Ln

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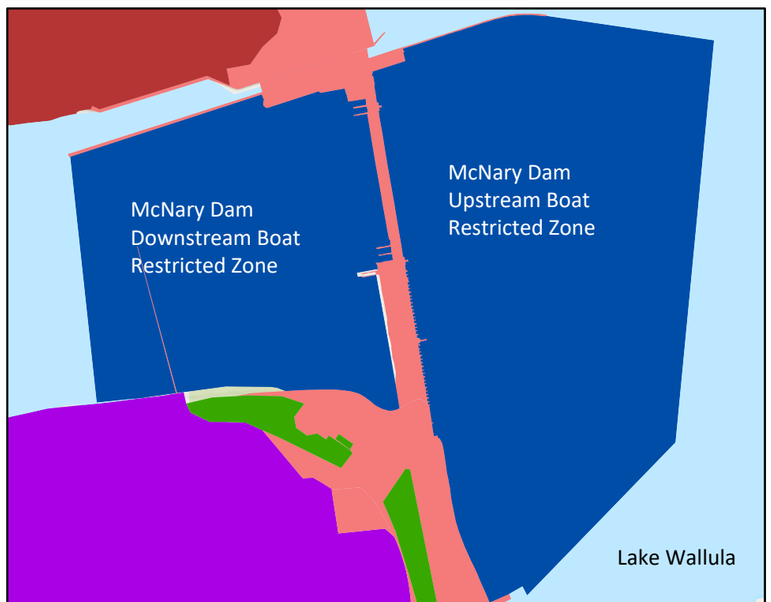
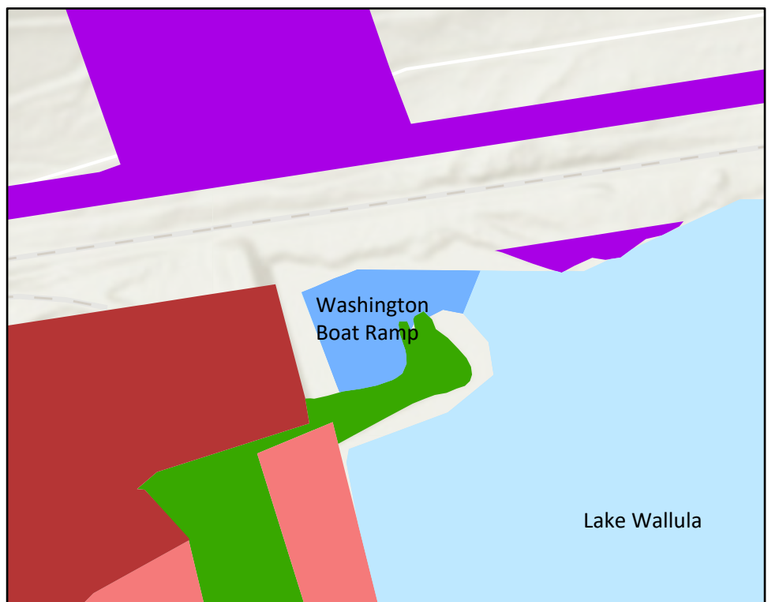
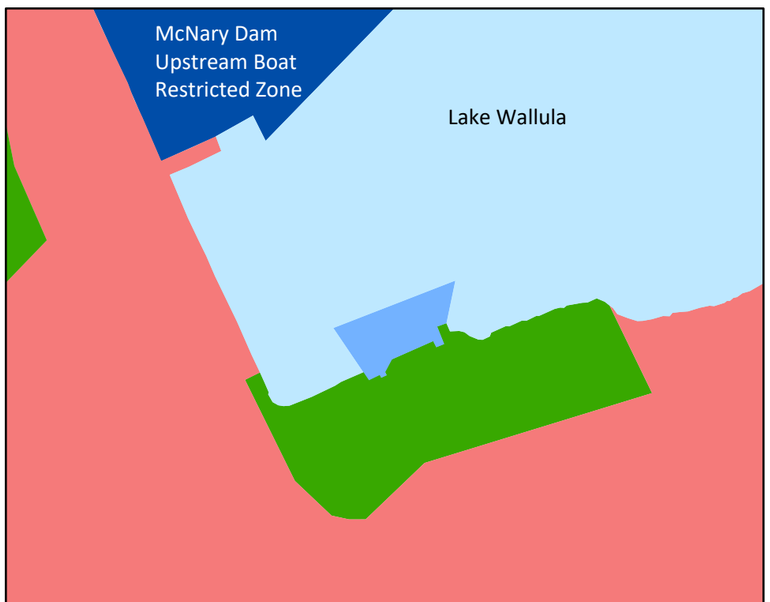
Water Surface Zones - Plat 19

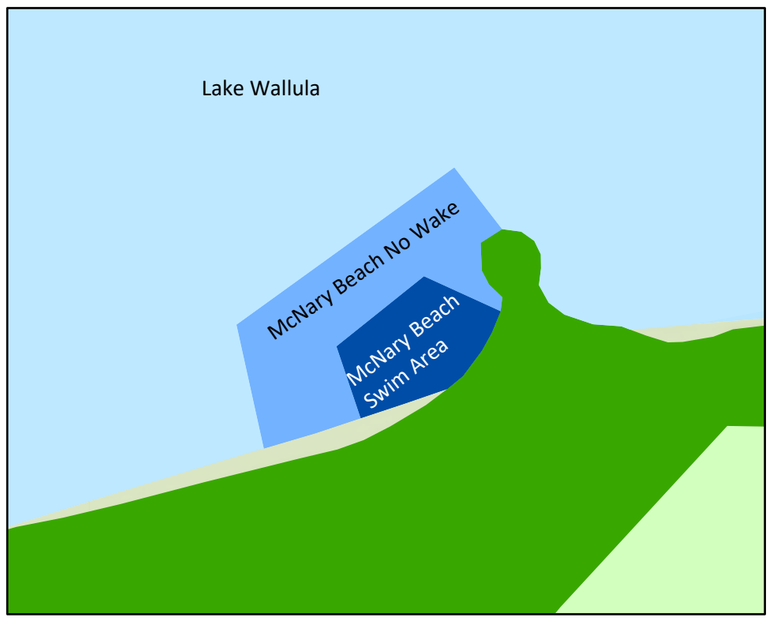
- Restricted
- Designated No Wake Zone
- Open Recreation

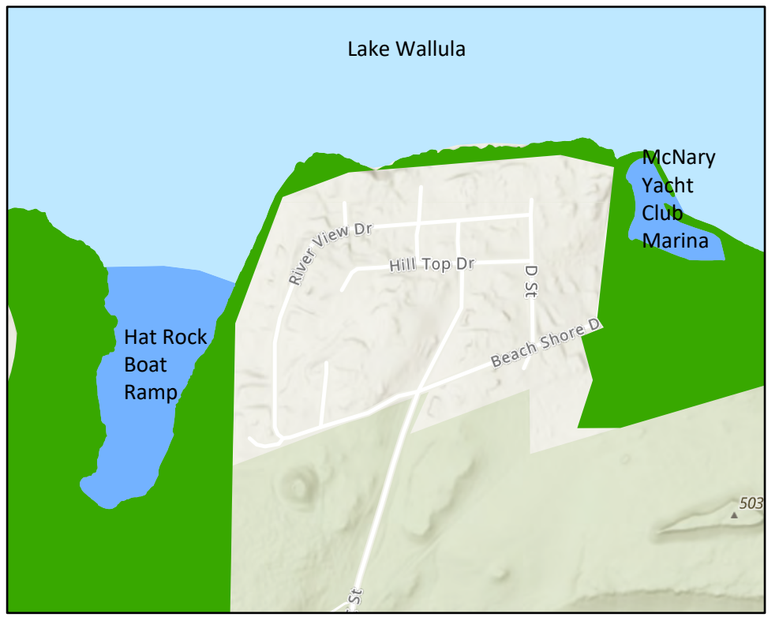
N
W E
S

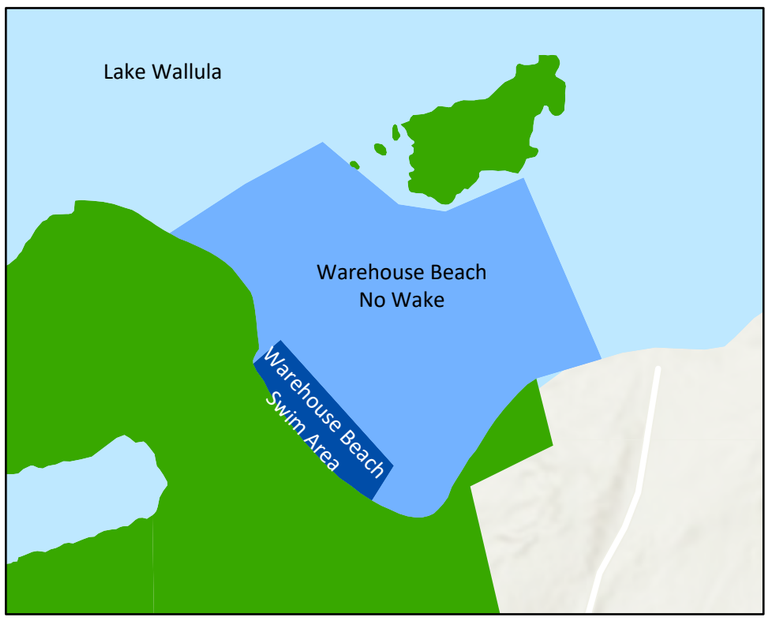












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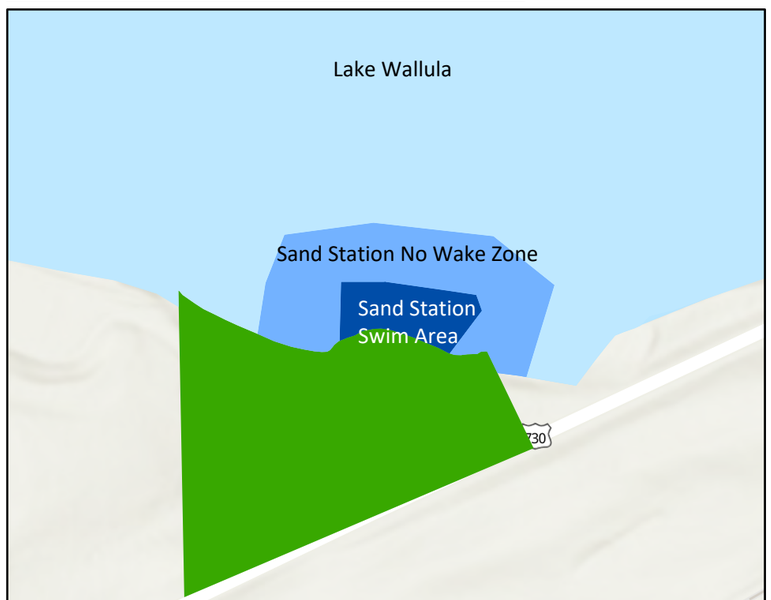
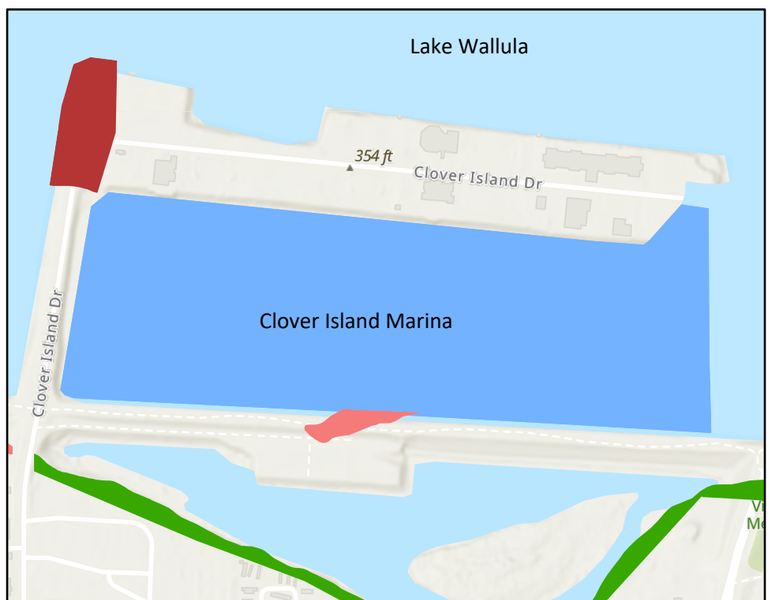
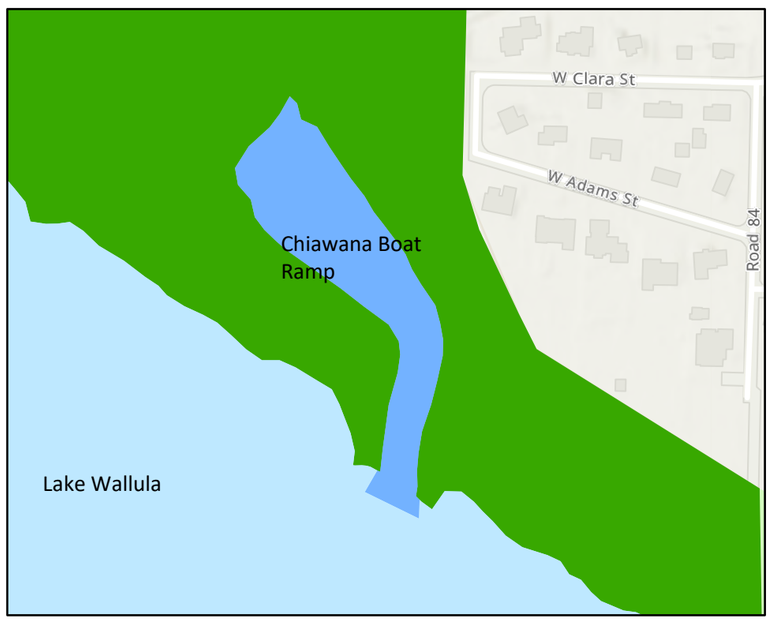
Water Surface Zones - Plat 20

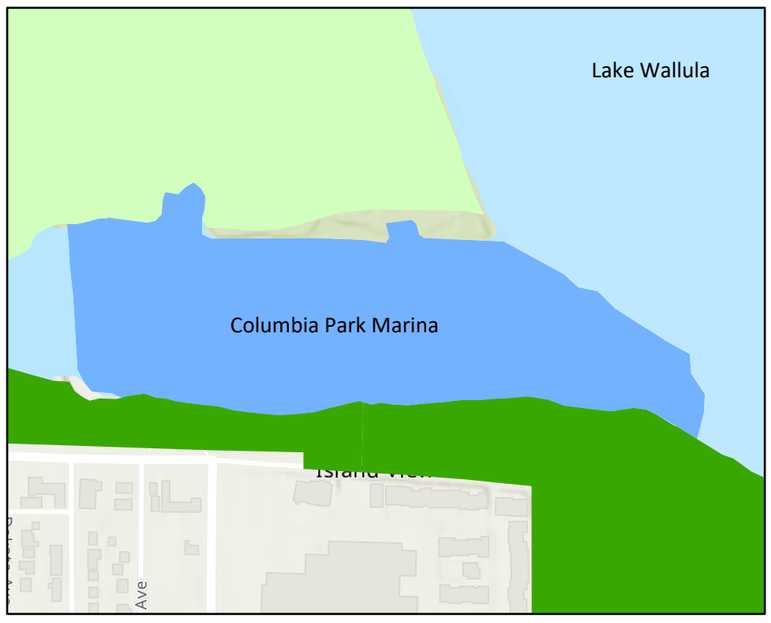
- Restricted
- Designated No Wake Zone
- Open Recreation

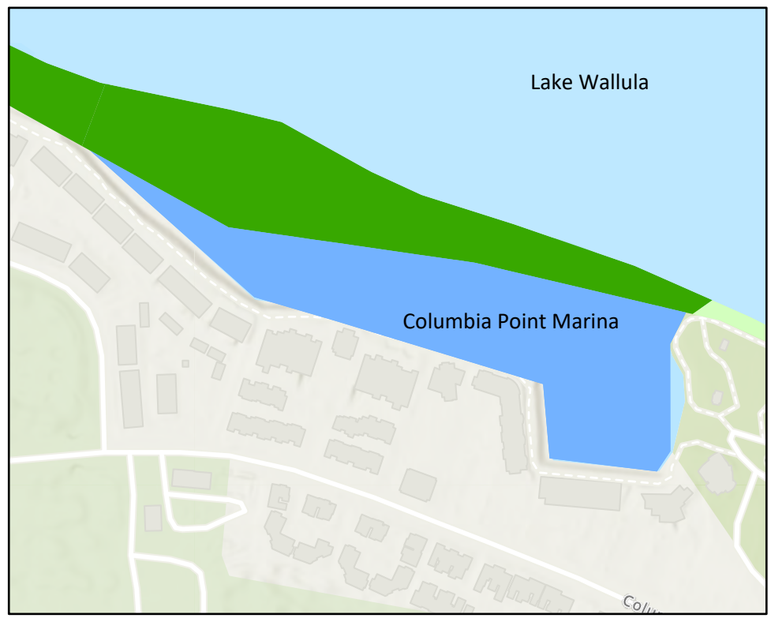
N
W E
S











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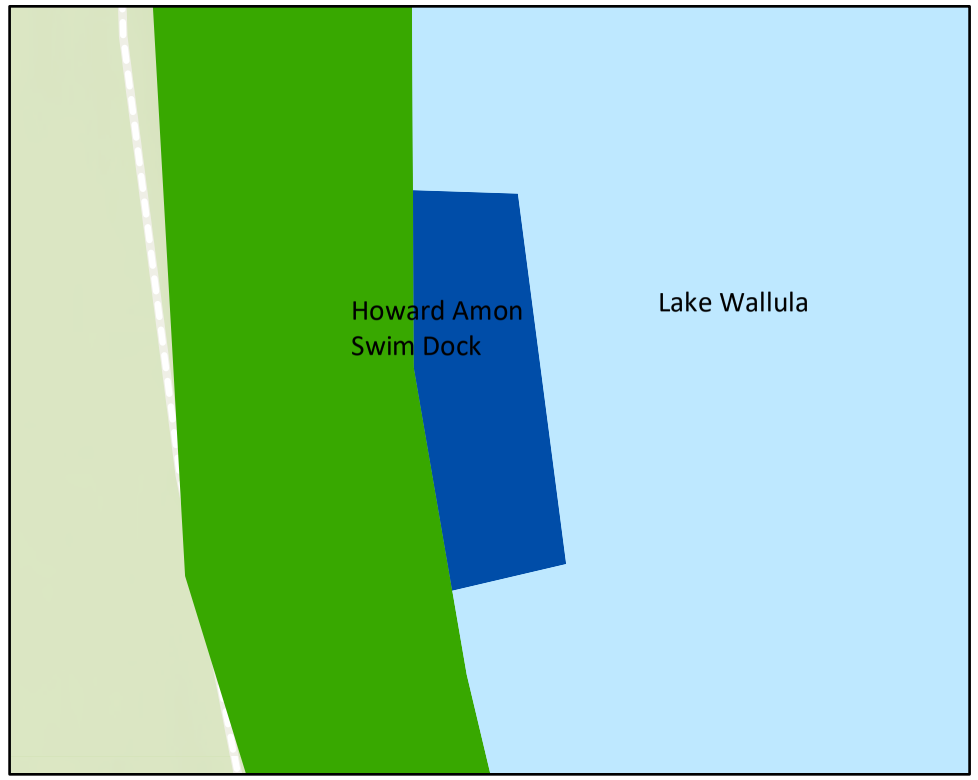
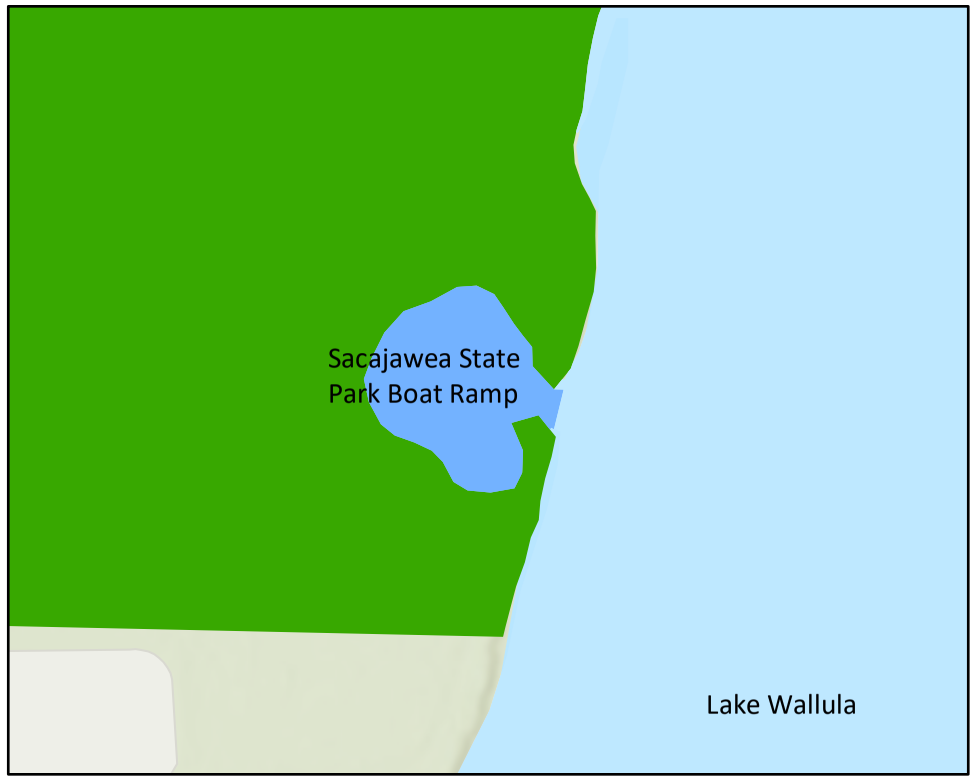
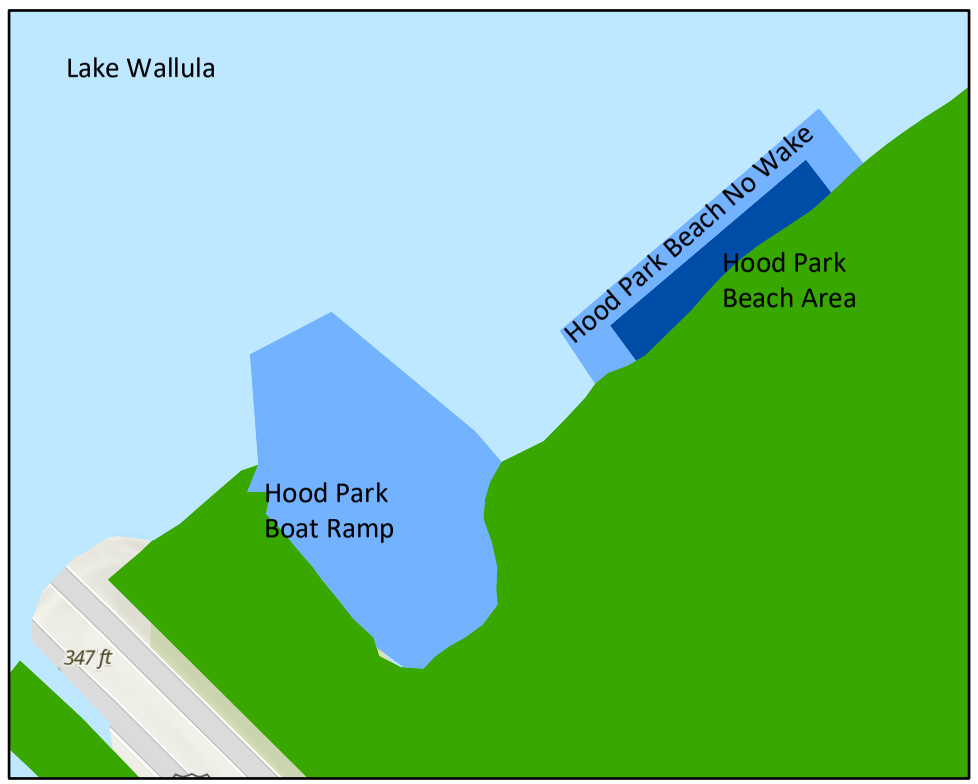
Water Surface Zones - Plat 21

- Restricted
- Designated No Wake Zone
- Open Recreation

N
W E
S







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