Somerville Lake Master Plan

Brazos River Basin: Yegua Creek
Burleson County, Washington County, and Lee County Texas
May 2022

US Army Corps of Engineers®

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EXECUTIVE SUMMARY

Somerville Lake Master Plan
U.S. Army Corps of Engineers
Prepared by the Southwestern Division
Regional Planning and Environmental Center (RPEC)
May 2022

ES.1 PURPOSE

The revision of the 1963 *Somerville Lake Master Plan* (hereafter Plan or Master Plan) is a framework built collaboratively to guide appropriate stewardship of U.S. Army Corps of Engineers (USACE) administered resources at Somerville Lake over the next 25 years. The 1963 Plan has served well past its intended 25-year planning horizon and does not reflect the growing population around the lake and regional recreation needs. When originally constructed, the dam and lake's purposes were primarily flood risk management and water conservation. Today, the lake and dam provide a multi-purpose reservoir for the original purposes of flood mitigation, water supply, fish and wildlife management, and recreation. In addition to these primary missions, USACE has an inherent mission for environmental stewardship of project lands, working to provide public facilities for outdoor recreation opportunities. Somerville Lake exists within the 7-county Brazos Valley Council of Governments (BVCOG). Refer to Figure ES 01 for a regional overview showing Somerville Lake on the periphery of the core regional boundaries as defined by Brazos Valley Council of Governments (BVCOG).

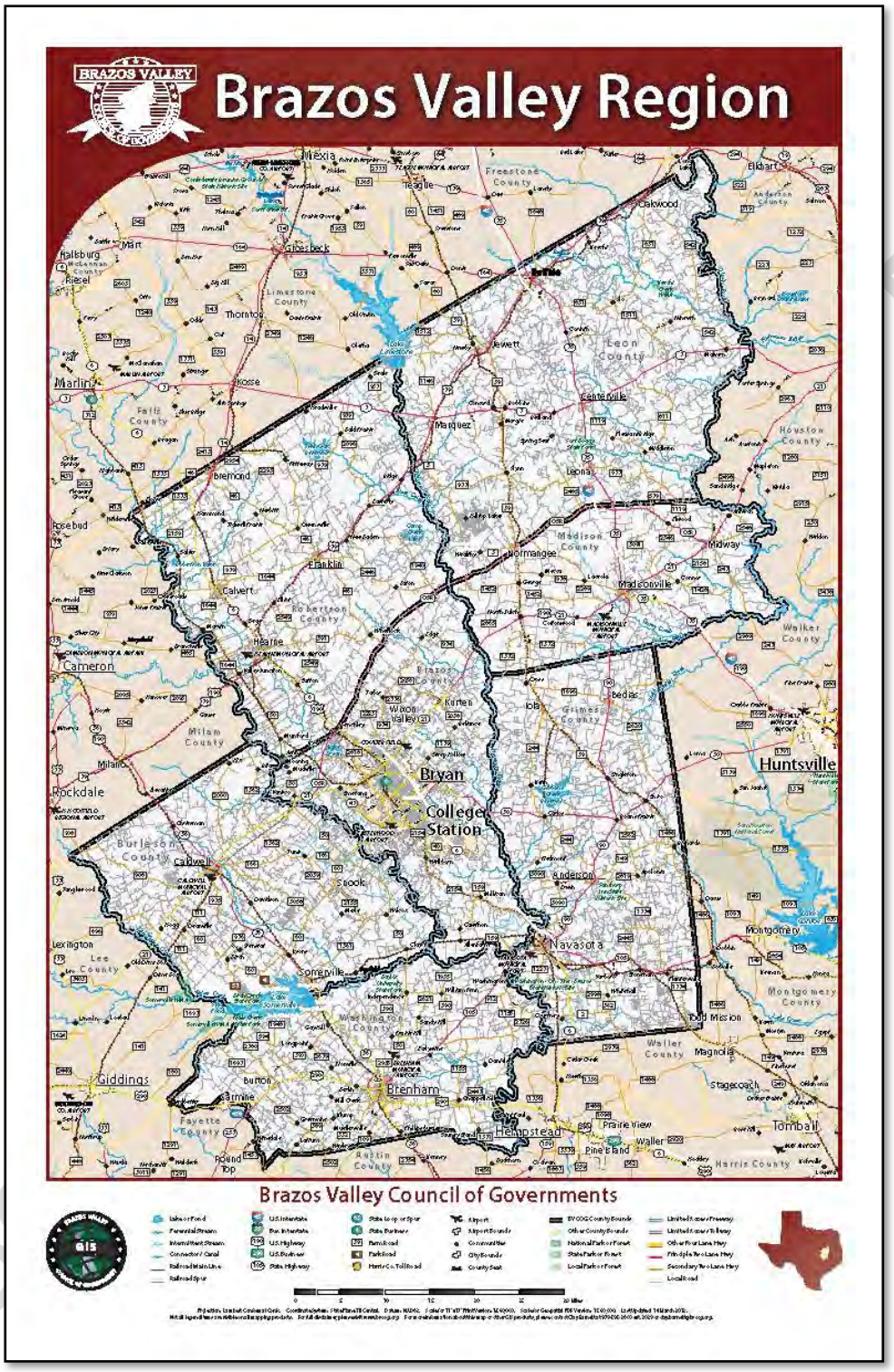

Figure ES 1 BVCOG Regional Boundaries

The Master Plan is primarily a land use and outdoor recreation strategic plan that does not address the specific authorized purposes of flood risk management or water supply. Although water management is addressed in the 2019 USACE Water Control Manual for Somerville Lake, the Master Plan acknowledges that fluctuating water level for flood risk management and water supply can have a dramatic effect on outdoor recreation, especially at boat ramps, swim beaches, and the marina.

The 1963 Master Plan included a total of 32,550 acres of USACE land and 6,890 acres of surface water at the normal or conservation pool elevation of 238.0 feet National Geodetic Vertical Datum of 1929 (feet NGVD29). The acres figure was derived using land measurement technology dating from the 1950s and has been used since 1963 to describe the size of the pool at the normal elevation. The mapping used for this Master Plan revision uses modern satellite imagery and Geographic Information System (GIS) mapping, resulting in different acreage calculations than that of the 1963 Master Plan. Utilizing the GIS based measurements, Somerville Lake has a water surface of 11,403 acres at the conservation pool of 238.0 feet NGVD29. Approximately 18,530 acres of federal land lie above the conservation pool with a shoreline of approximately -85 miles at the top of the conservation pool. Somerville Lake (Somerville Lake hereafter) is part of an integral flood mitigation and water conservation project in the Brazos River Basin consisting of nine major projects. This plan and supporting documentation provide an inventory and analysis, goals, objectives, and recommendations for USACE lands and waters at Somerville Lake, Texas, with input from the public, stakeholders, and subject matter experts.

ES.2 PUBLIC INPUT

To ensure a balance between operational, environmental, and recreational outcomes, USACE obtained both public and agency input toward the Master Plan. An Environmental Assessment (EA) was completed in conjunction with the Master Plan to evaluate the impacts of alternatives and can be found in Appendix B.

Due to the COVID-19 pandemic, the public input process was changed from a face-to-face meeting to a virtual presentation detailing the specifics of the Master Plan revision. The presentation and public input process remained open for 30 days, providing descriptions of changes to new land classifications and the process of the master plan revision.

ES.3 RECOMMENDATIONS

The following land and water classification changes (detailed in Chapter 8) were a result of the inventory, analysis, and synthesis of data, documents, and public and agency input. In general, all USACE land at Somerville Lake was reclassified either by a change in nomenclature required by regulation or changes needed to identify actual and projected use. With the exception of Project Operations and Wildlife Management acreage, it is not possible to make a direct comparison of the new land classification with the prior 1963 classifications. The 1963 Plan classified a majority of the acres within designated parks as Esthetics. The changes to the land classification are due to a

change in classification to Wildlife Management Area and setting aside land for Environmentally Sensitive Areas and Multiple Resource Management. In addition to the acreage changes, USACE has designated seven utility corridors at Somerville Lake which are described in detail in Section 6.2 and included in the maps in Appendix A.

Table ES 1 Changes from 1963 Land Classifications to Proposed Land Classifications

Prior Land Classifications (1963 Plan)	Acres	Proposed Land Classifications (2022)	Acres
Project Operations	749	Project Operations	627
Public Use Area	3,528	High Density Recreation	2,091
Esthetics	11,755	Low Density Recreation	149
Future Development Opportunities	289	Wildlife Management Area	14,594
Wildlife Management Area	1,712	Environmentally Sensitive Area	1,069
Nature Area	541		
Total Land Acres	**18,574**	**Total Land Acres**	**18,530**

Total Acreage differences from the 1963 total to the 2022 totals are due to improvements in measurement technology, deposition/siltation, and erosion. As real estate boundaries are researched, acreages may change slightly to reflect more precise boundary mapping. The fee simple and easement acreage identified in this Master Plan was obtained from the Real Estate Management Information System and is subject to change as the acquisition documents are audited.

Table ES 2 Changes from 1963 Water Surface Classifications to Proposed Water Surface Classifications

Prior Water Surface Classifications (1963 Plan)	Acres	Proposed Water Surface Classifications (2022)	Acres
Conservation Pool	11,460	Open Recreation	10,892
		Designated No-Wake	503
		Restricted	8
Total Water Acres	**11,460**	**Total Water Acres**	**11,403**

Total Acreage differences from the 1963 total to the 2022 totals are due to improvements in measurement technology, deposition/siltation, and erosion. * Flowage easement acres are approximate, and buildings for habitation will not be constructed on flowage easement land.

The acreages of the conservation pool and USACE land lying above the conservation pool were measured using satellite imagery and GIS software which allows for more accurate measurements and, thus, stated acres may vary from official land acquisition records and acreage figures published in the 1963 Master Plan. Some changes may also be due to erosion and siltation. A more detailed summary of changes and rationale can be found in Chapter 8.

ES.4 PLAN ORGANIZATION

Chapter 1 of the Master Plan presents an overall introduction to Somerville Lake. Chapter 2 consists of an inventory and analysis of Somerville Lake and associated land resources. Chapters 3 and 4 lay out management goals, resource objectives, and land classifications. Chapter 5 is the resource management plan that identifies how project lands will be managed for each land use classification. This includes current and projected overall park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. Chapter 6 details special topics that are unique to Somerville Lake. Chapter 7 identifies the public involvement efforts and stakeholder input gathered for the development of the Master Plan, and Chapter 8 gives a summary of the changes in land classification from the previous Master Plan to the present one. Finally, the appendices include information and supporting documents for this Master Plan revision, including Land Classification and Park Plate Maps (Appendix A).

An Environmental Assessment was developed with the Master Plan, which analyzed alternative management scenarios for Somerville Lake, in accordance to federal regulations including the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality; and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA. The EA is a separate document that informs this Master Plan and can be found in its entirety in Appendix B.

The EA evaluated two alternatives as follows: 1) No Action Alternative, which would continue the use of the 1963 Master Plan, and 2) Proposed Action. The EA analyzed the potential impact these alternatives would have on the natural, cultural, and human environments. The Master Plan is conceptual and broad in nature, and any action proposed in the plan that would result in significant disturbance to natural resources or result in significant public interest would require additional NEPA documentation at the time the action takes place.

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CHAPTER 1 – INTRODUCTION

1.1 GENERAL OVERVIEW

Somerville Dam and Lake (hereafter Somerville Lake) is located at river mile (RM) 22.0 on the Yegua Creek. The damsite is located within Burleson, Lee, and Washington Counties, about 10 miles northeast of Brenham, Texas (Figure 1-1). The construction of Somerville Dam began in June of 1962 and was completed in December of 1967. Deliberate impoundment began January 1967, and the conservation pool was filled on 10 May 1968.

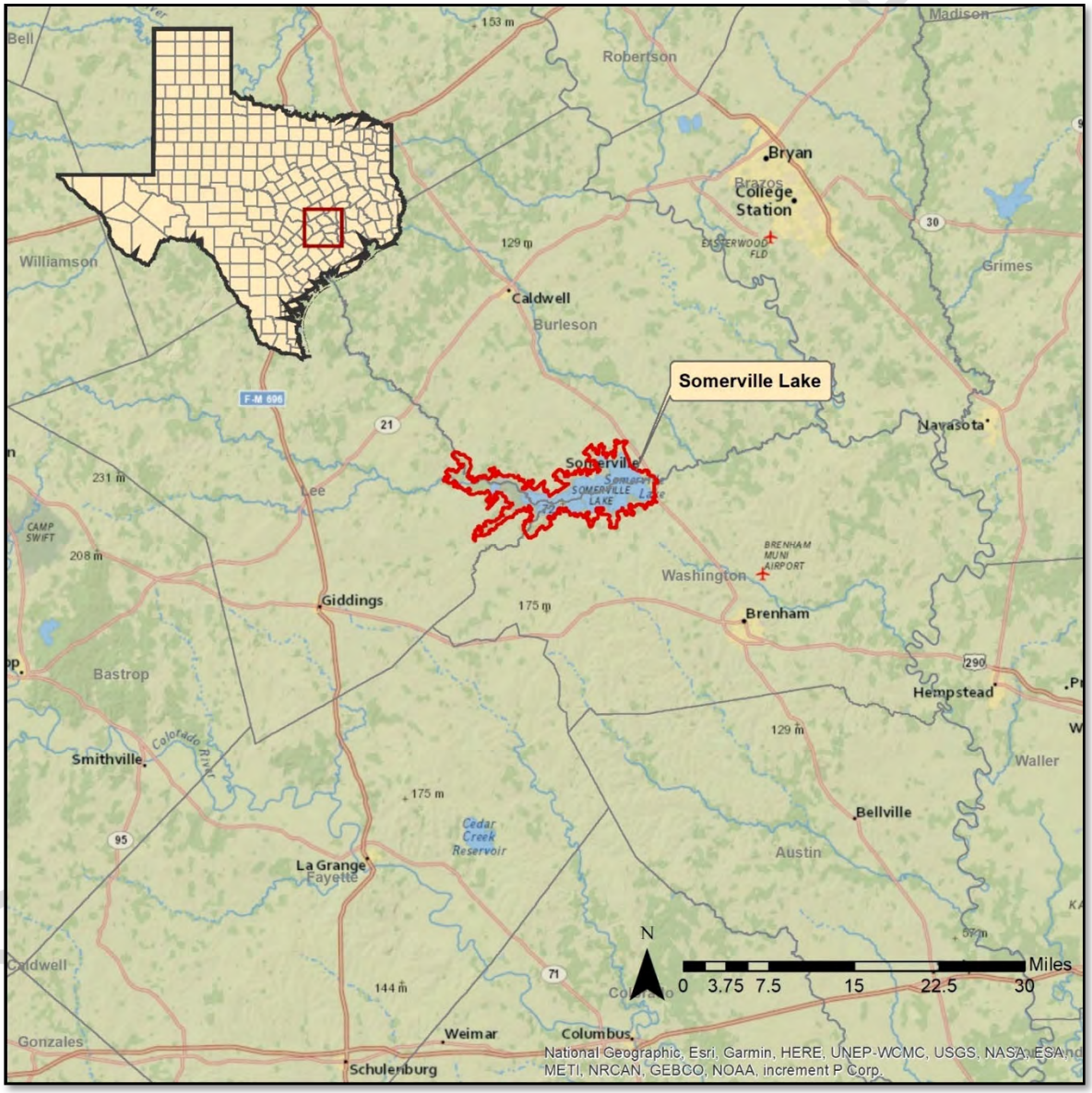


Figure 1-1 Vicinity Map of Somerville Lake and Dam

Somerville Lake is an integral part of the U.S. Army Corps of Engineers (USACE) plan for flood risk management and water conservation in the Brazos River Basin. The plan presently consists of nine major flood risk management projects, known as Whitney Dam, Aquilla Dam, Waco Dam, Proctor Dam, Belton Dam, Stillhouse Hollow Dam, North San Gabriel Dam, Granger Dam, and Somerville Dam. The nine flood mitigation projects in the Brazos River system control approximately 36,830 square miles of flood control area. Somerville Lake mitigates 1,006 square miles of drainage area within the Yegua Creek watershed. USACE operates and maintains the dam and associated facilities and administers the federal lands and flowage easements comprising the project through a combination of direct management and leases for park and recreation purposes.

The Master Plan is intended to serve as a comprehensive land and recreation management guide with an effective life of approximately 25 years. The focus of the Plan is to guide the stewardship of natural and cultural resources and make provision for outdoor recreation facilities and opportunities on federal land associated with Somerville Lake. The Master Plan identifies conceptual types and levels of activities, but does not include designs, project sites, or estimated costs. All actions carried out by USACE, other agencies, and individuals granted leases to USACE lands must be consistent with the Master Plan. The Plan does not address the flood risk management or water supply purposes of Somerville Lake (water level management is addressed in the 2019 USACE Water Control Manual for Somerville Lake). The Somerville Lake Master Plan was last revised in 1963, which is well past the intended planning horizon of 25 years.

National USACE missions associated with water resource development projects may include flood risk management, water conservation, navigation, recreation, fish and wildlife conservation, and hydroelectric power generation. Most of these missions serve to protect the built environment and natural resources of a region from the climate extremes of drought and floods. This helps to create a more resilient and sustainable region for the health, welfare, and energy security of its citizens. Mitigation, while not a formal mission at USACE lakes, may be implemented to achieve the fish and wildlife and recreation missions. Maintaining a healthy vegetative cover on federal lands including where ecologically appropriate, a native prairie or tree cover within the constraints imposed by primary project purposes, helps reduce stormwater runoff and soil erosion, mitigates air pollution, and moderates temperatures. To this end, USACE has developed the following statements.

The USACE Sustainability Policy and Strategic Plan states that:

> *"The U.S. Army Corps of Engineers strives to protect, sustain, and improve the natural and man-made environment of our Nation, and is committed to compliance with applicable environmental and energy statutes, regulations, and Executive Orders. Sustainability is not only a natural part of the Corps' decision processes, it is part of the culture.*
>
> *Sustainability is an umbrella concept that encompasses energy, climate change and the environment to ensure today's actions do not negatively impact tomorrow. The Corps of Engineers is a steward for some of the Nation's most valuable natural resources and must ensure customers receive products and services that provide sustainable solutions that address short and long-term environmental, social, and economic considerations."*

The USACE mission for the Responses to Climate Change Program is:

> *"To develop, implement, and assess adjustments or changes in operations and decision environments to enhance resilience or reduce vulnerability of USACE projects, systems, and programs to observed or expected changes in climate."*

1.2 PROJECT AUTHORIZATION

The Somerville Dam and Lake project on the Yegua Creek was authorized by the Flood Control Act approved 3 September 1954 (Public Law 780, 83rd Congress, 2nd Session) for construction substantially in accordance with the recommendation of the Chief of Engineers contained in House Document No. 535 (81st Congress, 2nd Session) "Report of Survey of Brazos River and Tributaries, Texas, Oyster Creek, Texas, and Jones Creek, Texas, dated 16 August 1947".

Authority to initiate advanced planning is contained in the Public Works Appropriation Act or 1959, approved 2 September 1958 (Public Law 85-863) and in Advice of Allotment C-126, dated 6 October 1958. Construction of the project was started on 25 June 1962 and was completed in December 1967. Deliberate impoundment began on 3 January 1967. The conservation pool was filled on 10 May 1968.

1.3 PROJECT PURPOSE

Somerville Dam and Lake is a multi-purpose project for flood risk reduction, water conservation, fish and wildlife habitat, and recreation. In addition, it is a unit of the Brazos River Basin System which consists of nine USACE lakes and various channel improvements operated to provide flood protection along the Brazos River.

Environmental stewardship, though not listed as a primary project purpose, is a major responsibility and inherent mission in the administration of federally owned lands. Other laws, including but not limited to Public Law 91-190, NEPA, and Public Law 86-717, Forest Cover Act, place emphasis on the environmental stewardship of federal lands and USACE-administered federal lands, respectively. This stewardship includes, among other laws, adherence to the Endangered Species Act of 1973, (Public Law 93-205), which protect imperiled species and the ecosystems upon which they depend.

1.4 MASTER PLAN PURPOSE AND SCOPE

The Somerville Lake Master Plan is the living, flexible, long-term strategic land-use management document that guides the comprehensive management and development of all the project's recreational, natural, and cultural resources. Under the guidance published in Engineering Regulation (ER) 1130-2-550 Change 7, and the accompanying Engineer Pamphlet (EP) 1130-2-550 Change 5, the Master Plan guides the efficient and cost-effective development, management, and use of project lands. It is a dynamic tool that provides for the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations. The Master Plan works in tandem with the Operational Management Plan (OMP), which is the task-oriented implementation tool for the resource objectives and development needs identified in the Master Plan. The Master Plan guides and articulates the USACE responsibilities pursuant to federal laws. The USACE vision for the future management of the natural resources and recreation program at Somerville Lake is set forth as follows:

> *"The land, water and, recreational resources of Somerville Lake will be managed to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provide outdoor recreation opportunities that complement overall project purposes for the benefit of present and future generations."*

It is important to note what the Master Plan does not address. Details of design, management and administration, and implementation are not addressed here; but are covered in the Somerville Lake OMP. In addition, the Master Plan does not address the specifics of regional water quality, shoreline management (a term used to describe primarily vegetation modification or permits by neighboring landowners), or water level management, nor does it address the operation and maintenance of prime project operations facilities such as the dam embankment, gate control outlet, and spillway. Additionally, the Plan does not address the flood risk management or water conservation purposes of Somerville Lake with respect to management of the water level in the lake (the USACE Water Control Manual for Somerville Lake addresses water level management purposes).

The master planning process encompasses the examination and analysis of past, present, and future environmental, recreational, and socioeconomic conditions and trends. Within a generalized conceptual framework, the process focuses on the following four primary components:

- Regional and ecosystem needs
- Project resource capabilities and suitability
- Expressed public interests that are compatible with Somerville Lake's authorized purposes
- Environmental sustainability elements

The Somerville Lake Master Plan was originally written as a Draft in 1962, then released in 1963. Although the previous revision was sufficient for prior land use planning and management, many changes are affecting the region. Outdoor recreation trends, regional land use, rapidly growing population, current legislative requirements, and USACE management policy have evolved. Increased urbanization, fragmentation of wildlife habitat, impacts of climate change, and the growing demand for recreational access and natural resource management have affected the region and Somerville Lake. In response to these escalating pressures, a full revision of the 1963 Master Plan is required. The Master Plan revision will update land classifications, include new resource management objectives, and describe future plans proposed by key partners and stakeholders. The Plan will also inform the management of vegetation, wildlife, and other natural resources for the next 25 years.

Acreage calculations in the 1963 Master Plan were derived using land measurement technology dating from the 1950s. This Master Plan revision utilizes modern satellite imagery and Geographic Information System (GIS) mapping, resulting in more accurate acreage measurements than those provided in the 1963 Master Plan. Unless specifically noted otherwise, acreage calculations referred to in this Master Plan revision are derived from modern satellite imagery and GIS.

The desired rate of release for conservation pools varies based on the prevailing rates of inflow, lake evaporation, and water supply withdrawals. No flood control releases

1.5 BRIEF WATERSHED AND PROJECT DESCRIPTION

The Yegua Creek watershed is located in the southeastern portion of the state of Texas and within the lower portion of the Brazos River basin. It is roughly a rectangular area about 62 miles long and 32 miles wide, having a drainage area of 1,321 square miles. The total drainage area above Somerville Dam is 1,006 square miles, or about 76 percent of the Yegua Creek watershed. The watershed is characterized by undulating topography with moderate slopes, wide valleys, and a range of low rolling hills. There are no upstream or downstream projects. There are levees downstream, located along the Brazos River, in Fort Bend and Brazoria Counties.

The Yegua Creek watershed is crossed by US highway 77 as well as state highways TX-21 and TX-36. The largest city in the basin is Rockdale which is in Milam

County. The Yegua Creek watershed lies within the boundaries of Burleson, Lee and Washington Counties.

Somerville Dam and Lake are located on the Yegua Creek at river mile 20 within the Brazos River Basin, approximately 2 miles south of Somerville, Texas. The lake is located in Burleson and Washington Counties.

Somerville Dam consists of a rolled earth fill embankment, outlet works, uncontrolled ogee weir spillway, and a dike. The embankment is 20,210 feet long and consists of a compacted impervious earth fill dam plus a 4,715 feet long dike. The top of the embankment is at elevation 280.0 feet NGVD29. The outlet works consist of an approach channel, reinforced concrete intake and control structure, concrete conduit, service bridge, stilling basin, and a discharge channel. The intake tower is located in the lake upstream from the dam embankment station. The spillway is located in a saddle to the right bank and is a 1,250 feet long uncontrolled ogee weir with a crest elevation of 258.0 feet NGVD29.

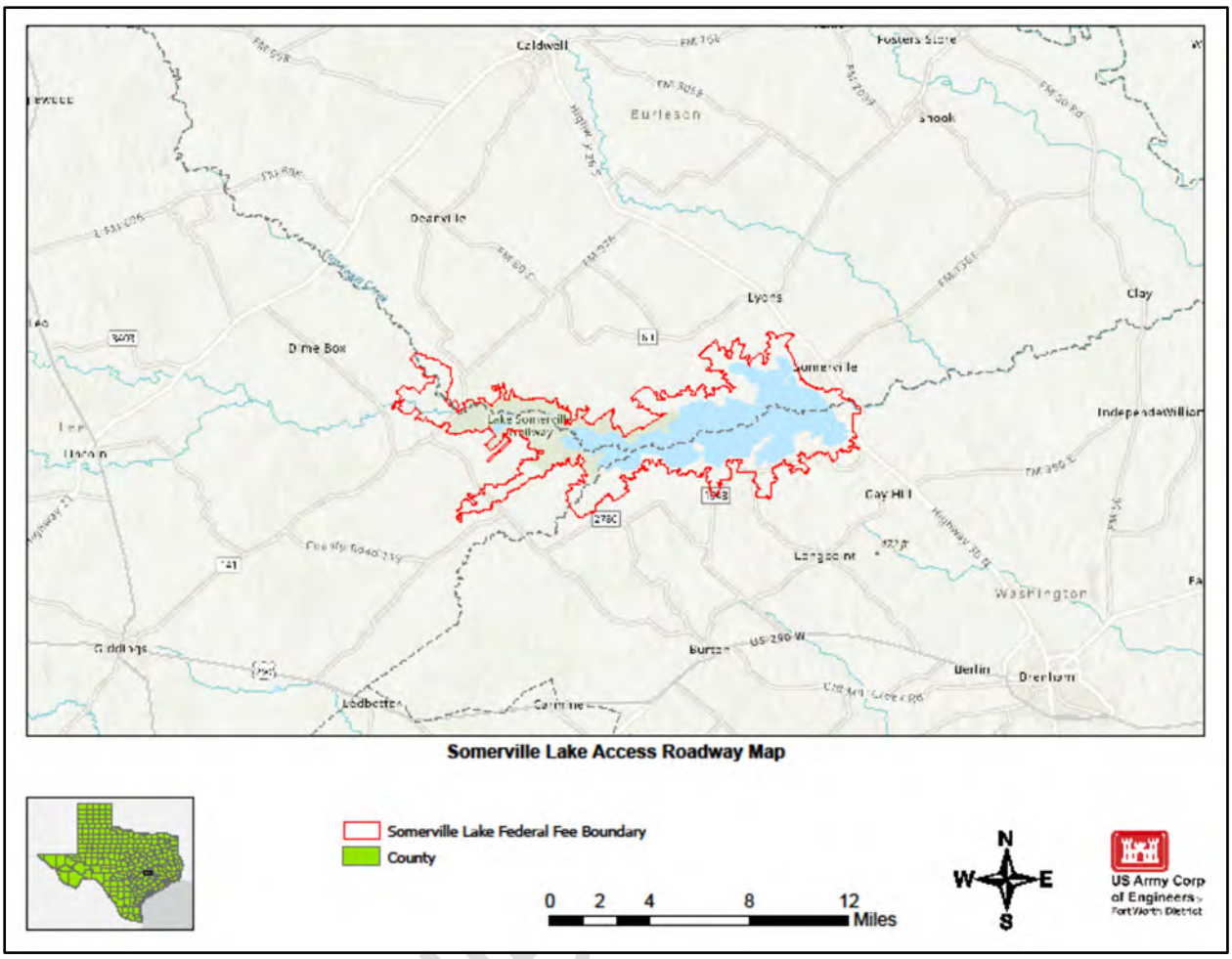
As stated in the 1963 Master Plan, a total of 29,232 fee simple acres and 3,572 flood flowage easement acres were acquired for the construction of Somerville Lake. The real estate acquisition was based a normal conservation pool elevation of 238.0 feet NGVD29 and a flood pool elevation of 258.0 feet NGVD29. Flowage easements were obtained in the upper reaches of the lake up to a contour elevation of 263.0 feet NGVD29, 5 feet above the top of the flood pool. Lands not needed for project purposes or recreational development were offered for reconveyance to former owners. There is now a total of 29,933 acres of fee-owned land above 263.0 NGVD and approximately 3,572 acres of flowage easements.

1.6 DESCRIPTION OF RESERVOIR

Somerville Lake is average in size by comparison to other USACE lakes, with a conservation (normal) pool of 11,403 surface acres at elevation 238.0 feet NGVD29. The top of the flood pool is elevation 258.0 feet NGVD29 and the uncontrolled spillway crest is at elevation 258.0 feet NGVD29. The lake was originally designed to allow the accumulation of 16,200 acre-feet of sediment. Sedimentation surveys would typically be conducted every 20 years. However, sedimentation surveys are currently done periodically depending on need and funding availability. The most recent sedimentation survey occurred in 2012 and was conducted by the Texas Water Development Board (TWDB) Hydrographic Survey Program. The results from the survey indicate that Somerville Lake encompasses a total volume of 150,307 acre-feet at a conservation pool elevation of 238.0 feet.

1.7 PROJECT ACCESS

Somerville Lake is easily accessed by several secondary and tertiary roads. The two main north-south access roads are State Highway 36, located to the east of the lake and County Road 125, located west of the lake. Both roads connect to all major east-west access roads. Refer to Figure 112 for a map of the major access roads around Somerville Lake.



Somerville Lake Access Roadway Map

Figure 1-2 Somerville Lake Access by Roadway

The Brazos Valley Council of Governments (BVCOG) coordinates with cities, counties, and transportation partners to plan road, transit, bicycle, and pedestrian transportation improvements for seven counties comprising the BVCOG and serves the cities of College Station and Bryan, Texas.

National USACE policy set forth in ER 1130-2-550, Appendix H, states that USACE lands will, in most cases, only be made available for roads that are regional arterials or freeways (as defined in ER 1130-2-550). All other types of proposed roads, including driveways and alleys, are generally not permitted on USACE lands. The proposed expansion or widening of existing roadways on USACE lands will be considered on a case-by-case basis.

1.8 PRIOR DESIGN MEMORANDA

Design Memorandums were prepared from 1962 thru 1982 setting forth design criteria for all aspects of the project including the prime flood risk management facilities, real estate acquisition, road and utility relocations, reservoir clearing, and the Master Plan for recreation development and land management. A few supplements and project

related reports and manuals were added after 1982. Table 1-1 lists the Design Memoranda as well as other manuals and reports for Somerville Lake.

Table 1-1 Somerville Lake Design Memoranda, Manuals and Reports

	Title	Date
1.	Design Memorandum No. 1 – Hydrology	Nov 1960
2.	Design Memorandum No. 2 – Site Selection	Jul 1960
3.	Design Memorandum No. 3 Part I – Real Estate: Lands for Construction Area	Oct 1961
4.	Design Memorandum No. 3 Part II – Real Estate: Lands for Reservoir Area	May 1962
5.	Design Memorandum No. 4 Part I – Relocations: County Roads	Jan 1964
6.	Design Memorandum No. 4 Part II – Relocations: State Highway	Nov 1962
7.	Design Memorandum No. 4 Part III – Relocations: Access Roads	Jan 1964
8.	Design Memorandum No. 4 Part IV – Relocations: Lower Colorado River Electric Cooperative	Jan 1965
9.	Design Memorandum No. 4 Part V – Relocations: Caldwell Telephone Company	Mar 1964
10.	Design Memorandum No. 4 Part VI – Relocations: Dam Construction Area	Sep 1962
11.	Design Memorandum No. 4 Part VI – Relocations: Railroad	Dec 1961
12.	Design Memorandum No. 5 - General	June 1961
13.	Design Memorandum No. 7 – Earthen Dam	May 1963
14.	Design Memorandum No. 8 – Access Road and Earth Dike	Apr 1961
15.	Design Memorandum No. 9 – Maintenance Facilities	Feb 1962
16.	Design Memorandum No. 10 – Spillway	Aug 1962
17.	Design Memorandum No. 11A – Reservoir Management: Preliminary Master Plan	Nov 1961
18.	Design Memorandum No. 11B – Master Plan	Feb 1963
19.	Design Memorandum No. 12 – Outlet Works	Jan 1963
20.	Design Memorandum No. 13 – Visitor's Overlook	Oct 1962
21.	Design Memorandum No. 14 – Channel Improvement	Aug 1962
22.	Design Memorandum No. 15 – Clearing	Sep 1962
23.	Design Memorandum No. 16 – Sedimentation and Degradation Ranges	Apr 1963

Source: USACE

1.9 PERTINENT PROJECT INFORMATION

The following table provides pertinent information regarding key reservoir elevations and storage capacity at Somerville Lake.

Table 1-2 Elevations and Water Storage Capacity

Feature	Elevation (Feet NGVD)	Reservoir Area (Acres)	Accumulative (Acre-Feet)	Runoff (inches)
Top of Dam	280.0	47,400	1,257,633	23.44
PMF Water Surface (2018 Study)	279.89	–	–	–
Maximum Design Water Surface Elevation (1961 Study)	274.5	39,800	1,019,133	18.99
Spillway Crest and Top of Flood Pool	258.0	24,400	497,693	9.27
Top of Conservation Pool (2012 Survey)	238.0	11,395	150,293	2.80
Maximum Tailwater	243.8	–	–	–
Sediment Reserve	–	–	–	–
Streambed (2012 Survey)	200.0	–	–	–

Source: USACE

CHAPTER 2 – PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

2.1 PHYSIOGRAPHIC SETTING

2.1.1 Ecoregion Overview

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. The Environmental Protection Agency (EPA) has developed a series of maps that categorizes these regions across the United States. Levels I and II divide the United States and North American continent into 15 and 52 regions, respectively. Level III ecoregions represent a subdivision of those into 104 unique regions and Level IV is a finer sub-classification of those. Somerville Lake and its watershed is located in the Level III East Central Texas Plains ecoregion as seen in Figure 2-1, specifically in the Southern Post Oak Savanna Level IV subdivision.

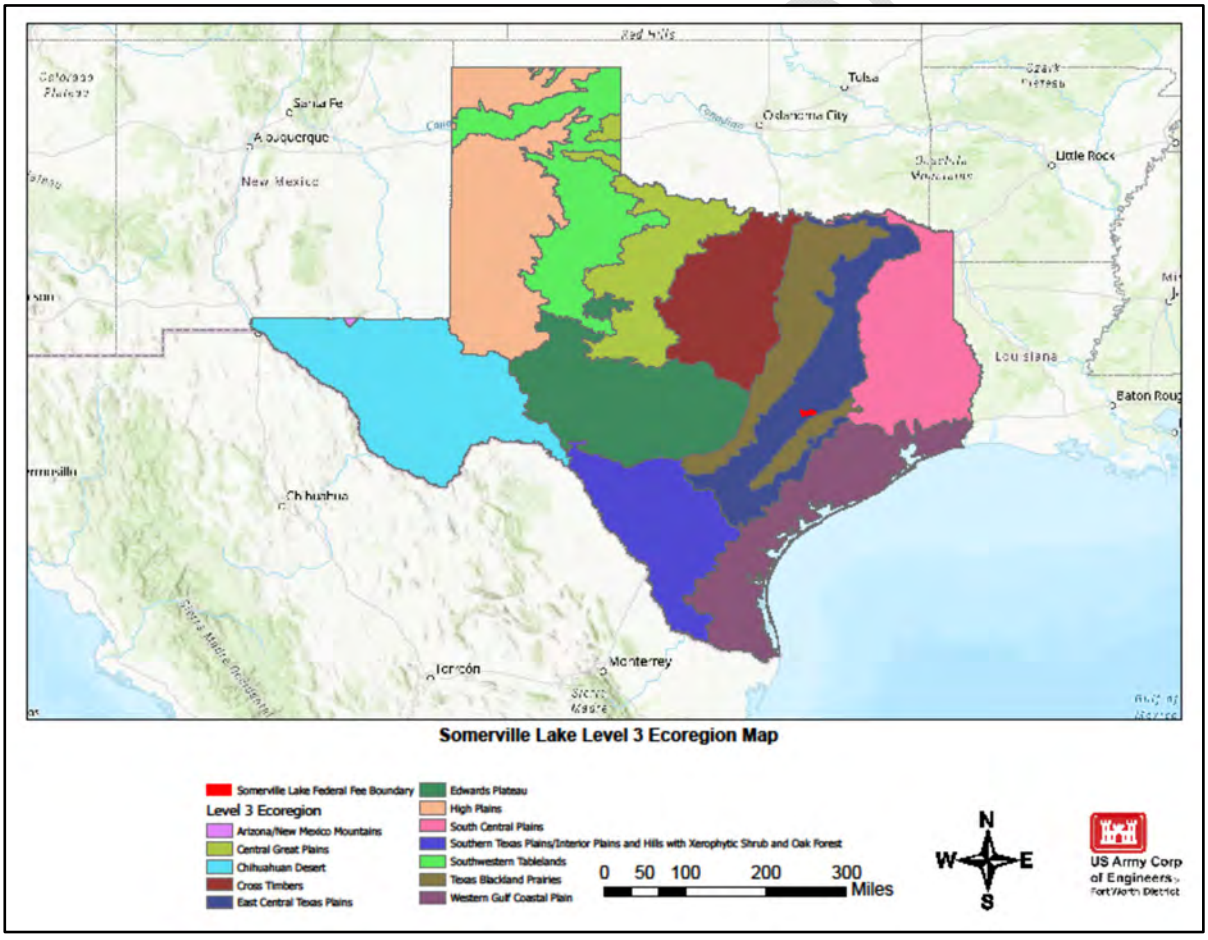


Figure 2-1 Somerville Lake Ecoregion
Source: EPA (2021)

The East Central Texas Plains, also called the Post Oak Savanna or the Claypan Area, is a region of irregular plains that was originally covered by post oak savannah

vegetation. The bulk of this region is now used for pasture and range. The East Central Texas Plains are divided into six subregions with the Northern Post Oak Savanna and Southern Post Oak Savanna being the predominate Level IV classifications. The Southern Post Oak Savanna, which includes Somerville Lake, is currently comprised of a land cover mix of post oak woods, improved pasture, and rangeland, with some invasive mesquite to the south. It is not uncommon to have a thick understory of yaupon and eastern redcedar in some of the more southern portions of the region.

Before Anglo settlement, the region was habitat for bison (*Bison bison*), pronghorn antelope (*Antilocapra americana*), mountain lion (*Puma concolor*), bobcat (*Lynx rufus*), ocelot (*Leopardus pardalis*), black bear (*Ursus americanus*), collared peccary (*Pecari tajacu*), white tailed deer (*Odocoileus virginianus*), red wolf (*Canis lupus rufus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), badger (*Taxidea taxus*), river otter (*Lontra canadensis*), and many species of birds. Much of the original prairie and forest has been converted to cropland and pasture or cleared for urbanization, leading to a loss of habitat for native species.

2.1.2 Climate

Somerville Lake is located within central Texas. The region has a warm, temperate, continental climate with cool winters and hot, humid summers. Tropical maritime air masses from the Gulf of Mexico play a dominant role in the climate from late spring through early fall, while polar air masses determine the winter climate. The mean annual temperature over the lake is about 67.0 degrees Fahrenheit (°F) (NOAA, 2021B). January, the coldest month, has an average temperature of 48.0°F and average minimum daily temperature of about 34.7°F. August, the warmest month, has an average daily temperature of 84.6°F and average maximum daily temperature of 96.4°F. The average length of the growing season is 280 days (NOAA 2021A). Somerville Lake lies within the United States Department of Agriculture (USDA) Plant Hardiness Zone 8B, which is determined by the winter extreme low temperatures, with 8B having normal winter lows between 15°F and 20°F. Average monthly temperature and precipitation is provided in Figure 2.2.

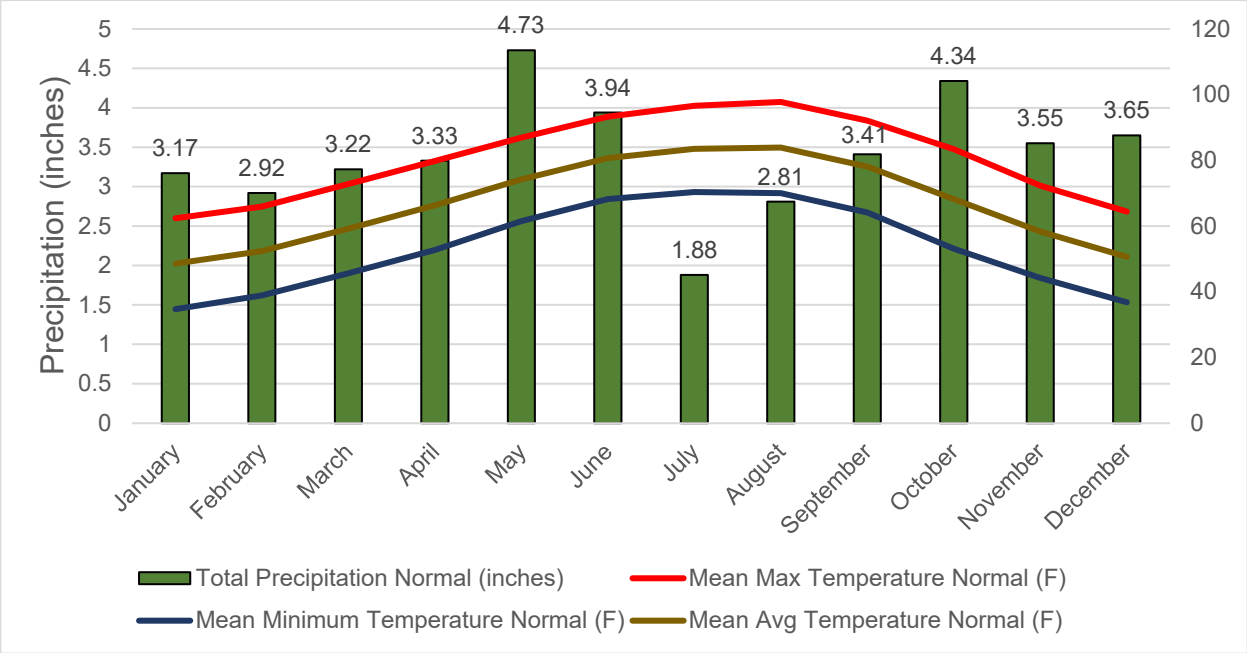


Figure 2-2 Average Monthly Climate Somerville Lake, 1991 - 2020
Source: NOAA, 2021B.

The normal annual precipitation is 40.95 inches with greater precipitation during spring and fall, and less precipitation during summer and winter. Because of the preponderance of tropical maritime air, heavy showers of short duration may occur at any time during the year (NOAA/Weather.gov).

The average humidity for the area around Somerville Lake is 74.75% over the course of a year. The air is driest around the end of November-February timeframe and is most humid between June-July (USACE, 2018). The average annual evaporation rate at Somerville Lake, as calculated using the measured pan evaporation multiplied by the monthly pan coefficient, is about 52.33 inches with the lowest evaporation rates occurring during the winter and greatest evaporation occurring during the summer (USACE, 2017). The air is driest around the November-February timeframe and is most humid between July-August (USACE, 2019). The average annual evaporation rate at Somerville Lake, as calculated using the measured pan evaporation multiplied by the monthly pan coefficient, is about 53.49 inches with the lowest evaporation rates occurring during the winter and greatest evaporation occurring during the summer (USACE, 2019).

2.1.3 Climate Change and Greenhouse Gasses (GHG)

The U.S. Global Change Research Program (USGCRP) researched potential impacts of climate change globally, nationally, regionally, and by resource (e.g., water resources, ecosystems, human health). Somerville Lake lies within the Southern Great Plains region of analysis. Growing population in the region has already increased the

demand for water and energy, while evidence of climate change in the form of rising temperatures has led to increasing demand for water and energy and has impacted local agricultural practices.

Within the entire Southern Great Plains Region, there has been an increase in average temperatures by 1.5°F from a 1960–1970 baseline to the year 2000 (USGCRP 2014). The increased heat wave severity and frequency in the U.S. has been connected to human activity, with a detectable human influence in recent heat waves in the Southern Great Plains (USGCRP, 2014). In 2011, the State of Texas experienced a heat wave and drought that lasted through the winter of 2014 and ended with record breaking floods in 2015. The growing season and summer of 2011 was the hottest and among the driest on record. Frequent extreme heat events throughout Texas have increased substantially over the past 20 years.

This trend of rising temperatures and more frequent extreme events such as heat waves, drought, and heavy rainfall is predicted to continue (USGCRP 2014). The USGCRP projected two potential future conditions as part of its predictive modeling process. Under conditions of lower greenhouse gas (GHG) emissions, the average temperature in the Southern Great Plains region may increase as much as 6°F by 2050 and 8°F by 2090 from averages observed in 2000. Under conditions of higher continuous GHG emissions, the potential increase is greater in the long-term, and may be as much as 13.5°F by 2090.

2.1.4 Air Quality

The U.S. Environmental Protection Agency (EPA) established nationwide air quality standards to protect public health and welfare in 1971. The State of Texas has adopted the National Ambient Air Quality Standards (NAAQS) as the state's air quality criteria. NAAQS standards specify maximum permissible short- and long-term concentrations of various air contaminants including primary and secondary standards for six criteria pollutants: Ozone (O_3), Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Nitrogen Oxide (NO_x), particulate matter (PM10 and PM2.5), and Lead (Pb). If the concentrations of one or more criteria pollutants in a geographic area is found to exceed the regulated "threshold" level for one or more of the NAAQS, the area may be classified as a non-attainment area. Areas with concentrations that are below the established NAAQS levels are considered either attainment or unclassifiable areas. In the case of Somerville Lake, it is in attainment for all criteria air pollutants (TCEQ, 2021A).

2.1.5 Topography, Geology, and Soils

Topography

Somerville Lake is located within the Balcones fault system, which crosses the Yegua Creek watershed about 25 miles upstream from the dam. The watershed is characterized by undulating topography in which moderate slopes, wide valleys and ranges of low rolling hills predominate. The Yegua Creek and its major tributaries have

cut wide valleys into the soft sedimentary deposits and have subsequently refilled the valleys with a heavy blanket of alluvium. The alluvial soils covering the valleys of the watershed are productive for growing of crops. The total fall of the streambed is about 360 feet, averaging 4.0 feet per mile. The slope of Yegua Creek near Somerville Lake is approximately 2.5 feet per mile.

Geology

Somerville Lake is located within the Yegua Creek watershed, which is underlain by strata of the Wilcox, Claiborne, and Jackson groups of the Eocene Age. The upper reaches of the watershed are underlain by the sand and clay sediments of the Wilcox group. South and east of this area the watershed crosses over areas composed of the Clairborne strata. This group, which underlines the principal potion of the drainage area, is made up of seven formations: Carizo sand, Recklaw glauconitic sand and clay, Queen City sands, Weches glauconite clay strata, Sparta sands and shales, Crocket clay and shales, and the sand and sandy clay of the Yegua sediments. Yegua Creek crosses the Claiborne and Jackson groups about ten miles upstream from the Somerville Dam. The Jackson group is made up of four formations: Caddel, Wellborne, Manning and Whitsett. These formations consist chiefly of sands and clays.

Soils

The main soil series within Somerville Lake Project Lands is the Zilaboy clay, 0 to 1 percent slopes, frequently flooded. It makes up 10.02 percent of soils found within Somerville Lake project lands, and it is not a prime farmland soil. The soil is well drained, occurs in 0 to 80-inch-thick surface layers, normally found on flood plains, contains clayey alluvium of Holocene age derived from mixed sources.

The Natural Resource Conservation Service (NRCS) Web Soil Survey (2021) reports 53 soil types occurring within Somerville Lake project lands. Table 2.1 shows the acreage and farmland status associated with each soil & surface type in the detention area.

Table 2-1 Acres of Surface Soil Types within Somerville Lake Project Lands

Soil Type	Number of Acres	Farmland Status
Arol fine sandy loam, 1 to 5 percent slopes	22.00	Not Prime Farmland
Axtell fine sandy loam, 1 to 4 percent slopes	63.00	Farmland of Statewide Importance
Axtell fine sandy loam, 1 to 5 percent slopes	39.00	Farmland of Statewide Importance
Bosque clay loam, frequently flooded	382.00	Not Prime Farmland
Burlewash and Koether soils	436.00	Not Prime Farmland
Burlewash fine sandy loam, 1 to 5 percent slopes	857.00	Not Prime farmland

Soil Type	Number of Acres	Farmland Status
Burlewash fine sandy loam, 2 to 5 percent slopes	1,376.00	Not Prime Farmland
Burlewash fine sandy loam, 5 to 15 percent slopes, eroded	215.00	Not Prime Farmland
Burlewash fine sandy loam, 5 to 20 percent slopes	224.00	Not Prime Farmland
Burlewash-Gullied land complex, 5 to 20 percent slopes	72.00	Not Prime Farmland
Burlewash-Koether association, steep	89.00	Not Prime Farmland
Chazos loamy fine sand, 1 to 3 percent slopes	126.00	All Areas are Prime Farmland
Chazos loamy fine sand, 1 to 5 percent slopes	37.00	All Areas are Prime farmland
Chazos loamy fine sand, 5 to 8 percent slopes	116.00	Not Prime Farmland
Dutek loamy fine sand, 1 to 5 percent slopes	147.00	Not Prime Farmland
Eufaula loamy fine sand, 1 to 3 percent slopes	609.00	Not Prime Farmland
Falba fine sandy loam, 1 to 5 percent slopes	872.00	Not Prime Farmland
Faula fine sand, 0 to 5 percent slopes	159.00	Not Prime Farmland
Gladewater clay, 0 to 1 percent slopes, frequently flooded	221.00	Not Prime Farmland
Gowen clay loam, frequently flooded	37.00	Not Prime Farmland
Gredge fine sandy loam, 1 to 3 percent slopes	133.00	Farmland of Statewide Importance
Gredge fine sandy loam, 1 to 5 percent slopes	2.00	Farmland of Statewide Importance
Kaufman clay, 0 to 1 percent slopes, frequently flooded, southern	936.00	Not Prime Farmland
Lufkin fine sandy loam, 0 to 1 percent slopes	59.00	Farmland of Statewide Importance
Mabank fine sandy loam, 0 to 1 percent slopes	55.00	Farmland of Statewide Importance
Nahatche clay loam, frequently flooded	382.00	Farmland of Statewide Importance
Navasota clay, 0 to 1 percent slopes, frequently flooded	1,563.00	Not Prime Farmland
Oklared-Norwood complex, 0 to 1 percent slopes, occasionally flooded	10.00	Not Prime Farmland

Soil Type	Number of Acres	Farmland Status
Padina loamy fine sand, 1 to 5 percent slopes	387.00	Not Prime Farmland
Rader fine sandy loam, 1 to 3 percent slopes	120.00	Farmland of Statewide Importance
Rehburg loamy fine sand, 1 to 5 percent slopes	600.00	Not Prime Farmland
Robco-Tanglewood complex, 1 to 5 percent slopes	123.00	Not Prime Farmland
Sandow loam, 0 to 1 percent slopes, frequently flooded	1,052.00	Not Prime Farmland
Sandow loam, frequently flooded	265.00	Not Prime Farmland
Shalba fine sandy loam, 1 to 5 percent slopes	3.00	Not Prime Farmland
Shiro loamy fine sand, 1 to 5 percent slopes	0.00	All Areas Are Prime Farmland
Silawa loamy fine sand	114.00	All Areas Are Prime Farmland
Silawa loamy fine sand, 1 to 5 percent slopes	81.00	All Areas Are Prime Farmland
Silawa loamy fine sand, 5 to 8 percent slopes	87.00	Not Prime Farmland
Silstid loamy fine sand, 1 to 5 percent slopes	0.00	Not Prime Farmland
Singleton fine sandy loam, 1 to 3 percent slopes	852.00	Not Prime Farmland
Singleton fine sandy loam, 1 to 5 percent slopes	162.00	Not Prime Farmland
Tabor fine sandy loam, 0 to 2 percent slopes	1.00	Farmland of Statewide Importance
Tabor fine sandy loam, 1 to 3 percent slopes	153.00	Farmland of Statewide Importance
Tabor fine sandy loam, 1 to 5 percent slopes	55.00	Farmland of Statewide Importance
Tremona loamy fine sand, 1 to 5 percent slopes	279.00	Not Prime Farmland
Uhland clay loam, 0 to 1 percent slopes, frequently flooded	511.00	Not Prime Farmland
Uhland fine sandy loam, 0 to 1 percent slopes, frequently flooded	57.00	Not Prime Farmland
Uhland fine sandy loam, frequently flooded	652.00	Not Prime Farmland
Wilson loam, 0 to 1 percent slopes	56.00	Farmland Of Statewide Importance

Soil Type	Number of Acres	Farmland Status
Zack fine sandy loam, 5 to 8 percent slopes	49.00	Not Prime Farmland
Zilaboy clay, 0 to 1 percent slopes, frequently flooded	1,791.00	Not Prime Farmland
Zilaboy clay, frequently flooded	1,185.00	Not Prime Farmland
Total	**17,874.00**	

Source: USGS.gov

Soil Classifications

A soil survey by the NRCS shows there are eight possible general classifications (Classes I through Class VIII) occurring in the reservoir area. The erosion hazards and limitations for use increase as the class number increases. Class I has few limitations, whereas Class VIII has many. The soil class data for project lands is provided in Table 2-2. This data is compiled by the NRCS and is a standard component of natural resources inventories on USACE lands. This, and other inventory data, is recorded in the USACE Operations and Maintenance Business Information Link (OMBIL).

Table 2-2 Soil Classes at Somerville Lake

Soil Class	Acreage	Soil Class	Acreage
Class I	1	**Class V**	9,169
Class II	181	**Class VI**	847
Class III	2,246	**Class VII**	252
Class IV	5,448	**Class VIII**	196

A general description of the soils at Somerville Lake and the land capability classes are described below.

- *Class I* soils have slight limitations that restrict their use.
- *Class II* soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- *Class III* soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- *Class IV* soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
- *Class V* soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

- *Class VI* soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

- *Class VII* soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.

- *Class VIII* soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or Water Supply or for aesthetic purposes.

The predominant soils at Somerville Lake in order of prevalence are Class V, IV, and III. In general, the soils in the project area have little hazard of erosion but very sever to severe limitations reducing vegetation variety and which may require special conservation practices.

Prime Farmland

As required by Section 1541(b) of the Farmland Protection Policy Act (FPPA) of 1980 and 1995, 7 U.S.C. 4202(b), federal and state agencies, as well as projects funded with federal funds, are required to (a) use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, (b) consider alternative actions, as appropriate, that could lessen adverse effects, and (c) ensure that their programs, to the extent practicable, are compatible with state and units of local government and private programs and policies to protect farmland.

There are several soil types in the study area that are considered prime farmland soils or soils associated with farmlands of state importance. However, the lands represented by these soil types have not been used for farming since the lands were acquired prior to the initiation of construction of Sommerville Lake in June of 1962.

2.1.6 Water Resources

Surface Water

Somerville Lake is located on the Yegua Creek, it is a principal tributary of the Brazos River. Yegua Creek is formed by the confluence of the East Yegua Creek (formally known as First Yegua), and Middle Yegua Creek at a point about 14 miles west of Somerville, Texas. The Middle Yegua Creek rises in Williamson County about 9 miles south of Taylor at an elevation of about 500 feet above the mean sea level and flows in an easterly direction for a distance of 48.7 river miles to its confluence with the East Yegua Creek at about elevation 239 feet above mean sea level. The East Yegua Creek rises in Milam County at an elevation of above 400 feet above mean sea level and flows in a southeasterly direction for a distance of 33 river miles to its confluence with Middle Yegua Creek. Yegua Creek then flows in a general easterly direction for 41.8 river miles to its junction with the Brazos River.

Wetlands

Waters of the United States are defined within the Clean Water Act (CWA), and jurisdiction is addressed by the USACE and EPA. Wetlands are a subset of the waters of the United States that may be subject to regulation under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, and under normal circumstances these wetlands do support this vegetation type.

Typically, the National Wetlands Inventory (NWI) established by U.S. Fish and Wildlife Service (USFWS) is used to identify wetland types in a project area. However, after careful analysis by USACE personal and knowledge of Somerville Lake it was determined that the dataset provided USFWS does not reflect the diversity nor acreages of wetlands present at the lake. Therefore, NWI was not used to identify and calculate wetland acreage within the fee boundary of the project. Instead, the Ecological Mapping System (EMS) developed by TPWD was used. Using the TPWD's EMS mapping, wetlands are delineated as open water. Table 2-3 provides the acres of open water and swamp habitats and Figure 2-6 displays the ecological habitat types at Somerville Lake based on EMS.

Table 2-3 Total Acres of Wetland and Open Water at Somerville Lake

Wetland Type	Acres
Open Water	11,486.96
TOTAL ACRES of Water Resources	**11,486.96**

Source: TPWD 2021.

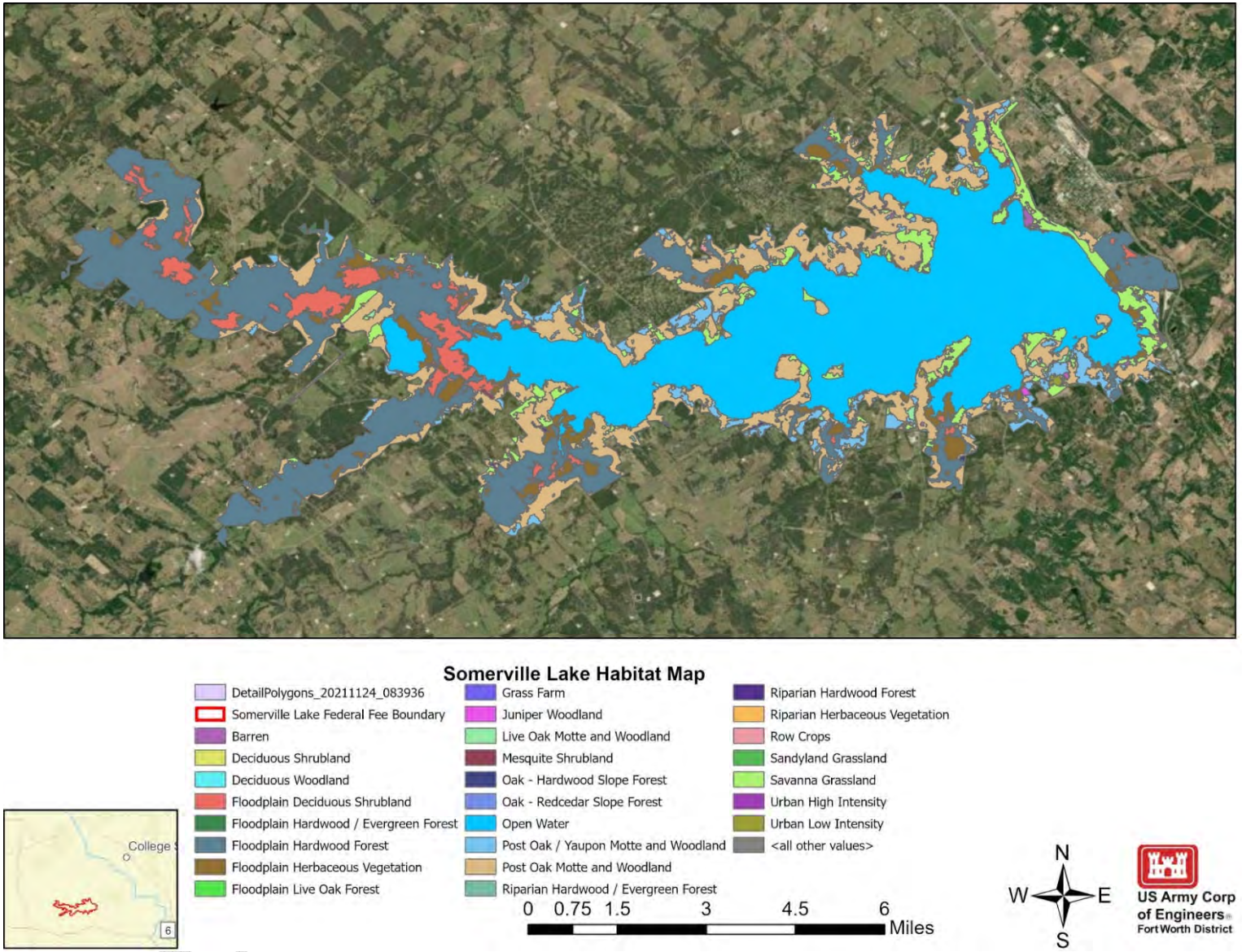


Figure 2-3 Habitat Types Found at Somerville Lake

Groundwater

Deep below Somerville Lake lies the central portion of the Carrizo-Wilcox Aquifer. This aquifer extends across much of the central and northeastern portion of Texas. The Wilcox Group (major unit of an aquifer) of this major aquifer consists of the Hooper, Simsboro, and Calvert Bluff formations (subunits of an aquifer). While the Carrizo Formation belongs to the Claiborne Group.

The Carrizo-Wilcox Aquifer is one of the most extensive and highly used groundwater resources in Texas. Although its primary use is for municipalities, it is also used for irrigation, livestock, and other domestic purposes. Some of the state's largest water level declines, ranging from 350 to more than 1,000 feet, have occurred in counties along the Interstate 35 corridor from McLennan County to Grayson County. These declines are primarily attributed to municipal pumping, but they have slowed over the past decade as a result of increasing reliance on surface water.

In general, groundwater quality in the Carrizo-Wilcox Aquifer is slightly to moderately saline but the unconfined areas are very hard while the central portion very soft. Total dissolved solids (TDS) can be less than 1,000 milligrams per liter in the unconfined and confined areas of the aquifer and to between 1,000 and 7,000 milligrams per liter for Winter Garden area and portions of Brazos County

None of the recreation areas on Somerville Lake rely on treated groundwater from wells. Welch Park and the Lake Office receive water from the City of Somerville. Yegua Creek and Rocky Creek Parks use water supplied from Central Washington County Water Supply Corporation (CWCSW). The remaining recreation areas utilize groundwater from wells.

Hydrology

The San Gabriel River watershed is subject to three general types of flood-producing rainfall: thunderstorms, frontal rainfall, and tropical cyclones. Generally, the highest 24-hour and monthly precipitation periods have occurred during major thunderstorms. However, there are some instances of heavy precipitation resulting from local thunderstorms. The maximum 24-hour rainfall reported in or adjacent to the basin was 20.50 inches, which occurred at Brenham, Texas on 26-27 May 2016. The maximum annual rainfall reported was 66.57 inches, which occurred at Somerville Dam in 1968, with the average annual rainfall at Somerville Dam being 37.33 inches.

Somerville Dam and Lake are an integral part of the USACE plan for flood risk management and water conservation in the Brazos River Basin. The plan presently consists of nine major USACE flood mitigation projects – Whitney Dam, Aquilla Dam, Waco Dam, Proctor Dam, Belton Dam, Stillhouse Hollow Dam, North San Gabriel Dam, Granger Dam, and Somerville Dam. The nine USACE dam projects in the Brazos River system work in concert to control approximately 36,830 square miles of drainage area. Specifically, Somerville Lake has a conservation pool capable of storing 11,395 surface acres at elevation 238.0 feet NGVD29. Once the water elevation reaches 258.0 feet

NGVD29 and fills an additional 13,005 surface acres of storage space, water overtops the spillway and is uncontrollably released downstream. The pool of record occurred on 28 May 2016 at 259.80 with a peak inflow of 155,280 cfs on 27 May 2016.

Surface waters are categorized to hydrologic units. Hydrologic units are classified by the United States Geologic Survey (USGS) using a Hydrologic Units Code system, also referred to as HUC's. The units are classified from largest HUC with is a two-digit region (i.e., the Texas-Gulf Region), encompassing the largest area, to a twelve-digit sub-watershed HUC. Somerville Lake is classified to sub-watershed as follows:

- 12 (HUC 2: Region) – Texas Gulf Region
- 1207 (HUC 4: Sub-region) – Lower Brazos
- 120702 (HUC 6: Basin) – Lower Brazos
- 12070205 (HUC 8: Sub Basin) – Yegua
- 1207010201 (HUC 10: Watershed) – Middle Yegua Creek
- 1207010202 (HUC 10: Watershed) – East Yegua Creek
- 1207010203 (HUC 10: Watershed) – Nails Creek-Yegua Creek
- 120701020111 (HUC 12: Sub-watershed) – Rocky Creek-Middle Yegua Creek
- 120701020206 (HUC 12: Sub-watershed) – Dry Creek-East Yegua Creek
- 120701020301 (HUC 12: Sub-watershed) – Edwards Lake
- 120701020303 (HUC 12: Sub-watershed) – Lower Nails Creek
- 120701020305 (HUC 12: Sub-watershed) – Cedar Creek-Frontal Somerville Lake
- 120701020306 (HUC 12: Sub-watershed) – Birch Creek-Frontal Somerville Lake
- 120701020307 (HUC 12: Sub-watershed) – Burn Creek-Somerville Lake
- 120701020308 (HUC 12: Sub-watershed) – Big Creek-Yegua Creek
- 120701020309 (HUC 12: Sub-watershed) – Wolf Creek-Yegua Creek

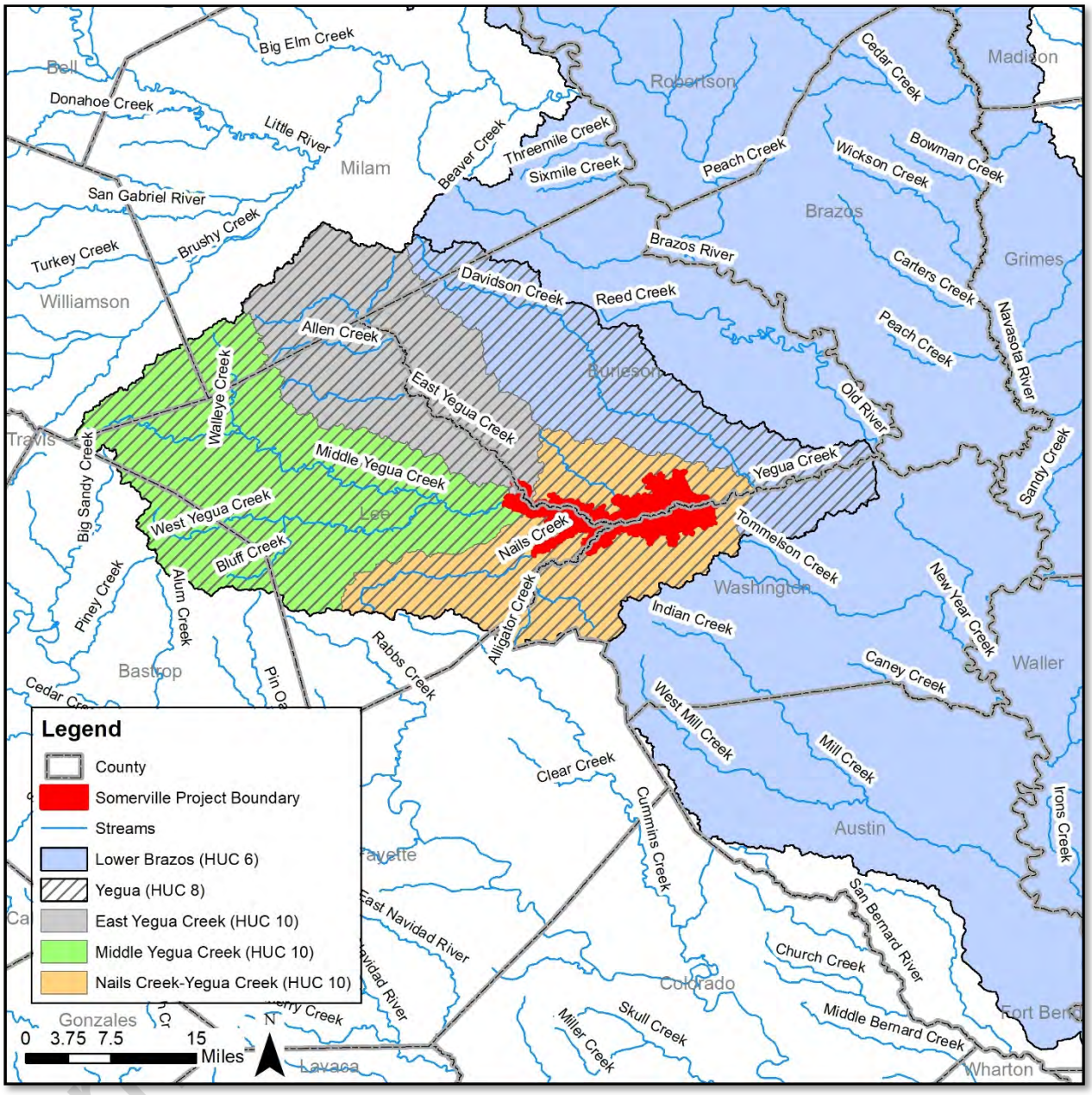


Figure 2-4 Regional Map of Hydrologic Units at Somerville Lake (Source: USGS, Watershed Boundary Dataset)

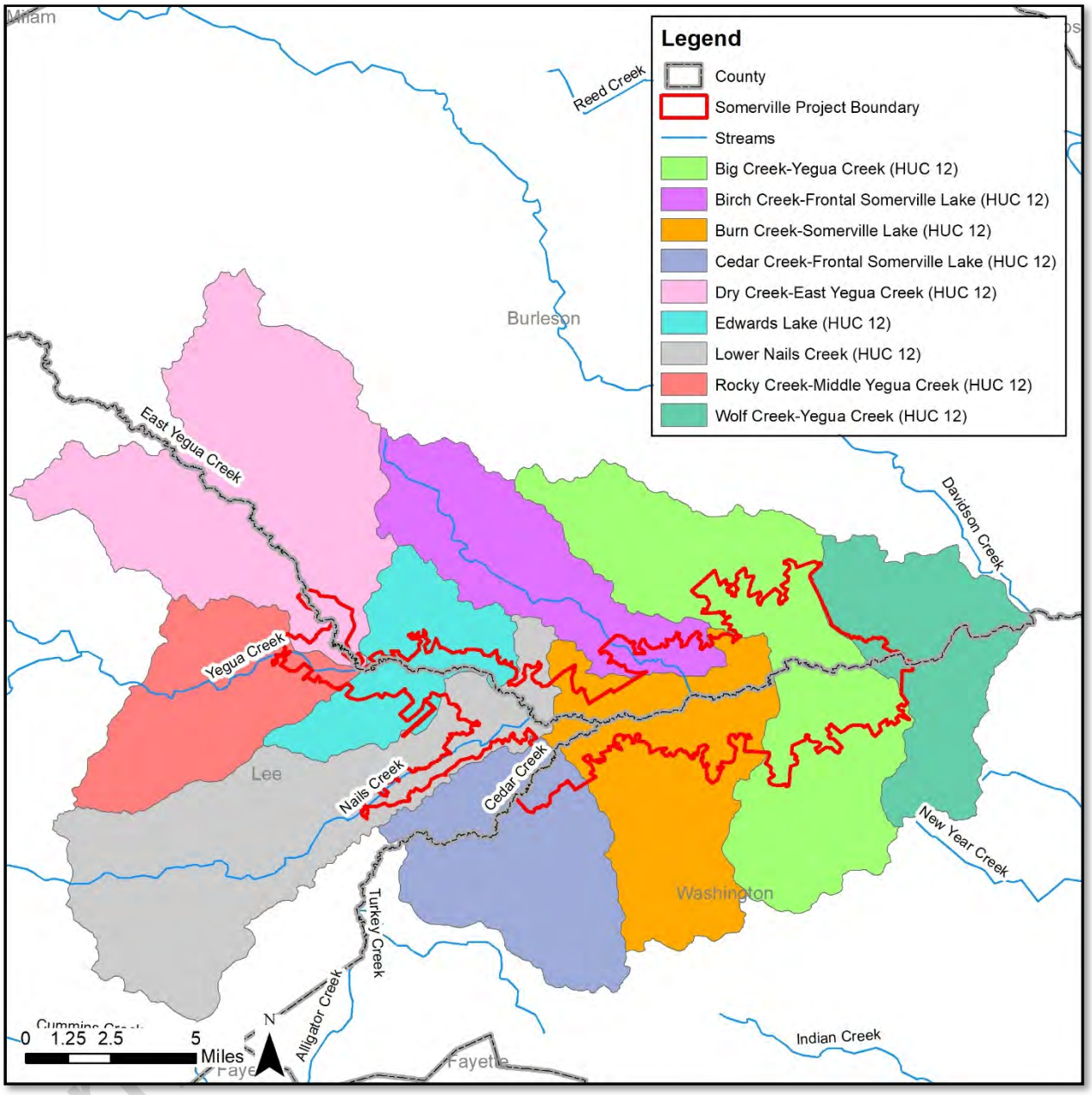


Figure 2-5 Detailed Map of Hydrologic Units at Somerville Lake (Source: Watershed Boundary Dataset)

Water Quality

Texas Commission on Environmental Quality (TCEQ) sets and implements standards for surface water quality to improve and maintain the quality of water in the state, based on various beneficial use categories for the water body. The Texas Integrated Report of Surface Water Quality, which is a requirement of the Federal Clean Water Act Sections 305(b) and 303(d), evaluates the quality of surface waters in Texas and identifies those that do not meet uses and criteria defined in the Texas Surface

Water Quality Standards (TSWQS). The Texas Integrated Report describes the status of Texas' natural waters based on historical data and assigns waterways to various categories depending on the extent to which they attain the TSWQS.

Existing water quality within Somerville Lake is affected by rainfall and associated stormwater flows originating from residential, commercial, and industrial point and nonpoint sources from properties upstream of the dam and reservoir. These stormwater flows have increased over time as a result of increased urbanization and development.

The 2020 Texas Integrated Report - Texas 303(d) List (TCEQ, 2020) identifies the entire Somerville Lake as to exceeding TSWQS and that is for PH (TCEQ, 2020).

The Texas Department of State Health Services (DSHS) Seafood and Aquatic Life Group purpose is to address and prevent/reduce any disease-causing agent from occurring that can be transferred from aquatic life to humans within the State of Texas. As of November 2021, no fish consumption advisories have been issued for Somerville Lake.

2.1.7 Hazardous Materials and Solid Waste

There are no hazardous or solid waste advisories for the within Somerville Lake federal fee boundary. Nor has DSHS issued any DSHS fish consumption advisory warnings within the same area.

As a part of USACE SWF lake annual environmental compliance assessment, members of USACE inspect various areas (leases, easements, and parks) of Somerville Lake that are known to potentially emit or store hazardous materials on an annual basis as part of USACE efforts to be in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This assessment is completed through a USACE formal process known as the Environmental Review Guide for Operations (ERGO). Upon completion of the assessment if any compliance findings occur then formal remedial actions will take place.

2.1.8 Health and Safety

Somerville Lake's authorized purposes include flood risk management, water conservation, fish and wildlife, and recreation. Compatible uses incorporated in project operation management plans include conservation and fish and wildlife habitat management components. The USACE, with some assistance from the TPWD and USFWS, has established public outreach programs to educate the public on water safety and conservation of natural resources. In addition to the water safety outreach programs, the project has established recreation management practices to protect the public. These include safe boating and swimming regulations, and speed limit and pedestrian signs for park roads. Somerville Lake also has solid waste management plans in place for camping and day use areas that are maintained by the respective partners that hold the lease.

2.2 ECOREGION AND NATURAL RESOURCE ANALYSIS

2.2.1 Natural Resources

Operational civil works projects administered by USACE are required, with few exceptions, to prepare an inventory of natural resources. The basic inventory required is referred to within USACE regulations (ER and EP 1130-2-540) as a Level One Inventory. This inventory includes the following: vegetation in accordance with the National Vegetation Classification System through the sub-class level; assessment of the potential presence of special status species including but not limited to federal and state listed endangered and threatened species, migratory species, and birds of conservation concern listed by the USFWS; land (soils) capability classes in accordance with NRCS soil surveys; and wetlands, which are previously discussed in Section 2.1.6 In addition to the data from the Level One Inventories, a Wildlife Habitat Appraisal Procedure (WHAP) assessment was conducted.

The WHAP assessment was conducted on April 12-16, 2021 at Somerville Lake by an interdisciplinary team of USACE biologists, foresters, and park rangers. A total of 72 data collection sites were selected using aerial photography and local knowledge from the Somerville Lake staff. The point selection process included both choosing points at random across multiple habitat types and selection based on areas known to have unique qualities, habitats, or species. The purpose of the survey was to quickly assess wildlife habitat quality within the USACE Somerville Lake fee-owned property. The four major habitat types that were selected and assessed were marsh, riparian/bottomland hardwood forests (BHF), upland forests, and grasslands. The highest score a site can receive is 1.00 while the lowest is 0.03, while a score of 0 represents a site skipped and not incorporated into the report calculations. The scores are not species dependent but rather diversity dependent. The data gather from this survey quantified the general habitat characteristics and identified unique/high quality areas found within the USACE Somerville Fee Boundary. The WHAP assessment report can be found in Appendix C of this Plan.

The WHAP assessment revealed that the two most abundant habitat types surveyed were upland forest and riparian/bottomland hardwood forest. However, the two habitat types that scored the highest on average were marsh and riparian/bottomland hardwood forests habitats.

2.2.2 Vegetation

Somerville Lake is located within the East Central Texas Plains ecoregion ecological region. The ecoregion is divided into six distinct regions: Northern Post Oak Savanna, Southern Post Oak Savanna, San Antonio Prairie, Northern Prairie Outliers, Bastrop Lost Pines, and Floodplains & Low Terraces. Somerville Lake is located in the Southern Post Oak Savanna, which stretches across 8,500,000 acres from just north of Corpus Christi, Texas to the Red River north of Sherman, Texas. Savanna vegetation includes various grasses and forbs, while the upland forests are composed of various species of oaks (*Quercus sp.*), black hickory (*Carya texana*), cedar elm (*Ulmus*

crassifolia), sugarberry (*Celtis laevigata*), eastern red cedar (*Juniperus virginiana*), and common persimmon (*Diospyros virginiana*).

The region, like many other ecological regions in Texas, has undergone significant changes in the past 150 years. Although habitat for wildlife is present throughout the entire ecological region, populations vary considerably within sub-regions. The diversity and configuration of the plant communities on the landscape influence wildlife populations. Other factors include fragmentation of once continuous habitat into smaller, isolated land holdings; competition for food and cover with livestock; conversion of woodland habitat to improved pastures or urban and rural developments; and lack of proper wildlife and habitat management.

Various small towns can be found within the East Central Texas Plains ecoregion along with small cities. The proximity to urban and suburban landscapes has led to many plants escaping into natural areas, some of which have dramatically altered the ecosystems where they have spread. These non-native plants are considered invasive if they cause harm within the ecosystem (TPWD 2012). Invasive species are covered in more detail in Section 2.2.5.

2.2.3 Fisheries and Wildlife Resources

Somerville Lake provides habitat for an abundance of fish and wildlife species. Predominant fish species in the lake are largemouth bass (*Micropterus salmoides*), channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus furcatus*), flathead catfish (*Pylodictis olivaris*), white crappie (*Pomoxis annularis*), hybrid striped bass, and white bass (*Morone chrysops*). Other less prominent species include black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), alligator gar (*Atractosteus spatula*), longnose gar (*Lepisosteus osseus*), smallmouth buffalo (*Ictiobus bubalus*), and freshwater drum (*Aplodinotus grunniens*).

Many of the undeveloped open spaces provide habitat for wildlife including white tailed deer (*Odocoileus virginianus*), mountain lions (*Puma concolor*), coyotes (*Canis latrans*), bobcats (*Lynx rufus*), eastern cottontail rabbit (*Sylvilagus floridanus*), fox squirrel (*Sciurus niger*), nine-banded armadillo (Dasypus novemcinctus), striped skunks (*Mephitis mephitis*), Virginia Opossum (*Didelphis virginiana*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), North American Beaver (*Castor canadensis*), and raccoons (*Procyon lotor*). The area also provides habitat for a diverse range of birds and acts as a stopover for migratory birds.

2.2.4 Threatened and Endangered Species

The Endangered Species Act was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. USFWS is the primary agency responsible for implementing the Endangered Species Act and is responsible for birds and other terrestrial and freshwater species. USFWS responsibilities under the Endangered Species Act include (1) the identification of threatened and endangered

species; (2) the identification of critical habitats for listed species; (3) implementation of research and recovery efforts for these species; and (4) consultation with other federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species officially recognized by USFWS as being in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those that have been formally submitted to Congress for official listing as threatened or endangered. Species may be considered eligible for listing as endangered or threatened when any of the five following criteria occur: (1) current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affecting their continued existence.

In addition, USFWS has identified species that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which USFWS has sufficient information to support proposals to list as endangered or threatened under the Endangered Species Act; however, proposed rules have not yet been issued because such actions are precluded at present by other listing activity. Although not afforded protection by the Endangered Species Act, candidate species may be protected under other federal or state laws.

The USFWS's Information for Planning and Consultation (IPaC) database (2021) lists the threatened and endangered species and trust resources that may occur within the Somerville Lake federal fee boundary (see USFWS Species List and the IPaC Report in Appendix C of the 2022 MP). Based on the IPaC report, there are four federally listed species found at within Somerville Lake: houston toad, monarch butterfly, navasota ladies-tresses, and whooping crane (USFWS 2021). These species are presented in Table 2.4. Although the red knot (*Calidris canutus rufa*) and piping plover (*Chadrius melodus*) are on the threatened and endangered species list, they were intentionally left out when addressing impacts of the Master Plan since the Master Plan does not entail any wind energy projects. There are is one candidate species, monarch butterfly (*Danaus plexppus*) known to exist at Somerville Lake. The species identified as Threatened, Endangered or Rare Species by TPWD that are not federally listed are included in Appendix C of the 2022 Master Plan as well as a list of TPWD rare plant communities for the East Central Texas Plains Ecoregion. No Critical Habitat has been designated within or near Somerville Lake.

Table 2-4 Federally Listed Threatened & Endangered Species with Potential to Occur at Somerville Lake

Common Name	Scientific Name	Federal Status	State Status
Houston Toad	*Bufo houstonensis*	Endangered	Endangered
Monarch Butterfly	*Danaus plexippus*	Candidate	Not Listed
Navasota Ladies-tresses	*Spiranthes parksii*	Endangered	Endangered
Whooping Crane	*Grus Americana*	Endangered	Endangered

Although the red knot (*Calidris canutus rufa*) and piping plover (*Chadrius melodus*) are federally listed species, they only require consideration for projects entailing wind energy projects.

Texas Parks and Wildlife Department's (TPWD 2021 A, B, & C) Annotated County Lists of Rare Species database records the threatened and endangered species that may occur on Somerville project lands (see Appendix C of the 2021 MP for the full report).

Texas Natural Diversity Database

The Texas Natural Diversity Database (TXNDD 2021), administered by TPWD, manages and disseminates information on occurrence of rare species, native plant communities, and animal aggregations in Texas to help guide project planning efforts. TXNDD provided information for the following U.S. Geological Survey (USGS) quadrangles that encompass Somerville Lake project lands: Flag Pond, Dime Box, Deanville, Carmine, and Ledbetter.

From the information provided, several locations were identified within the Somerville Lake federal fee boundary to contain unique communities and species. Among these communities were those that contain colonial wading birds, Streckers Chorus Frog (*Pseudacris streckeri*), Navasota Ladies-tresses (*Spiranthes parksii*), branched gayfeather (*Liatris cymosa*), Texas pinkroot (*Spigelia texana*), post oak-blackjack series (*Quercus stellata-quercus marilandica*), pecan-sugarberry series (*Carya illinoensis-celtis laevigata*), and Alisol Coastal Prairie (*Schizachyrium scoparium, Paspalum plicatulum, Sorghastrum nutans, Dichanthelium oligosanthes, Paspalum setaceum, Symphyotrichum pratense*).

2.2.5 Invasive Species

An invasive species is defined as a plant or animal that is non-native (or native nuisance) to an ecosystem and whose introduction causes, or is likely to cause, economic and/or environmental harm, or harm to human health. Invasive species can thrive in areas beyond their normal range of dispersal. These species are characteristically adaptable, aggressive, and have high reproductive capacity. Their vigor, along with a lack of natural enemies or controls, often leads to outbreak populations with some level of negative effects on native plants, animals, and ecosystem functions and are often associated with disturbed ecosystems and human activities.

Table 2-5 lists many of the invasive and noxious native species found at Somerville Lake. Other species are currently being researched for their invasive characteristics.

Table 2-5 Invasive and Noxious Native Species Found at Somerville Lake

Common Name	Scientific Name	Native/Non-native
Birds		
Cattle egret	*Bubulcus ibis*	Non-native
Cowbirds	*Molothrus ater*	Native
Eurasian collared dove	*Streptopelia decaocto*	Non-native
European starling	*Sturnus vulgaris*	Non-native
House sparrow	*Passer domesticus*	Non-native
Mammals		
Feral Hog	*Sus scrofa*	Non-native
Nutria	*Mycocastor coypus*	Non-native
Fish		
European carp	*Cyprinus carpio*	Non-native
Insects		
Red imported fire ant	*Solenopsis invicta*	Non-native
Argentine Ant	*Linepithema humile*	Non-native
Plants		
Annual bastard cabbage	*Rapistrum rugosum*	Non-native
Ashe juniper	*Juniperus ashei*	Native aggressive
Bermudagrass	*Cynodon dactylon*	Non-native
Chinaberry	*Melia azedarach*	Non-native
Chinese tallow	*Tridica sebirefa*	Non-native
Eastern red cedar	*Juniperus virginiana*	Native aggressive
Honey mesquite	*Prosopis glandulosa*	Native aggressive
Hydrilla	*Hydrilla verticillate*	Non-native
Japanese honeysuckle	*Lonicera japonica*	Non-native
Johnson grass	*Sorghum halepense*	Non-native
King Ranch (yellow) bluestem	*Bothriochloa ischaemum var. songarica*	Non-native
Common Reed	*Phragmites australis*	Non-native
Mollusks		
Asian clam	*Corbicula fluminea*	Non-native

Because of the numerous small towns located in the East Central Texas Plains ecoregion, there is a greater number of invasive species when compared to most other regions of the state. Free-ranging pets (cats and dogs, in particular) have made a significant impact on populations of small mammals, reptiles, and birds.

Other invasive animals include several species of introduced fish (including released baitfish and “aquarium dumping”). While currently not present in Somerville Lake, invasive mollusks including zebra mussels (Dreissena polymorpha) are an ongoing threat to native aquatic species and infrastructure due to their ability to infest and expand rapidly, and the close proximity to other infested lakes increases the risk of the exposure of Zebra mussels at Somerville Lake. Asian clams (Corbicula fluminea) and decollate snails (Rumina decollate) are common in waterways throughout Texas and often out-compete native mollusks.

Although native, cowbirds (*Molothrus ater*) have become problematic due to their expanding range associated with agriculture and human development and are considered a nuisance. Honey mesquites (*Prosopis glandulosa*) and junipers/cedars are also native but are spreading aggressively in native prairies where their aggressive growth was historically been kept in check by periodic wildfires and grazing. The proximity to urban landscaping has led to many common landscape plants becoming aggressive colonizers and are now invasive at Somerville Lake.

2.2.6 Aesthetic Resources

Somerville Lake includes areas of scenic shorelines, lake views, and wildlife viewing areas providing high visual and scenic qualities. Some areas are admired for their scenic attractiveness (intrinsic scenic beauty that evokes a positive response), scenic integrity (wholeness of landscape character), and landscape visibility (how many people view the landscape and for what reasons and how long). Some areas have been designated as Wildlife and Vegetative Management, or Environmentally Sensitive Areas to preserve specific animal, plant, or environmental features that also add to the scenic qualities at the lake. Nearby parks have been designed to access the lake, allow access to hiking trails, and take advantage of scenic qualities at the lake and surrounding areas.

Adjacent landowners are informed that removing trees located on USACE property to obtain a view of the lake not only destroys wildlife habitat but also lowers the scenic quality of the shoreline when viewed by the public from the water surface. Unauthorized removal of trees and other vegetation from USACE property could result in a fine. Additionally, reasonable measures to protect property by adjacent landowners must be taken to ensure that damage to the natural landscape from invasive species and catastrophic wildfire are minimized. Vegetative management, mowing permits, debris removal, and other shoreline issues are addressed in the shoreline policy.

2.2.7 Mineral and Timber Resources

Minerals

The principal mineral resource known to exist near Somerville Lake is oil. Somerville Lake is not located in any major oil and gas formation. Currently, there are no well surface locations on USACE property, however there are numerous abandoned wells. During acquisition of lands for Somerville Lake, only relatively small areas of minerals were acquired, primarily those under and adjacent to the dam which were acquired to protect the structural integrity of the dam and associated facilities. USACE has implemented a “no hydraulic fracturing” exclusion zone around each dam operated and maintained by USACE. This zone is 3,000 horizontal feet from the toe of the dam at Somerville Lake. No pipelines of any kind are located within the Somerville Lake federal fee boundary.

Timber

Somerville Lake is not located in a region having viable commercial timber resources. The woodlands that exist on USACE lands have value primarily as wildlife habitat and as an aesthetic resource but have no commercial timber value.

2.3 CULTURAL RESOURCES

2.3.1 Prehistoric

The earliest well-documented evidence of human occupation in the Somerville Lake area dates to about 12,000 years before present (B.P.). Prehistory is divided generally into three broad time periods: Paleo-Indian (12,000-8,500 B.P.), Archaic (8,500-1.250 B.P.), and Late Prehistoric (1,250-300 B.P.).

Evidence for Paleo-Indian period occupation is relatively rare in the Somerville Lake area. The area is known primarily from distinctive projectile point styles dating to this time period found in surface collections or in mixed multi-component sites. It is likely that intact Paleo-Indian camp sites may be buried deeply beneath Holocene floodplain alluvium. Evidence suggests that the region was occupied by small groups of highly mobile hunter-gatherers that traveled over very large territories. Traditionally thought of as big-game hunters of mammoth and bison, more recent evidence indicates Paleo-Indians exploited a much broader range of animal and plant resources.

The Archaic period is divided into Early (8,500-6,000 B.P.), Middle (6,000-3,500 B.P.), and Late (3,500-1,250 B.P.) sub periods. During this long time period, a generalized hunting and gathering subsistence strategy is indicated. Trends through time suggest increasing population density and decreasing group mobility within smaller territories. Sites with Late Archaic components are well represented in the Somerville Lake area and in Central Texas generally. Archaic period sites at Somerville Lake include open campsites with burned rock features.

The Late Prehistoric Period (1,250-300 B.P.) is marked by the presence of the bow and arrow and pottery. During the early portion of this time span, subsistence strategies remained similar to those of the preceding Late Archaic. The Late Prehistoric period is divided into early Austin phase (1,250-650 B.P.) and late Toyah phase (650-300 B.P.) sub periods. The Toyah phase differs from the preceding Austin phase in terms of technology and subsistence strategies. Bison became an important economic resource. Limited evidence of horticulture also appears, but was of only minor importance to overall Toyah phase subsistence.

2.3.2 Historic

The arrival of Europeans in this region of Texas occurred during the late 1600s and early 1700s by Spanish and French explorers. Spanish expedition routes across the area followed a series of caminos reales (based on established Native American trails) that led from northern Mexico, and later from their established missions near San Antonio, into far east Texas. The Frenchman Rene-Robert Cavelier Sieur de La Salle may have passed closest to present-day Somerville in 1687 on his way from Fort St. Louis (near Matagorda Bay) to the Cenis (Caddo) villages of east Texas.

The first Anglo-American settlers arrived in the areas surrounding Yegua Creek and the Brazos River in 1821 as part of Stephen F. Austin's initial Mexican land grant. The numbers of settlers increased with the establishment of the Republic of Texas in 1836. Intensive occupation of the area for farming and ranching increased in the middle 1800s, after the annexation of Texas by the United States in 1845. Population growth in the area accelerated following the arrival of the railroads in the late 1870s. This improved access to major markets and led to a dramatic increase in the numbers of local farms and ranches. Two of the recorded historic period sites at Somerville Lake (41BU60 and 41BU62) may date as early as the mid-1800s, and are among the older recorded Anglo-American farmsteads in the region. However, most of the known historic period resources at Somerville Lake contain the archeological remains of house sites and outbuildings associated with farms and ranches dating from the late 19th century through the mid-20th century.

2.3.3 Previous Investigations at Somerville Lake

The initial archeological investigations at Somerville Lake were conducted in the 1960s by the Texas Archeological Salvage Project (TASP). In 1961, a reconnaissance survey by TASP recorded 29 archeological sites. Projectile points and ceramics collected during that survey indicated that most of the sites dated to the Middle Archaic, Late Archaic, and Late Prehistoric periods. In 1965, TASP conducted test excavations at only one of these recorded sites (41BU1) before the reservoir was constructed.

More than 100 small-scale archeological surveys were conducted in the early 1980s related to development of oil and gas wells on Corps fee lands outside the Somerville Lake conservation pool. These were required for the proposed locations of well pads, tank batteries, access roads, and pipelines. This 1980s work resulted in the recording of 65 new archeological sites.

In 1996, Texas A&M University (TAMU) began a research project on Corps fee lands leased to Texas Parks and Wildlife Department (TPWD) within the Lake Somerville State Parks and Trailways. TAMU archeologists surveyed 60 acres above the eroded lake shoreline within the Birch Creek Unit in 1996, recording 13 new sites and revisiting three previously recorded sites. Additional survey of 300 acres in the Nails Creek Unit by TAMU in 2001 recorded 11 new sites and revisited nine previously recorded sites.

In 1997, Prewitt and Associates. Inc. (PAI) conducted a subsurface testing survey prior to the construction of 12 wetland ponds in the floodplains of Yegua and Nails Creeks. This involved the excavation of 36 backhoe trenches in areas to be disturbed by pond construction. Although no archeological sites were discovered, the geoarcheological information gathered indicated that the Yegua Creek floodplain has high potential for containing buried archeological sites in good stratigraphic context.

Most recently, in 2009, Ecological Communications Corporation (ECOMM) conducted a cultural resources inventory of 123.5 acres prior to construction proposed for improvements to Yegua Creek and Rocky Creek Parks. No new cultural resources were discovered as a result of that survey work.

2.3.4 Recorded Cultural Resources

Currently, 120 archeological sites have been recorded on Corps fee property at Somerville Lake. The surveys of the 1960s and 1970s are no longer considered adequate by current survey standards, so the actual number of cultural resources at Somerville is likely much higher. The 120 recorded sites will have to be formally evaluated to determine their eligibility for the National Register of Historic Places.

2.3.5 Long-term Objectives for Cultural Resources

As funding allows, a Cultural Resources Management Plan (CRMP) shall be developed and incorporated into the Operational Management Plan in accordance with EP 1130-2-540. The purpose of the CRMP is to provide a comprehensive program to direct the historic preservation activities and objectives at Somerville Lake. Completion of a full inventory of cultural resources at Somerville Lake is a long-term objective that is needed for compliance with Section 110 of the National Historic Preservation Act (NHPA). All currently known and newly recorded sites must be evaluated to determine their eligibility for the NRHP. In accordance with Section 106 of the NHPA, any proposed ground-disturbing activities or projects, such as those described in this master plan or as may be proposed in the future by others for right-of-way easements, will require cultural resource surveys to locate and evaluate historic and prehistoric resources. Resources determined eligible for the NRHP must be protected from proposed project impacts, or the impacts must be mitigated. All future cultural resource investigations at Somerville Lake must be coordinated with the State Historic Preservation Officer and federally-recognized Tribes to insure compliance with the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

2.4 DEMOGRAPHIC AND ECONOMIC ANLALYSIS

2.4.1 Demographic and Economic Analysis Zone of Influence

Somerville Lake is located in a rural area of Central Texas. Portions of the lake extend into Burleson, Lee, and Washington counties. The zone of influence for the socio-economic analysis of Somerville Lake is defined as these counties in which the lake lies as well as the surrounding counties of Brazos, Milam, and Robertson.

2.4.2 Population

The total population for the zone of influence in 2019 was 335,020, as shown in Table 2.6. Approximately 67% of the zone of influence's population resides in Brazos County, 11% in Washington County, and 7% in Milam County. The remaining counties in the zone of influence each account for approximately 5% of the zone of influence's population.

The zone of influence's population makes up less than 2% of the total population of Texas. From 2019 to 2050, the population in the zone of influence is expected to increase from approximately 335,000 to 478,000 an annual growth rate of 1.2%. By comparison, the population of Texas is projected to increase at a rate of 1.7% per year, and the national growth rate is expected to be 0.6% per year between 2019 and 2050. During this timeframe, all counties within the zone of influence, except for Milam County, are projected to experience some growth with Brazos County growing the fastest, at a rate of 1.6% annually.

Table 2-6 2000 and 2019 Population Estimates and 2050 Projections

Geographical Area	2010 Population Estimate	2019 Population Estimate	2050 Population Estimate
Texas	20,851,820	28,260,856	**47,342,105**
Brazos County	152,415	222,981	**365,863**
Burleson County	16,470	18,058	**18,278**
Lee County	15,667	17,058	**18,309**
Milam County	24,238	24,770	**22,222**
Robertson County	16,000	16,990	**16,940**
Washington County	30,373	35,163	**35,796**
Zone of Influence	255,153	335,020	**477,588**

Sources: U.S. Census Bureau, Population Division (2000 Estimate); U.S. Census Bureau, 2015 – 2019 American Community Survey 5-Year Estimates (2019 Estimate): Texas State Data Center, The University of Texas at San Antonio (2050 Projections)

The distribution of the population among gender, as shown in Table 2.7, is essentially equal in the zone of influence and the state of Texas.

Table 2-7 Percent of Population Estimate by Gender

Geographical Area	Male	Female
Texas	14,034,009	14,226,847
Brazos County	112,629	110,352
Burleson County	8,951	9,107
Lee County	8,530	8,528
Milam County	12,270	12,500
Robertson County	8,315	6,675
Washington County	17,282	17,881
Zone of Influence	**167,977**	**167,043**

Source: American Community Survey 5 Year Estimate, US. Census Bureau

Figure 2.8 shows the population by age group for the state of Texas and the zone of influence. The zone of influence has a slightly smaller population ages 0 to 14 and 35 to 74 when compared to the state of Texas. Figure 2.9 shows the zone of influence's population by age group in 2019 compared to the projections for 2050. The forecast shows that the population ages 15 to 44 will decrease during this timeframe while the 65 and over age groups will increase. The distribution among the other age groups will stay relatively constant.

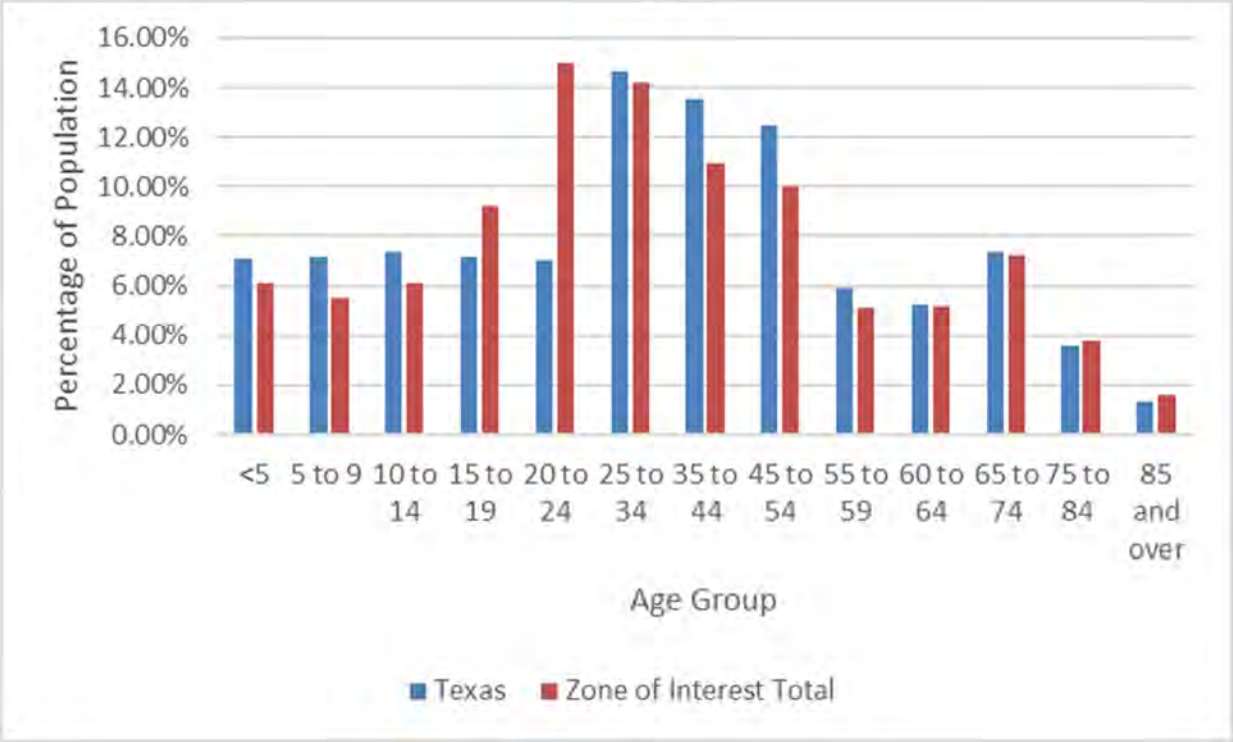


Figure 2-6 2019 Percent of Population by Age Group

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Table 2-8 2019 Population Estimate by Age Group

Age Group	Texas	Brazos	Burleson	Lee	Milam	Robertson	Washington	Zone of Influence
< 5	1,999,803	13,682	1,079	1,060	1,519	1,101	2,112	20,553
5 to 9	2,024,009	12,211	1,058	915	1,392	1,109	1,785	18,470
10 to 14	2,090,590	12,782	1,127	1,094	1,856	1,160	2,432	20,451
15 to 19	2,017,644	23,370	1,105	1,258	1,979	938	3,187	30,837
20 to 24	1,997,256	43,357	1,067	1,139	1,343	1,083	2,159	50,148
25 to 34	4,154,182	35,773	1,961	1,758	2,756	1,821	3,436	47,505
35 to 44	3,823,085	24,525	2,022	2,125	2,357	1,853	3,740	36,622
45 to 54	3,526,243	20,052	2,189	1,970	3,086	2,358	3,917	33,572
55 to 59	1,673,637	9,905	1,251	1,111	1,636	1,108	2,227	17,238
60 to 64	1,491,880	8,538	1,510	1,414	1,808	1,230	2,792	17,292
65 to 74	2,081,849	11,771	2,145	1,844	2,839	1,935	3,793	24,327
75 to 84	1,004,810	5,827	1,140	1,004	1,571	833	2,337	12,712
85 and over	375,868	2,188	404	366	628	461	1,246	5,293

Source: U.S. Census Bureau, 2015 – 2019 American Community Survey 5-Year Estimates (2019 Estimate)

Population by race and Hispanic Origin is displayed in Table 2.10. The zone of influence is approximately 58% White, 24% Hispanic or Latino, 12% Black, 4% Asian, and 2% two or more races. The other race categories account for less than 1% each of the population. By comparison, the state's population is approximately 42% White, 39% Hispanic or Latino, 12% Black, 5% Asian, and 2% two or more races. Table 2-9 shows the 2019 population estimate and the 2050 projections by race/ethnicity in the zone of influence. The two graphs show that the Hispanic or Latino and Asian populations are projected to increase by 13% and 3% respectively, while the White population decreases by 16%.

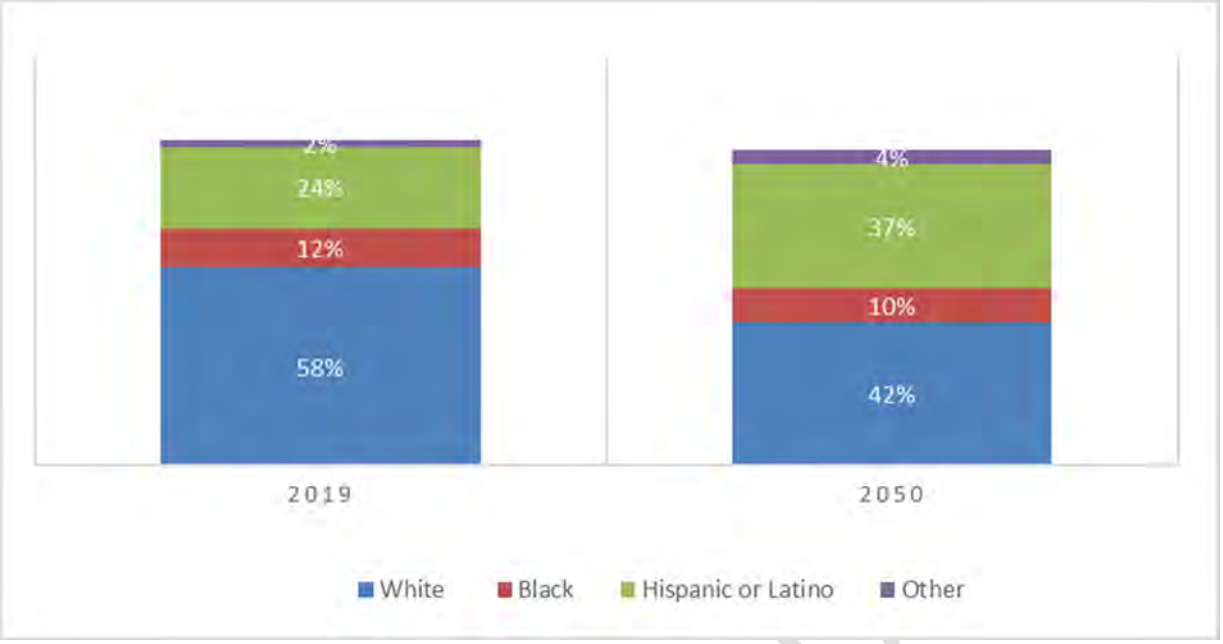


Figure 2-7 2019 Zone of Influence Population by Race/Hispanic Origin

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate); Texas State Data Center, The University of Texas at San Antonio (2050 Projections)

Table 2-9 2019 Population by Race/Hispanic Origin

Geographical Area	White alone	Black alone	Asian alone	American Indian, Alaska Native, alone	Native Hawaiian and Other Pacific Islander alone	Some Other race alone	Two or More races	Hispanic or Latino
Texas	11,856,336	3,328,707	1,340,554	71,081	21,739	44,465	481,093	11,116,881
Brazos County	124,411	22,923	13,619	291	123	272	4,347	56,995
Burleson County	11,688	2,370	7	62	0	10	185	3,736
Lee County	10,804	1,899	169	0	0	25	121	4,040
Milam County	15,447	2,279	129	66	0	8	295	6,546
Robertson County	9,718	3,437	29	39	18	22	163	3,564
Washington County	22,508	5,736	582	88	38	0	538	5,646
Zone of Influence Total	**194,576**	**80,527**	**38,671**	**546**	**14,535**	**179**	**337**	**5,649**

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

2.3.6 Education and Employment

Table 2-10 displays the highest level of education attained by the population ages 25 and over. In the zone of influence, 6% of the population has less than a 9th grade education, and another 8% has between a 9th and 12th grade education; 25% has a high school diploma or equivalent, and another 21% has some college and no degree; 7% has an Associate degree; 19% has a bachelor's degree, and 14% has a graduate or professional degree. In Texas, 8% of the population has less than a 9th grade education; another 8% has between a 9th and 12th grade education; 25% has at least a high school diploma or equivalent; 22% has some college; 7% has an Associate degree; 19% has a bachelor's degree; and 10% has a graduate or professional degree.

Table 2-10 2019 Population Estimate by Highest Level of Educational Attainment, Population 25 Years of Age and Older

Geographical Area	Population 25 years and over	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college, no degree	Associate degree	Bachelor's degree	Graduate or professional degree
Texas	18,131,554	1,482,952	1,475,007	4,525,099	3,918,815	1,309,005	3,534,714	1,885,962
Brazos County	118,579	7,251	7,943	22,776	23,339	7,831	26,411	23,028
Burleson County	12,622	821	1,387	4,844	2,658	731	1,584	597
Lee County	11,592	813	968	4,191	3,018	906	1,198	498
Milam County	16,681	1,404	1,699	6,352	3,452	1,424	1,630	720
Robertson County	11,599	711	1,084	4,123	3,095	716	1,400	470
Washington County	23,488	1,377	1,736	7,292	5,153	1,646	4,410	1,874
Zone of Influence	**194,561**	**12,377**	**14,817**	**49,578**	**40,715**	**13,254**	**36,633**	**27,187**

Source: U.S. Census Bureau, 2015 – 2019 American Community Survey 5-Year Estimates (2019 Estimate)

Employment by sector is presented in Figure 2-13 and Table 2-12. Figure 2-13 shows that the largest percentage of the zone of influence is employed in the Educational services, and health care and social assistance sector at 29%, followed by 11% in Retail trade, 10% in the Arts, entertainment, and recreation, and accommodation and food services, 9% in the Professional, scientific, and management, and administrative and waste management services, 8% in Construction, and 7% in

Manufacturing sector. The remainder of the employment sectors each comprise 5% or less of the zone of influence's labor force.

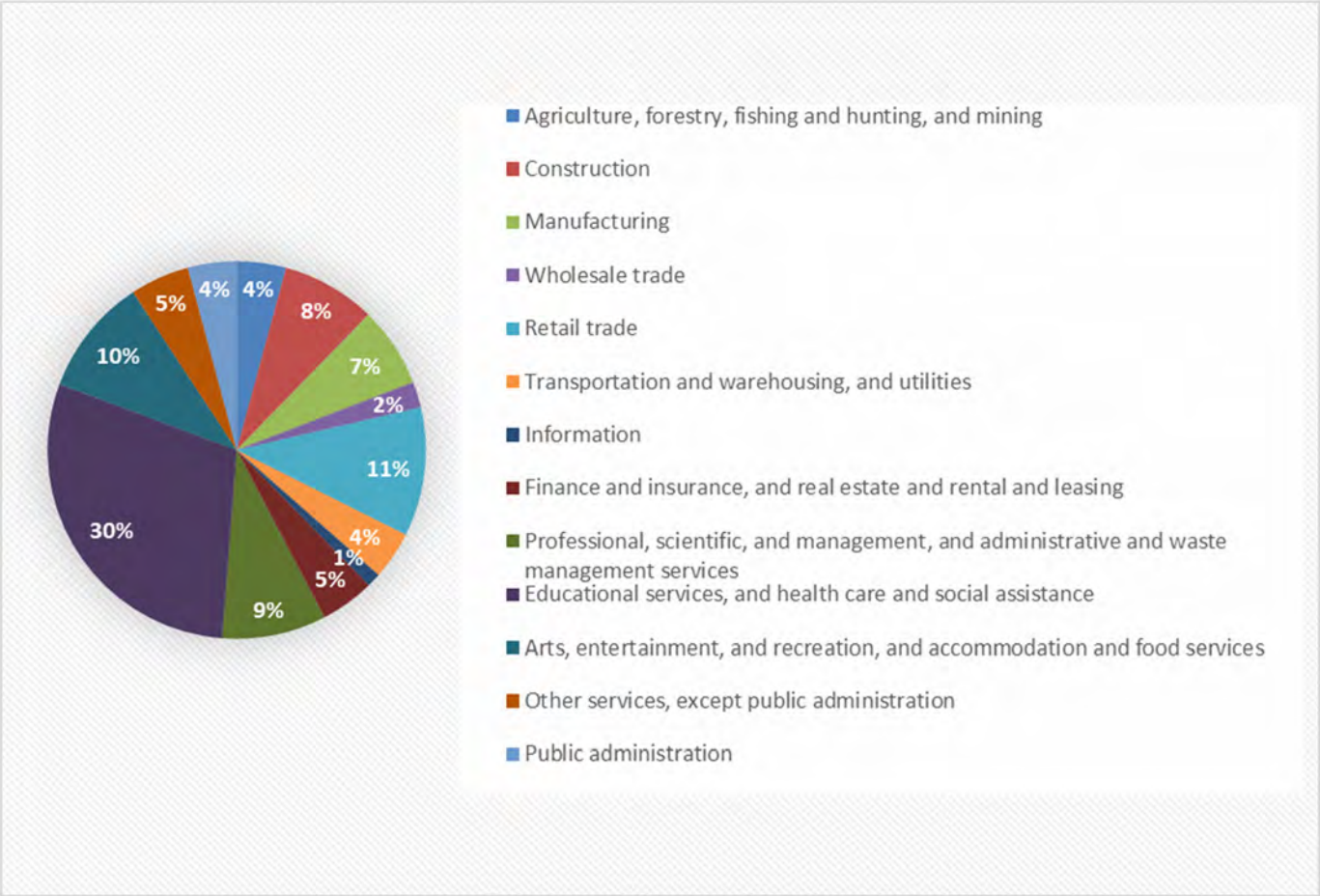


Figure 2-8 Zone of Influence Employment by Sector (2019)
Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Table 2-11 2019 Employment be Sector of Population 16 Years of Age and Over (2019)

Sector	Texas	Brazos County	Burleson County	Lee County	Milam County	Robertson County	Washington County	Zone of Influence Total
Total	13,253,631	106,349	7,823	8,153	9,788	7,385	15,501	154,999
Agriculture, forestry, fishing and hunting, and mining	397,032	2,572	883	577	1,026	739	717	6,514
Construction	1,137,958	7,236	828	1,140	970	688	1,620	12,482
Manufacturing	1,125,176	6,037	914	409	807	746	1,774	10,687
Wholesale trade	378,542	2,292	251	292	105	111	372	3,423
Retail trade	1,507,002	11,522	749	670	1,250	938	1,977	17,106
Transportation and warehousing, and utilities	777,044	3,425	406	691	638	546	660	6,366
Information	227,928	1,290	27	86	160	118	180	1,861
Finance and insurance, real estate, and rental and leasing	884,408	4,915	224	418	428	96	1,094	7,175
Professional, scientific, management, administrative, and waste management services	1,524,750	10,703	525	519	461	479	1,103	13,790

Sector	Texas	Brazos County	Burleson County	Lee County	Milam County	Robertson County	Washington County	Zone of Influence Total
Educational services, health care and social assistance	2,863,828	35,363	1,771	1,373	1,926	1,864	3,364	45,661
Arts, entertainment, recreation, accommodation and food services	1,216,771	11,940	389	688	858	483	1,253	15,611
Other services, except public administration	684,780	5,042	510	607	606	277	821	7,863
Public administration	528,412	4,012	346	683	553	300	566	6,460

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

The civilian labor force in the zone of influence accounts for less than 2% of the civilian labor force of the state of Texas. As shown in Table 2.13, the zone of influence had an unemployment rate of 2.9% in 2019, slightly lower than that of the state of Texas, which had an unemployment rate of 3.5% that same year. Within the zone of influence, Milam and Robertson were the only two counties with higher unemployment rates than the state of Texas.

Table 2-12 Labor Force, Employment and Unemployment Rates, 2019 Annual Averages

Geographic Area	Total Civilian Labor Force	Employed	Unemployed	Unemployment Rate
Texas	14,037,537	13,541,936	495,601	3.5%
Brazos County	118,714	115,510	3,204	2.7%
Burleson County	8,279	8,021	258	3.1%
Lee County	10,126	9,858	268	2.6%
Milam County	9,754	9,270	484	5.0%
Robertson County	7,468	7,198	270	3.6%
Washington County	15,177	14,662	515	3.4%
Zone of Influence	**169,518**	**164,519**	**4,999**	**2.9%**

Source: Bureau of Labor Statistics, 2019 Annual Averages

2.3.6 Households, Income and Poverty

Table 2.14 displays the number of households and average household sizes in the state and zone of influence. There were approximately 9.7 million households in the state of Texas with an average household size of 2.85 in 2019. The zone of influence contained 120,555 of those homes with an average household size of 2.78.

Table 2-13 2019 Households and Household Size

Geographic Area	Total Households	Average Household Size
Texas	9,691,647	2.85
Brazos County	79,412	2.61
Burleson County	6,810	2.63
Lee County	6,036	2.74
Milam County	9,228	2.63
Robertson County	6,444	2.61
Washington County	12,625	2.6
Zone of Influence	**120,555**	**2.78**

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

The median household income in the zone of influence ranged from $47,902 in Milam County to $57,731 in Burleson County in 2019, as displayed in Table 2-15. Per capita income in the zone of influence was $28,045 in 2019, lower than the state of Texas, which had a per capita income of $31,277.

Table 2-14 2019 Median and Per Capita Income

Geographic Area	Median Household Income ($)	Per Capita Income ($)
Texas	$61,874	$31,277
Brazos County	$49,181	$27,632
Burleson County	$57,731	$30,086
Lee County	$54,744	$27,227
Milam County	$47,902	$25,714
Robertson County	$52,928	$26,033
Washington County	$54,971	$32,625
Zone of Influence	**N/A**	**$28,045**

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Table 2.16 displays the percentage of persons and families whose incomes fell below the poverty level in the past twelve months as of 2019. Within the zone of influence, Brazos County had the most people with incomes below the poverty level at 24.4%, followed by Milam County at 15.4%. Burleson, Lee, Robertson, and Washington Counties each had between 11% and 14% of individuals below the poverty level. In terms of families below the poverty level, Brazos and Milam Counties were the only two within the zone of influence with a greater percentage of poverty than the state of

Texas, at 13.3% and 11.8% respectively. The remainder of the counties in the zone of influence had between 7.6% and 10.9% of families below the poverty level in 2019.

Table 2-15 Percent of Families and People Whose Income in the Past 12 Months is Below the Poverty Level (2019)

Geographic Area	All Persons	Percent of Families
Texas	4,154,346	11.3%
Brazos County	54,407	13.3%
Burleson County	2,131	7.6%
Lee County	2,098	10.1%
Milam County	3,815	11.8%
Robertson County	2,379	10.9%
Washington County	4,220	8.8%
Zone of Influence	**69,049**	**N/A**

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

2.5 RECREATION FACILITIES, ACTIVITIES, AND NEEDS

The initial development of outdoor recreation facilities at Somerville Lake was addressed in the 1963 Master Plan, Design Memorandum (DM) No. 11B. This document laid out a robust plan for the comprehensive management of the lake's lands and water surface including plans for a significant investment in outdoor recreation facilities.

USACE's role in outdoor recreation at Somerville Lake consists of managing roads and trails, fishing along waterways and adjacent to the stilling basin area below the dam, management of the water surface as it relates to boating activity and managing general access to lands. Somerville Lake also provides a popular public hunting program through a lottery system.

The following factors contribute to the importance of Somerville Lake as a recreational area:

- Located near cities such as College Station and Bryant, Texas
- Full-service campgrounds and day-use areas
- Somerville Lake Trailway
- Somerville Lake Marina
- 12 boat ramps

2.5.1 Recreation Zone of Influence

The recreation zone of influence for Somerville Lake as it relates to this Master Plan mirrors the demographic and economic analysis zone of influence and includes Burleson County, Texas as well as the adjacent counties of Brazos, Washington, Lee, Milam, and Robertson Counties.

2.5.2 Visitation Profile

Most visitors to Somerville Lake come from within the zone of influence. The most recent visitor data from Recreation.gov includes zip codes for visitors who made reservations at Rocky Creek and Yegua Creek Parks. The most recent data available is from visitors during 2018-2019. An examination of approximately 429,975 visits revealed the most highly visited recreational areas for 2019 were Lake Somerville State Park, Birch Creek State Park, Big Creek Marina, and Yegua Creek Park. Table 2.16 provides percentages for each recreational area within the zone of influence. The highest number of visitations was to Lake Somerville State Park.

Table 2-16 Somerville Lake Park Use Statistics

PSA	NUMBER OF VISITORS	PERCENT OF VISITORS
Apache Hills Boat Ramp	20,903	3.2%
Big Creek Marina	71,341	10.9%
Birch Creek Forest Boat Ramp	9,501	1.4%
Birch Creek State Park	124,273	19.0%
Lake Somerville Marina & Campground	142,986	21.8%
Nails Creek State Park	41,936	6.4%
Rocky Creek	62,538	9.5%
Visitors Overlook	10,681	1.6%
Welch Park	60,678	9.3%
Yegua Creek Park	62,720	9.6%
Dispersed Use	47,825	7.3%
Total	**655,382**	**100.0%**

Source: NRM Assessment Tool 2021

2.5.3 Recreation Areas and Facilities

The primary outdoor recreation facilities at Somerville Lake are operated by USACE, TPWD, and the City of Somerville. USACE provides recreational opportunities by managing vehicle traffic on the road across the top of Somerville Dam, fishing

access to the stilling basin area, as well as all the campgrounds and day use areas around the lake. Table 2.17 provides a summary of the primary recreation facilities operated by these various entities.

Table 2-17 Facilities Provided by USACE, TPWD, City of Somerville, and various Private Parties

Facilities	USACE	TPWD	City of Somerville	Private Party Leases
Campsites: electric and water	258	157	70	213
Campsites: electric, water and sewer	0	2	2	0
Enclosed screen shelters, with 20/30/50 amp electric and water hookups	0	0	0	0
Campsites with no hookups	0	0	0	0
Picnic Sites	0	19	50	0
Group shelters	0	0	0	0
Picnic Shelter	1	2	1	0
Hiking Trails	4 miles	21 miles	No	0
Equestrian Trails	0	21 miles	0	0
Boat Ramp	4	3	1	3
Swimming Beach	No	Yes	No	No
Interpretive Site	Yes	Yes	No	No

Source: USACE

2.5.4 Recreational Analysis - Trends

The 2018 Texas Outdoor Recreation Plan (TORP) published by TPWD is a comprehensive recreational demand study that evaluates recreation trends and needs across Texas and in subdivided regions. Some of the information in the TORP was extracted from the National Survey on Recreation and the Environment (NSRE) and reports generated by the USFWS. Much of the data in the TORP was from a survey conducted in 2017 titled “Texas Residents’ Participation in and Attitudes Toward Outdoor Recreation by Responsive Management (Survey)” on behalf of TPWD. Somerville Lake provides many recreation opportunities that help to meet the recreation needs identified in the TORP.

The TORP indicated the rates of participation for various outdoor activities in Texas, with Burleson County and Somerville Lake located in TORP Region 4. Across the entire state and in Region 4, walking for pleasure is the most popular outdoor activity, while the next most popular being picnicking, cookouts, and other gatherings. The top ten areas of participation for outdoor recreation are indicated in Figure 2.11.

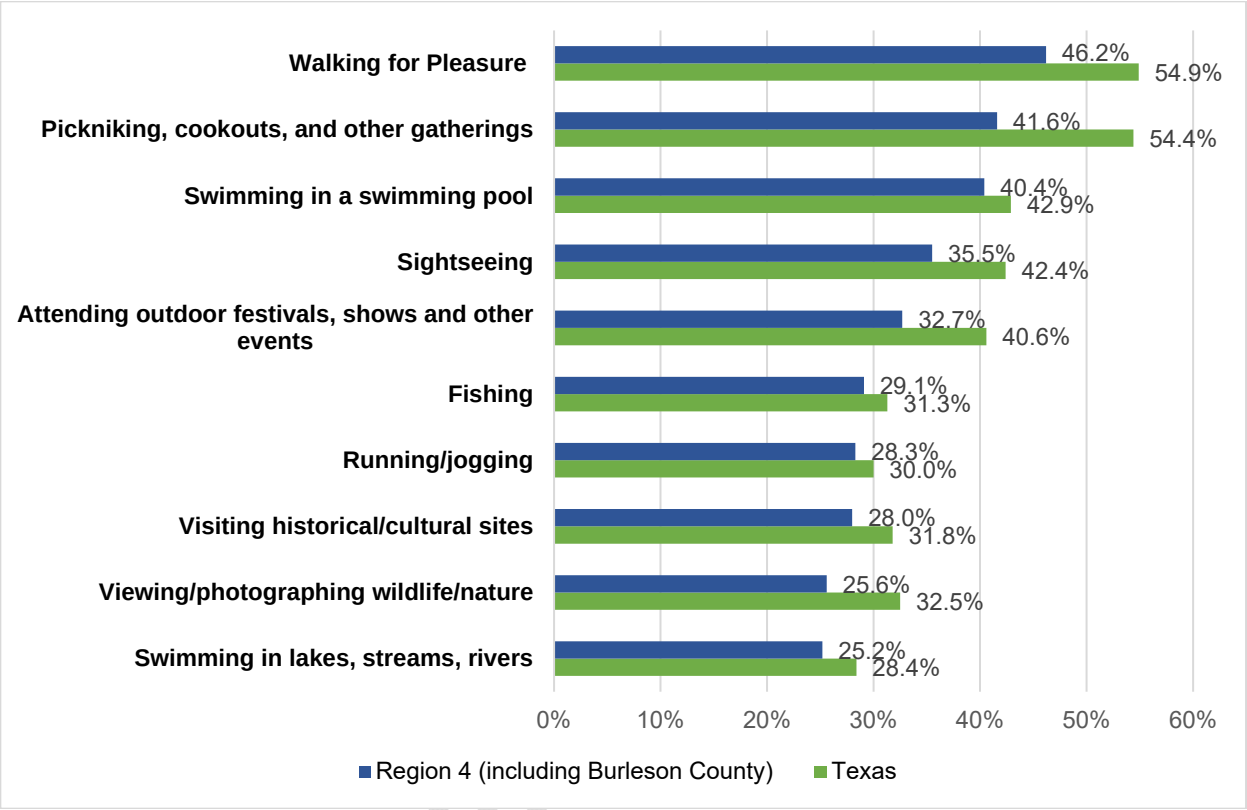


Figure 2-9 Top 10 Areas of Participation for Outdoor Recreation Activities
Source: TPWD TORP 2018

Asked "which outdoor recreation opportunities does your community currently lack or would like to see more of in your community," the top three answers across the state and region were trails/places to hike/bike, more parks/more park capacity, and pools/swimming facilities. Somerville Lake provides the top two recreational opportunities for Region 4 communities. The top ten responses for the State of Texas and Region 4 are indicated in Figure 2.12.

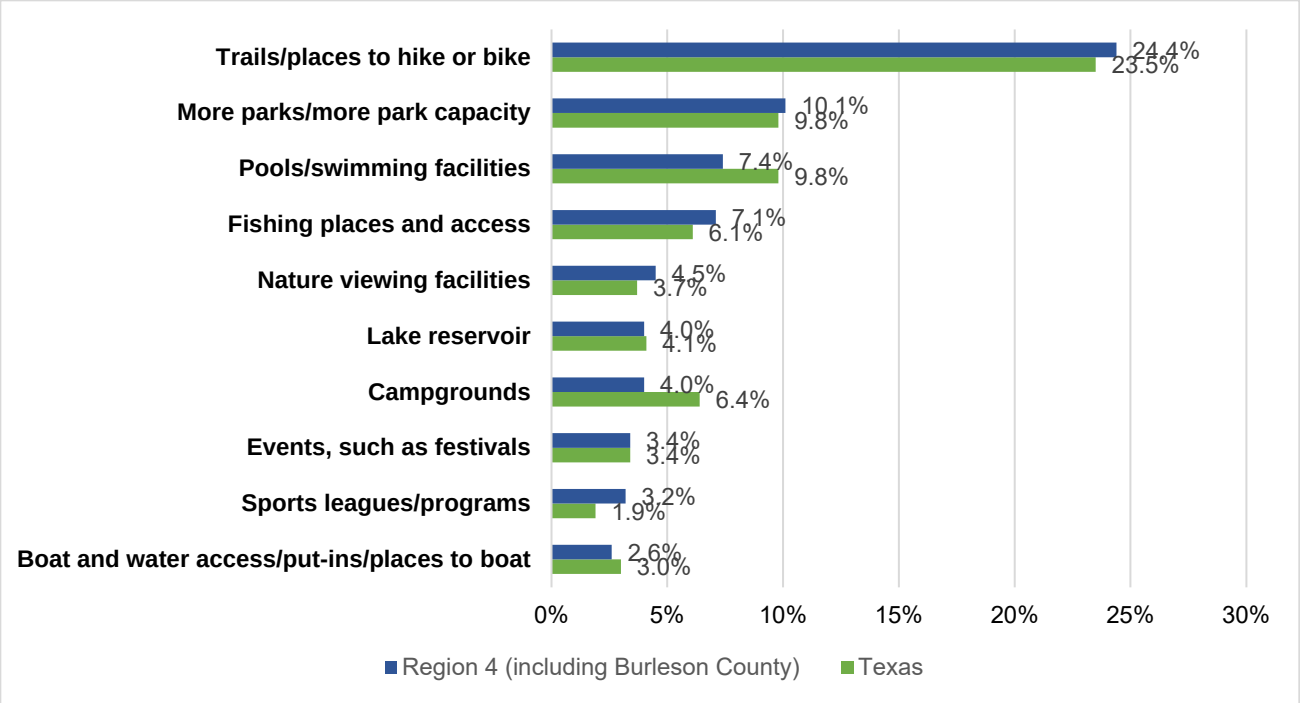


Figure 2-10 Top 10 Outdoor Recreational Opportunities Currently Lacking for the Community
Source: TPWD TORP 2018

Additional findings from the Survey found that 34 percent of both Texas residents and Region 4 residents have visited a state park in the past 12 months. Furthermore, 58 percent of Texas residents and 56 percent of Region 4 residents have visited a local park in the past 12 months (local park was defined as 30 minutes from respondents' home and not a state or national park). Within Region 4, 58 percent of survey respondents have visited a local park at least 5 times in the last 12 months, while 98 percent have visited a local park at least once in the past 12 months. Asked "which features, or facilities do your local parks currently lack, or would you like to see more of at your local parks," the overwhelming response was more restroom facilities at 28.0 percent across Region 4 and 20.7 percent across Texas. The top ten responses to that survey question are indicated in Figure 2.13.

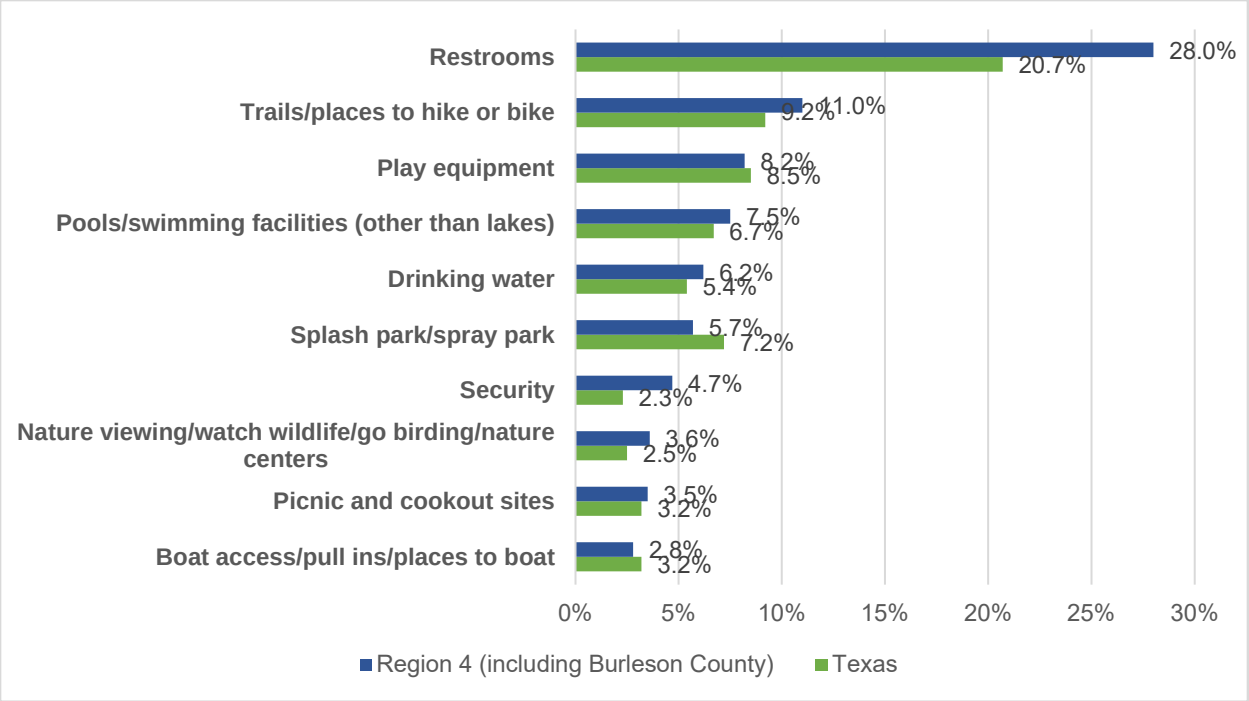


Figure 2-11 Top 10 Features and Facilities Currently Lacking in the Community
Source: TPWD TORP 2018

In accordance with historical visitation rates and recent outdoor recreation trends documented in the 2012 and 2018 TORP, camping in developed and primitive settings has declined significantly since 2000. In contrast, the TORP documented an increase in demand for day trip activities including hiking/walking for pleasure; picnicking, cookouts, or other gatherings; sightseeing; swimming in pools; attending outdoor festivals, shows, or events; and viewing/photographing wildlife/nature. The recreation activity most people say their community lacks is hiking/biking trails, swimming pool facilities, more park capacity, and more sports fields; with the demand for more park facilities and fishing access being much higher in the Region 4 than the entire state. In response to trends documented in the TORP, USACE will endeavor to improve access to fishing places and to develop trails in or adjacent to park areas as funding permits. USACE encourages partnerships with agencies who lease and manage parks to respond to increasing demands and build on the current quality of USACE parks for present and future visitors. Comments from the public mirrored the demand published in the TORP, as there were many comments from the public showing interest in additional trails at Somerville Lake.

The TORP documented a dramatic increase in the demand for motor homes and travel trailers, but it did not make the top-ten areas of participation or top-ten lacking recreation opportunities. USACE intends to continue to operate campgrounds and day use areas by maintaining and improving existing facilities and has long-range plans for consolidating the use of existing facilities. In response to comments and the increased trend documented in the TORP, USACE will continue to monitor demand for motor home and travel trailer facilities as well as other amenities. USACE will make needed upgrades based on changes in demand as funding permits.

2.6 REAL ESTATE

In June 1962, under the authorization of the Flood Control Act of 1954, construction of Somerville Lake began for the purposes of flood risk reduction, water conservation, fish and wildlife habitat, and recreation. This generally required fee simple acquisition of the area that closely followed and encompassed the 263.0 feet NGVD29 contour. In lieu of fee simple acquisition, flowage easements were acquired in the upper reaches of most tributaries where the configuration of required lands was relatively narrow. The boundary at Somerville Lake is typically fenced.

Considering the reconveyance of approximately 759 acres of land, the current fee simple owned lands total approximately 29,913 acres. In addition to the fee land acquisition, approximately 4,100 acres of flowage easement were acquired up to elevation 263.0 feet NGVD29. A flowage easement, in general, grants to the government the perpetual right to temporarily flood/inundate private land during flood risk management operations and to prohibit activities on the flowage easement that would interfere with flood risk management operations such as placement of fill material or construction of habitable structures on flowage lands.

Somerville Lake is part of a series of lakes, along with an extensive floodway system of levees, which are operated in a coordinated manner to minimize flooding along the Capitol Region floodplain corridor along the Brazos River.

Table 2-18 Real Estate Fee and Flowage Acreage

Land	Acres
Fee Acres	29,913
Approximate Flowage Easement Acres	4,081
Total Acres	**33,994**

The fee simple and easement acreage identified in this Master Plan was obtained from the Real Estate Management Information System and is subject to change as the acquisition documents are audited.

Table 2-19 Somerville Lake Outgrant Types

Outgrant Type	Number
Leases	**21**
Oil / Gas Pipeline / Well	17
Recreation	4
Easements	**53**
Sewer / Water / Pump Station / Storm Drain	4
Road / Boat Ramps	12
Electric / Telecommunication	14
Oil / Gas Pipelines / Well	23
Consents/Other	**154**
Road / Electric / Sewer / Waterline / Drain	13
Oil / Gas Pipeline / Well	135
Telephone Line	4
Other	2
Total Outgrants	**229**

2.6.1 Guidelines for Property Adjacent to Public Land

It is the policy of the USACE to manage the natural, cultural, and developed resources of Somerville Lake to provide the public with safe and healthful recreational opportunities, while protecting and enhancing those resources. While private exclusive use of public land is not permitted, property owners adjacent to public lands do have all the same rights and privileges as any other citizen. Therefore, the information contained in these guidelines is designed to acquaint the adjoining landowner and other interested persons with the types of property involved in the management of Somerville Lake. Adjoining landowners interested in more information should review section 6.3 on the Shoreline Management Policy or request additional information from the USACE office at Somerville Lake.

2.6.2 Trespass and Encroachment

Government property is monitored by USACE personnel to identify and correct instances of unauthorized use, including trespasses and encroachments. The term “trespass” includes unauthorized transient use and occupancy, such as mowing, tree cutting and removal, livestock grazing, cultivation and harvesting crops, and any other alteration to Government property done without USACE approval. Unauthorized trespasses may result in a Title 36 citation to appear in Federal Magistrate Court, which could subject the violator to fines or imprisonment (See Title 36 Code of Federal Regulations (CFR) Part 327 Rules and Regulations Governing Public Use of Water Resources Development Projects Administered by the Chief of Engineers). More serious trespasses will be referred to the USACE Office of Counsel for enforcement

under state and federal law, which may require restoration of the premises and collection of monetary damages.

The term “encroachment” pertains to an unauthorized structure or improvement on Government property. When encroachments are discovered, lake personnel will attempt to resolve the issue at the project level. Where no resolution is reached, or where the encroachment is a permanent structure, the method of resolution will be determined by USACE Real Estate Division, with recommendations from Operations Division and Office of Counsel. USACE’s general policy is to require removal of encroachments, restoration of the premises, and collection of appropriate administrative costs and fair market value for the term of the unauthorized use.

2.7 PERTINENT PUBLIC LAWS

- Numerous public laws apply directly or indirectly to the management of federal land at Somerville Lake. Listed below are several key public laws that are most frequently referenced in planning and operational documents. Refer to Appendix D for a more comprehensive listing.

- Public Law 78-534, Flood Control Act of 1954. - Section 4 of the act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to federal, state, or local governmental agencies.

- Public Law 85-624, Fish and Wildlife Coordination Act 1958. - This act as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.

- Public Law 86-717, Forest Conservation. - This act provides for the protection of forest and other vegetative cover for reservoir areas under the jurisdiction of the Secretary of the Army and the Chief of Engineers.

- Public Law 89-72, Federal Water Project Recreation Act of 1965. - This act requires that not less than one-half of the separable costs of developing recreational facilities and all operation and maintenance costs at Federal reservoir projects shall be borne by a non-Federal public body. A Headquarters USACE (HQUSACE)/OMB implementation policy made these provisions applicable to projects completed prior to 1965.

- Public Law 91-190, National Environmental Policy Act of 1969 (NEPA). – NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it

declared a “continuing policy of the Federal Government... to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.” Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations, and public law of the United States shall be interpreted and administered in accordance with the policies of the Act. It is Section 102 that requires consideration of environmental impacts associated with Federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

Specifically, Section 101 of the National Environmental Policy Act declares:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradation risk to health or safety or other undesirable and unintended consequences;
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain wherever possible an environment which supports diversity and variety of individual choice;
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities: and
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

- PL 89-665, Historic Preservation Act of 1966. - This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President’s Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.

- PL 101-601, Native American Graves Protection and Repatriation Act (16 November 1990), requires federal agencies to return Native American human

remains and cultural items, including funerary objects and sacred objects, to their respective peoples.

CHAPTER 3 – RESOURCE GOALS AND OBJECTIVES

3.1 INTRODUCTION

The terms “goal” and “objective” are often defined as synonymous, but in the context of this Master Plan goals express the overall desired end state of the Master Plan whereas resource objectives are specific task-oriented actions necessary to achieve the overall Master Plan goals.

3.2 RESOURCE GOALS

The following statements based on *EP 1130-2-550*, Chapter 3, express the goals for the Somerville Lake Master Plan. See Section 3.3 for Resource Goals applicability to Resource Objectives.

GOAL A. Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.

GOAL B. Protect and manage the project’s natural and cultural resources through sustainable environmental stewardship programs.

GOAL C. Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining the project’s natural resources.

GOAL D. Recognize the unique qualities, characteristics, and potentials of the project.

GOAL E. Provide consistency and compatibility with national objectives and other State and regional goals and programs.

In addition to the above goals, USACE management activities are guided by USACE-wide Environmental Operating Principles as follows:

- Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.
- Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.
- Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
- Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.

- Seek ways and means to assess and mitigate cumulative impacts to the environment; bringing systems approaches to the full life cycle of our processes and work.

- Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.

- Respect the views of individuals and groups interested in USACE activities; listen to them actively and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

3.3 RESOURCE OBJECTIVES

Resource objectives are defined as clearly written statements that respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and waters under the jurisdiction of the Fort Worth District, Somerville Lake Project Office. The objectives stated in this Master Plan support the goals of the Master Plan, USACE Environmental Operating Principles (EOPs), and applicable national performance measures. They are consistent with authorized project purposes, federal laws and directives, regional needs, resource capabilities, and they take public input into consideration. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this Master Plan, as well as regional and state planning documents including:

- Texas Comprehensive Action Plan (TCAP)
- Texas Parks and Wildlife - Texas Outdoor Recreation Plan (TORP)

The objectives in this Master Plan are intended to provide project benefits, meet public needs, and foster environmental sustainability for Somerville Lake to the greatest extent possible. The following tables list the objectives for Somerville Lake.

Table 3-1 Recreational Opportunities

Recreational Objectives	Goals				
	A	B	C	D	E
Renovate existing facilities to provide a quality recreation experience for visitors while protecting natural resources for use by others. Examples include development of high impact zones at campsites, provision of universally accessible facilities, the removal of hazards such as tree stumps from recreational areas, separation of day use and camping facilities, improved electrical service at campsites.	*		*		
Provide opportunities for day use activities, especially picnicking. Provide enough campsites in popular areas.	*		*		
Manage recreation facilities in accordance with public demand. Examples include universally accessible fishing docks, fish cleaning stations near boat ramps, playground equipment in day use and camping areas.	*		*		
Work with partners to expand existing trails and develop new ones.	*		*		*
Increase universally accessible facilities on Somerville Lake lands.	*		*		*
Consider flood/conservation pool to address potential impact to recreational facilities (i.e., campsites, boat ramps, courtesy docks, etc.).	*	*	*	*	
Follow the Environmental Operating Principles associated with recreational use of waterways for all water-based management activities and plans.		*	*		*
Ensure consistency with USACE Natural Resource Management 2021 – 2031 (NRM) Strategic Plan.					*
Monitor the Texas TORP, TCAP, TPWD, and adjacent municipality plans to ensure that USACE is responsive to outdoor recreation trends, public needs and resource protection within a regional framework. All plans by others will be evaluated considering USACE policy and operational aspects of Somerville Lake.	*	*	*	*	*
Evaluate established permits/outgrants to determine impacts on public lands and waters. Sustain the Shoreline Management Policy to balance private shoreline uses (such as mowing or vegetation removal requests along the Federal property boundary, or paths to the shoreline) with habitat management and impacts to the general public.	*	*	*		

*Denotes that the objective helps to meet the specified goal.

Table 3-2 Natural Resource Management Objectives

Natural Resource Management Objectives	GOALS:				
	A	B	C	D	E
Give priority to the preservation and improvement of wild land values in public use planning, design, development, and management activities. Give high priority to examining project lands for the presence of the prairies characteristic of the Ecoregion III East Central Texas Plains.	*	*		*	*
Consider watershed approach during decision-making process.					*
Consider flood/conservation pool levels to ensure that natural resources are managed in ways that are compatible with project purposes.	*	*		*	
Actively manage and conserve fish and wildlife resources, especially threatened and endangered species and Species of Greatest Conservation Need, by implementing ecosystem management principles. Key among these principles is the use of native species adapted to Ecoregion III East Central Texas Plains in restoration and mitigation plans.	*	*		*	*
Manage high density and low-density recreations lands in ways that enhance benefits to wildlife.					*
Optimize resources, labor, funds, and partnerships for protection and restoration of fish and wildlife habitats.		*			*
Continue to manage the public hunting program through a permit system or other means to ensure public safety and sustainability of game species and wildlife habitat.	*	*	*		*
Minimize activities which disturb the scenic beauty and aesthetics of the lake.	*	*	*	*	
Implement prescribed fire as a management tool to promote the vigor and health of Capitol Region forests, woodlands, and prairies.	*	*			*
Optimize resources, labor, funds, and partnerships for protection and restoration of fish and wildlife habitats.		*			*
Continually evaluate erosion control and sedimentation issues at Somerville Lake and develop alternatives to resolve the issues.	*	*			*
Stop unauthorized uses of public lands such as off-road vehicle (ORV) use, trash dumping, unauthorized fires, fireworks, poaching, clearing of vegetation, agricultural trespass, timber theft, unauthorized trails and paths, and placement of advertising signs that create negative environmental impacts.	*	*	*	*	*
Monitor lands and waters for invasive, non-native and aggressively spreading native species and take action to prevent and/or reduce the spread of these species.	*	*		*	*

Natural Resource Management Objectives	GOALS:				
	A	B	C	D	E
Protect and/or restore important native habitats such as riparian zones, wetlands, and native prairie where they occur, or historically occurred on project lands. Special emphasis should be taken to protect and/or restore special or rare plant communities, to include actions that promote butterfly and/or pollinator habitat, migratory bird habitat, and habitat for birds listed by USFWS as Birds of Conservation Concerns.	*	*		*	*

*Denotes that the objective helps to meet the specified goal.

Table 3-3 Visitor Information, Education, and Outreach Objectives

Visitor Information, Education and Outreach Objectives	Goal				
	A	B	C	D	E
Provide opportunities (i.e. comment cards, updates to local municipalities, web page) for communication with agencies, special interest groups, and the general public. Utilize social media to inform visitors.	*			*	*
Provide educational, interpretive, and outreach programs at the lake office and around the lake. Topics to include: history, lake operations (flood risk management, hydroelectric power generation and water supply), water safety, recreation, cultural resources, ecology, and USACE missions.	*	*	*	*	*
Educate adjacent landowners on policies and permit processes in order to reduce encroachment actions.	*	*	*	*	*
Enhance network among local, state, and federal agencies to exchange lake-related information for public education and management purposes.	*		*	*	*
Capture trends concerning boating accidents and other incidents on public lands and waters and coordinate data collection with other public safety officials.	*		*	*	*
Promote USACE Water Safety message.	*		*	*	*
Increase public awareness of special use permits or other authorizations required for special activities, organized special events, and commercial activities on public lands and waters of Somerville Lake.	*	*	*		*

*Denotes that the objective helps to meet the specified goal.

Table 3-4 General Management Objectives

General Management Objectives	Goal				
	A	B	C	D	E
Resurvey and identify existing utility corridors to ensure they are clearly marked and recognizable in all areas to provide a guide for future utility development.	*	*		*	
Identify safety hazards or unsafe conditions; correct infractions and implement safety standards in accordance with EM 385-1-1.					*
Ensure green design, construction, and operation practices, such as the Leadership in Energy and Environmental Design (LEED) criteria for government facilities, are considered as well as applicable Executive Orders.					*
Manage non-recreation outgrants such as utility and road easements in accordance with national guidance set forth in ER 1130-2-550 and applicable chapters in ER 405-1-12.	*				*
Manage project lands and recreational programs to advance broad national climate change mitigation goals, including but not limited to climate change resilience and carbon sequestration.					*

*Denotes that the objective helps to meet the specified goal.

Table 3-5 Cultural Resources Management Objectives

Cultural Resources Management Objectives	Goal				
	A	B	C	D	E
As funding permits, complete an inventory in accordance with Section 110 NHPA and prepare a Cultural Resources Management Plan.	*	*		*	*
Monitor and enforce Title 36 and Advanced Research Projects Agency (ARPA) to prevent unauthorized excavation and removal of cultural resources.		*		*	*
Develop partnerships that promote and protect cultural resources at Somerville Lake.		*	*	*	*
Preserve and protect cultural resources sites in compliance with existing federal statutes and regulations.		*		*	*
Ensure full integration of historical preservation by keeping an inventory of cultural sites in accordance with Section 106 and 110 of the NHPA, the Archeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act. Increase public awareness and education of regional history.	*	*		*	*
Increase public awareness and education of regional history.		*		*	*

*Denotes that the objective helps to meet the specified goal.

CHAPTER 4 – LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS

4.1 LAND ALLOCATION

All lands at USACE water resource development projects are allocated by USACE into one of four categories in accordance with the congressionally authorized purpose for which the project lands were acquired: Operations, Recreation, Fish and Wildlife, and Mitigation. At Somerville Lake, the only land allocation category that applies is Operations, which is defined as those lands that are required to operate the project for the primary authorized purposes of flood risk management, hydroelectric power, and water conservation. The remaining allocations of Recreation, Fish and Wildlife, and Mitigation would apply only if lands had been acquired specifically for these purposes. The entire fee simple federal estate at Somerville Lake Real Estate records is 29,913 acres of which 11,395 acres is inundated at conservation pool.

4.2 LAND CLASSIFICATION

The previous version of the Somerville Lake Master Plan included some land classification criteria that were similar to the current criteria. These prior land classifications were based on predicted projected need rather than actual experience, which resulted in some areas being classified for a type of use that has not or is not likely to occur. Additionally, in the over 50 years since the previous Master Plan was published, wildlife habitat values, surrounding land use, and regional recreation trends have changed giving rise to the need for revised classifications. Refer to Table 8.1 in Chapter 8 for a summary of land classification changes from the prior classifications to the current classifications.

4.2.1 Current Land and Water Surface Classifications

USACE regulations require project lands and waters to be classified in accordance with the primary use for which project lands are managed. At Somerville Lake, there are five land classification and four subclassifications identified in USACE regulations, as well as four water designations including:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Management Lands
    - Low Density Recreation
    - Wildlife Management
    - Vegetative Management
    - Future/Inactive Recreation
- Water Surface
    - Restricted Areas

- Designated No Wake Areas
- Fish and Wildlife Sanctuary
- Open Recreation

The revised land and water surface classifications for Somerville Lake were established after considering public comments, key stakeholder's input including elected officials, city and county governments, lessees operating on USACE land, and USACE expert assessment. Additionally, wildlife habitat values and the trends analysis provided in TPWD's TORP and 2012 TCAP were used in decision making. Maps showing the various land classifications can be found in Appendix A. Each of the land classifications, including the acreage and description of allowable uses, is described in the following paragraphs.

4.2.2 Project Operations (PO)

This classification includes the lands managed for operation of the dam, project office, and maintenance yards, all of which must be maintained to carry out the authorized purpose of flood risk management. In addition to the operational activities taking place on these lands, limited recreational use may be allowed for activities such as public access to the road on top of the dam. Regardless of any limited recreation use allowed on these lands, the primary classification of Project Operations will take precedent over other uses. There are 627 acres of Project Operations land specifically managed for this purpose.

4.2.3 High Density Recreation (HDR)

These are lands developed for intensive recreational activities for the visiting public including day use areas, campgrounds, and related concession areas. Recreation development by lessees operating on USACE lands must follow policy guidance contained in USACE regulations at ER 1130-2-550, Chapter 16. That policy includes the following statement:

> *"The primary rationale for any future recreation development must be dependent on the project's natural or other resources. This dependency is typically reflected in facilities that accommodate or support water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps, and comprehensive resort facilities. Examples that do not rely on the project's natural or other resources include theme parks or ride-type attractions, sports or concert stadiums, and standalone facilities such as restaurants, bars, motels, hotels, non-transient trailers, and golf courses. Normally, the recreation facilities that are dependent on the project's natural or other resources, and accommodate or support water-based activities, overnight use, and day use, are approved first as primary facilities followed by those facilities that support them. Any support facilities (e.g., playgrounds, multipurpose sports fields, overnight facilities, restaurants, camp*

stores, bait shops, comfort stations, and boat repair facilities) must also enhance the recreation experience, be dependent on the resource-based facilities, and be secondary to the original intent of the recreation development…"

Lands classified for High Density Recreation are suitable for the development of comprehensive resorts. The regulation cited above defines Comprehensive Resort as follows:

"Typically, multi-faceted developments with facilities such as marinas, lodging, conference centers, golf courses, tennis courts, restaurants, and other similar facilities."

At Somerville Lake, prior land classifications included a number of areas under the recreation classification. Several of these areas, including Nails Creek State Park, Rocky Creek Park, Welch Park, Yegua Creek Park, Rocky Creek Park, and Birch Creek State Park were developed during the construction phase of the overall project, while additional areas were selected for recreation, hunting, and interim recreation as areas would be developed in the future. Using public, agency, and lessee input, the planning team revised the classification of some of these lands to reflect current and projected outdoor recreation needs and trends. At Somerville Lake there are 2,091 acres classified as High-Density Recreation land. Each of the High-Density Recreation areas is described briefly in Chapter 5 of this Plan.

4.2.4 Mitigation

This classification is used only for lands set aside for mitigation for the purpose of offsetting losses associated with the development of the project. This is not the same as allocated lands that are purchased for the purpose of mitigation. There are no lands at Somerville Lake with this classification.

4.2.5 Environmentally Sensitive Areas (ESA)

These are areas where scientific, ecological, cultural, and aesthetic features have been identified. At Somerville Lake several distinct areas have been classified as Environmentally Sensitive Areas (ESA), primarily for the protection of sensitive habitats or cultural resources. Each of these areas is discussed in Chapter 5 of this Plan and illustrated on the maps in Appendix A. There are 1,069 acres classified as ESA at Somerville Lake.

4.2.6 Multiple Resource Management Lands (MRML)

This classification is divided into four sub-classifications identified as: Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. A given tract of land may be classified using one or more of these sub-classifications, but the primary sub classification should reflect the dominant use of the land. Typically, Multiple Resource Management Lands support only passive, non-intrusive uses with very limited facilities or infrastructure. Where needed, some areas

may require basic facilities that include, but are not limited to minimal parking space, a small boat ramp, and/or primitive sanitary facilities. There are 14,743 acres of land under this classification at Somerville Lake. The following paragraphs list each of the sub-classifications, and the number of acres and primary uses of each.

Low Density Recreation (LDR)

These are lands that may support passive public recreational use (e.g., fishing, hunting, wildlife viewing, natural surface trails, hiking, etc.). Under prior land classifications, areas were classified to support "low intensity" recreation, however during the planning process, most of these areas were reclassified as either Environmentally Sensitive Areas or Wildlife Management. Low Density Recreation lands are designated at Somerville Lake in areas that were previously designated as Esthetics, Future Development Opportunities, and Public Use Areas but are no longer used for that level of use. There are 149 acres classified as LDR at Somerville Lake.

Wildlife Management (WM)

This land classification applies to lands managed primarily for the conservation of fish and wildlife habitat. These lands generally include comparatively large contiguous parcels. Passive recreation uses such as natural surface trails, fishing, hunting, and wildlife observation are compatible with this classification unless restrictions are necessary to protect sensitive species or to promote public safety. There are 14,594 acres of land included in this classification at Somerville Lake.

Vegetative Management (VM)

These are lands designated for stewardship of forest, prairie, and other native vegetative cover. Passive recreation activities previously described may be allowed in these areas. There are no acres of land included in this classification at Somerville Lake.

Future or Inactive Recreation

These are lands with site characteristics compatible with High Density Recreation development but have been undeveloped or planned for very long-range recreation needs. There are no areas classified as Future or Inactive Recreation.

4.2.7 Water Surface

USACE regulations specify four possible sub-categories of water surface classification. These classifications are intended to promote public safety, protect resources, or protect project operational features such as the dam and spillway. These areas are typically marked by USACE or lessees with navigational or informational buoys, signs, or are denoted on public maps and brochures. The Water Surface Classification map can be found in Appendix A of this Plan. The four sub-categories of water surface classification are Restricted, Designated No Wake, Fish and Wildlife Sanctuary, and Open Recreation.

Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The areas include the water surface immediately surrounding the gate control tower upstream of the Somerville Lake Dam as well as around the water intake towers and one designated swim beach at Somerville Lake parks. There are 8 acres of restricted water surface at Somerville Lake.

Designated No-Wake

Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps. There are twelve boat ramps, two marinas at Somerville Lake, three loading docks, twenty-one launch lanes, and aa publicly accessible beach at Birch Creek State Park. There are 503 acres of designated no-wake water surface at Somerville Lake.

Fish and Wildlife Sanctuary

This water surface classification applies to areas with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. Somerville Lake has no water surface areas designated as a Fish and Wildlife Sanctuary.

Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. This classification encompasses the majority of the lake water surface and is open to general recreational boating. Boaters are advised through maps and brochures, or signs at boat ramps, that navigational hazards may be present at any time and at any location in these areas. Operation of a boat in these areas is at the owner's risk. Specific navigational hazards may or may not be marked with a buoy. There are 10,892 acres of open recreation water surface at Somerville Lake.

4.2.8 Recreational Seaplane Operations

Seaplane restrictions are part of Title 36 Code of Federal Regulations. At Somerville Lake and other USACE lakes across the nation, areas where recreational seaplane operations are prohibited were established through public meetings and environmental assessments circa 1980. The seaplane policy for USACE Fort Worth District is found in the Notice to Seaplane Pilots (see Appendix E), which lays out the general restrictions as well as lake-specific restrictions for seaplane operation. Due to potential hazards from sub-surface tree stumps and fluctuating water levels; seaplane operations at Somerville Lake are generally prohibited in all areas.

Table 4.1 provides a summary of the new land and water surface classifications and acreage at Somerville Lake. Acreages were calculated by historical and GIS data. A map representing these areas can be found in Appendix A.

Table 4-1 Land and Water Surface Classification and Acreage

Land Classifications	Acres*	Water Surface Classifications	Acres*
Project Operations	627	Restricted	8
High Density Recreation	2,091	Designated No Wake	503
Environmentally Sensitive Areas	1,069	Open Recreation	10,892
Multiple Resource Management – Low Density Recreation	149		
Multiple Resource Management – Wildlife Management	14,594		
Total Land Classification	**18,530**	**Total Water Surface Classification**	**11,403**

*Total Acreage differences from the 1963 total to the 2022 totals are due to improvements in measurement technology, deposition/siltation, and erosion.

4.3 PROJECT EASEMENT LANDS

Project Easement Lands are primarily lands on which easement interests were acquired. Fee title was not acquired on these lands, but the easement interests convey to the federal government certain rights to use and/or restrict the use of the land for specific purposes. Easement lands are typically classified as Operations Easement, Flowage Easement, and/or Conservation Easement. Flowage easement lands are the only easements that exist at Somerville Lake. A flowage easement, in general, grants to the government the perpetual right to temporarily flood/inundate private land during flood risk management operations and to prohibit activities on the flowage easement that would interfere with flood risk management operations such as placement of fill material or construction of habitable structures. There are approximately 4,081 acres of flowage easements lands at Somerville Lake.

CHAPTER 5 – RESOURCE PLAN

5.1 MANAGEMENT BY CLASSIFICATION

This chapter describes the management plans for each land use classification within the Master Plan. The classifications that exist at Somerville Lake are Project Operations (PO), High Density Recreation (HDR), Environmentally Sensitive Area (ESA), and Multiple Resource Management Lands (MRML) on which a predominant use is specified including Low Density Recreation (LDR) and Wildlife Management (WM). The water surface is also classified into sub-classifications of Restricted, Designated No Wake, and Open Recreation. The management plans describe how the project lands and water surface will be managed in broad terms. A more descriptive plan for managing these lands can be found in the Somerville Lake Operations Management Plan (OMP). Acreages shown for the various land classifications were calculated using GIS technology and may not agree with lease documents, prior publications, or official land acquisition records.

5.2 PROJECT OPERATIONS

The Project Operations (PO) classification is land associated with the dam, spillway, levees, lake office, maintenance facilities, and other areas managed solely for the operation and fulfillment of the primary mission of the project. There are 627 acres of land under this classification, all of which are managed by the USACE. The management plan for the Project Operations area is to continue providing physical security necessary to ensure sustained operations of the dam and related facilities including restricting public access in hazardous locations near the dam and spillway.

Recommended future actions for these areas include facility upgrades to meet USACE sustainability objectives as funding and personnel allow. Opportunities to improve existing property boundaries by reinforcing fence lines will be implemented as appropriate.

5.3 HIGH DENSITY RECREATION

Somerville Lake has 2,091 acres classified as High-Density Recreation. These lands are developed for intensive recreational activities for the visiting public including day use and campgrounds. National USACE policy set forth in ER 1130-2-550, Chapter 16, limits recreation development on USACE lands to those activities that are dependent on a project's natural resources and typically include water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps and comprehensive resorts. Examples of activities that are not dependent on a project's natural resources include theme parks or ride-type attractions, sports or concert stadiums, and stand-alone facilities such as restaurants, bars, motels, hotels, and golf courses.

USACE operates and manages all the areas designated as High-Density Recreation at Somerville Lake. The following is a description of each park operated by

USACE along with a conceptual management plan for parks. Maps showing existing parks and facilities managed by USACE can be found in Appendix A.

5.3.1 Parks Operated by USACE

The management plan for all the parks listed below is to continue to operate them as campgrounds by maintaining and improving existing facilities. Emphasis will be placed on improvements such as continuing to upgrade aging electrical infrastructure, repairing, or replacing outdated restrooms, paving new roads in some parks, and installing new fence lines, as funds and personnel allow.

Rocky Creek Park – Operated by USACE and located on the south to southeastern portion of the lake, Rocky Creek Park is home to a total of 192 campsites with electrical (20/30 and 50 amp) and water hookups, with 35 campsites designated as tent only. Rocky Creek Park also includes the following amenities: restrooms with showers, group shelter with volleyball court, a playground, boat ramps, and hiking trails.

Photo 5-1 Rocky Creek Park campground (Source: USACE)

Yegua Creek Park – Operated by USACE and located on the south, southwestern portion of the lake, Yegua Creek Park provides 66 campsites with electrical (20/30 and 50 amp) and water hookups, and 15 primitive campsites. The park provides amenities such as restrooms with showers, playground, courtesy dock, and a fishing pier.

Photo 5-2 Yegua Creek Park campground (Source: USACE)

5.3.2 Parks and/or Recreation Areas Operated by Others and through Lease Agreements

Recreational outgrants are issued in the form of permits or leases to recreational partners, referred to as grantees, at the project. Each grantee is responsible for the operation and maintenance of their leased area, and although USACE does not provide direct maintenance within any of the leased locations, it may occasionally lend support where appropriate. All leases at Somerville Lake are managed by USACE except for four recreational site leases and seventeen leases through the Bureau of Land Management for oil and mineral rights. The USACE reviews requests and ensures compliance with applicable laws and regulations for proposed activities in all leased and USACE-operated HDR areas. USACE works with partners to ensure that recreation areas are managed and operated in accordance with the objectives prescribed in Chapter 3 of this Plan. The following is a description of each leased park.

Lake Somerville State Park - Birch Creek Unit – Operated by TPWD and located on the northwestern portion of the lake, Birch Creek State Park contains 117 campsites, 26 primitive campsites, and 1 group shelter. The amenities this park provides includes a fish cleaning station, 2 boat ramps, and access to more than 20 miles of trail for hiking, mountain biking, and equestrian use.

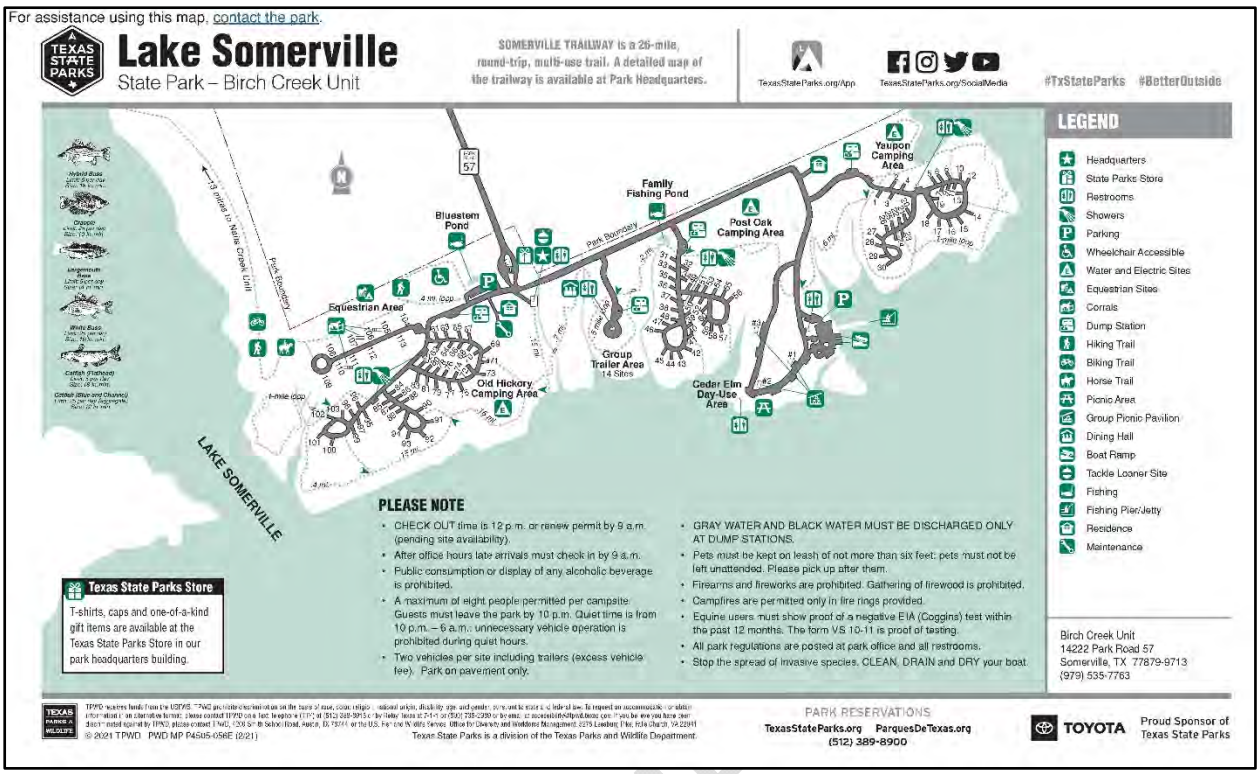


Figure 5-1 Map of TPWD Birch Creek Unit (Source: TPWD website)

Lake Somerville State Park - Nails Creek Unit – Operated by TPWD and located on the southwest portion of the lake, Nails Creek State Park provides a total of 60 campsites, 2 with full hookups, 40 campsites with electric and water, 10 campsites with water only, and 8 primitive campsites. The park also provides access to picnicking, boating, hiking and biking, and equestrian use.

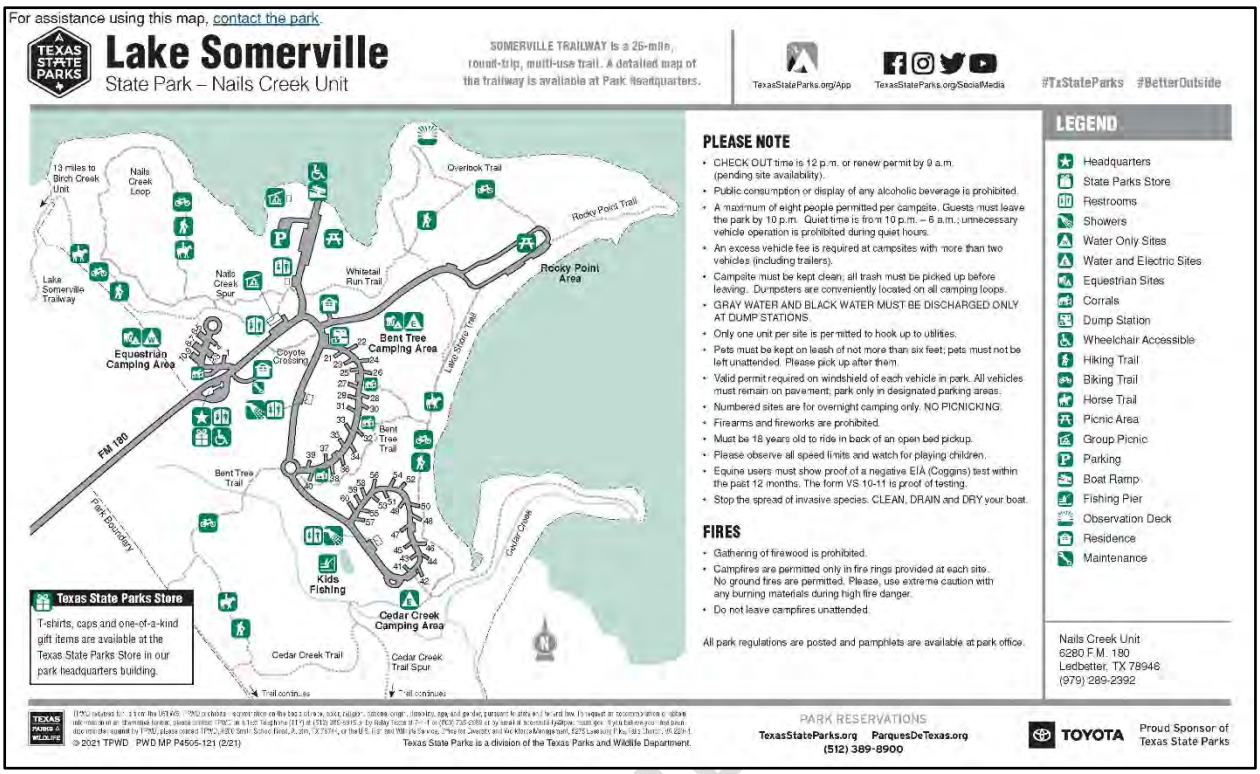


Figure 5-2 Map of TPWD Nails Creek Unit (Source: TPWD website)

Welch Park – Operated by the City of Somerville and located on the northwestern portion of the lake, Welch Park contains 2 campsites with full hookups, 70 campsites with electric and water, and 24 campsites with water only. The following are the amenities that the park provides: group pavilion, bathrooms, volleyball courts, and picnic tables.

Photo 5-3 Camping at Welch Park (Source: USACE)

5.3.3 Boat Ramps and Marinas

There are twelve (12) boat ramps operated by USACE at Somerville Lake and a marina with boat ramp operated by a private sublease that provides recreational access to the lake. These have varying hours of operation and have a fee associated with their use. Ramps may be closed on occasions such as flooding or other damage. The maps in Appendix A of this Plan indicate the location of these ramps. Currently, there are no plans to expand or add additional boat ramps at Somerville Lake. Management will continue to maintain and improve facilities as time and funding permits.

Lake Somerville Marina & Overlook Campground – Located on the southeast shoreline of Somerville Lake, the marina is a located with Overlook Park. The marina amenities include private boat slips, grocery/bait and tackle store, fishing access, and gas pumps. Overlook Park amenities include campsites with electrical and water hookups, cabin rentals, swim beach, playgrounds, and a group pavilion.

5.3.4 Trails

As stated in the TORP, there is a growing demand for trails of all kinds. Trails at Somerville Lake are permitted to be in High Density Recreation areas as well as other land classifications. The management plan for trails at Somerville Lake includes keeping up with demand for trails of all kinds by improving existing trails or by developing new trails. Adding new or upgrading existing trails within parks will be considered in cooperation with other agency partners for development and operation. Hiking trails are found at Nails Creek State Park, Rocky Creek Park, Birch Creek State Park, Yegua Creek Park, and Big Creek Marina and Campground.

Lake Somerville Trailway – The trailway connects to both Nails Creek Unit on the western side of the lake and Birch Creek Unit on the northern side of the lake, a total of 26 miles of trailway in length (See Figure 5.X). The trail is accessible to hikers, bikers, and equestrians. Equestrian use requires obtaining a permit prior to trail use. Twenty primitive campsites can be found along the trailway.

Rocky Creek Trail – Located off Texas 36 to FM 1948, the trail is accessible at the entrance to Rocky Creek Park. Open year round, the trail loops Rocky Creek Park and has access to boat ramps. Boats can be launched from these ramps at a $2 fee, with an annual permit available for boat launching.

Yegua Creek Trail – Located off Texas 36 to FM, the trail is accessible at the entrance to Yegua Creek Park. Two boat ramps are accessible from Yegua Creek Trail, with a $2 fee launch fee and annual permit available for both. The park is open to hikers year round.

5.4 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally Sensitive Areas are areas where scientific, ecological, cultural or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act or applicable state statutes. These areas must be managed to ensure they are not adversely impacted. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration and management. These areas are to be protected from intense development or disturbance from future land use actions such as utility or road easements. Passive public use such as natural surface trails, bank fishing, and nature study are appropriate for these areas. These areas are typically distinct parcels located within another, and perhaps larger, land classification area.

The Wildlife Habitat Appraisal Procedure (WHAP) is a tool developed by TPWD to evaluate the quality of habitat for wildlife, giving each point a rating based on a set criterion (see Appendix C). The results of the WHAP completed 26-29 April 2021 were used, in part, to assist in determining which areas should be classified as ESA. Other factors, including the presence of cultural resource, species of conservation concern, and visual aesthetics were also included in the selection of ESA areas. At Somerville Lake, ten areas totaling approximately 1,069 acres are classified as ESA. Each of these areas are numbered on the land classification maps in Appendix A. Table 5.1 provides a listing of the ESA areas, including habitat type, and WHAP scores. WHAP scores can be as high as 1.00; in general, scores above 0.60 are considered good habitat, and scores above 0.80 are considered excellent habitat.

Table 5-1 WHAP Points Within ESA's

ESA#	WHAP Point #	WHAP Score(s)	Habitat Types
ESA 1	36, 37, 38, 39	.70, .74, .45, .70	Riparian Hardwood Forest Upland Woods and Bottomland Hardwoods
ESA 2	33, 34, 35	.61, .69, .56	Riparian Hardwood Forest Upland Woods and Bottomland Hardwoods
ESA 3	45, 46	.64, .69	Riparian Hardwood Forest
ESA 4	60	.75	Marsh
ESA 5	70, 71	.70, .74	Riparian Hardwood Forest Upland Woods and Bottomland Hardwoods
ESA 6	52	.70	Marsh
ESA 7	1, 2, 3	.54, .64, .77	Riparian Hardwood Forest Upland Woods and Bottomland Hardwoods
ESA 8	12	.69	Riparian Hardwood Forest
ESA 9	14	.64	Upland Woods and Bottomland Hardwoods
ESA 10	15, 16	.62, .72	Upland Woods and Bottomland Hardwoods

5.5 MULTIPLE RESOURCE MANAGEMENT LANDS

Multiple Resource Management Lands (MRML) at Somerville Lake are organized into two sub-classifications. These sub-classifications are Wildlife Management and Low-Density Recreation. The following is a description of each sub-classification's resource objectives, acreages, and description of use. Management of multiple resource management lands rely on funding and resource availability.

5.5.1 Wildlife Management

These are lands designated primarily for the stewardship of fish and wildlife resources but are open to passive recreation use such as natural surface trails, hiking, and nature study. There are currently 14,594 acres under this classification, which are managed by USACE. Management efforts for this land classification focus on producing native wildlife food and habitat.

The broad objective of fish and wildlife management is to conserve, maintain and improve the fish and wildlife habitat to produce the greatest dividend for the benefit of the public. Implementation of a fish and wildlife management plan is the first step toward achieving the goals of the Fish and Wildlife Conservation Act (Public Law 85-624).

The TPWD and USFWS share responsibility with USACE for managing fish and wildlife, primarily through enforcement of laws and regulations and establishing seasons and bag limits for game species. Future management plans for wildlife areas include continued cooperation with partners for the management and improvement of wildlife areas designated under this land classification. Techniques such as prescribed burning, and native grass and forbs species planting will be utilized. Wildlife management lands are available to the public for sightseeing, nature study, hiking, hunting and other

activities that enhance environmental awareness and promote environmental stewardship.

5.5.2 Low Density Recreation

These lands have minimal development or infrastructure that support passive public use such as hiking, nature photography, bank fishing, and hunting. Since these lands are typically adjacent to private residential developments, hunting is only allowed in select areas that are a safe and reasonable distance from adjacent residential properties. These lands are typically open to the public, including adjacent landowners for access to the shoreline near their homes. Prevention of unauthorized use of this land, such as trespassing or encroachment, is an important management and stewardship objective for all USACE land but is especially important for land near private development. Future management of these lands calls for maintaining a healthy, ecologically-adapted vegetative cover to reduce erosion and improve aesthetics. Future uses may include designation of additional natural surface hike/bike trails. There are 149 acres of Low-Density Recreation at Somerville Lake.

5.6 WATER SURFACE

At conservation pool level of 238.0 feet NGVD29 there are 11,403 acres of surface water. Buoys are managed by USACE. These buoys help mark hazards, swim beaches, boats keep-out, and no-wake areas.

5.6.1 Restricted

Restricted areas are located around swim beaches, public water supply intakes and near the USACE gate control tower on the dam. Vessels are not allowed to enter Restricted water surface. Water surface zoned as Restricted totals approximately 8 acres at Somerville Lake.

5.6.2 Designated No-wake

No-wake areas are located near boat launch areas for the safety of launching and loading boats or personal watercraft. At Somerville Lake, no-wake buoy information is available at the lake office. Growing interest in kayaks and paddle boats indicates a possible future need for designated no-wake areas where kayaks or paddle boats can be operated without competing with motorized vessels. USACE is open to the concept of paddle trails and will work with interested parties to fulfill this need. Currently, approximately 503 total acres of Somerville Lake is designated for No-wake.

5.6.3 Open Recreation

The remaining water surface area is open to recreational use. No specific zoning exists for these areas, but the buoy system mentioned above is in place to help aid in public safety. It is incumbent on boaters to be aware of lake conditions and to operate vessels responsibly. Approximately 10,892 acres of Somerville Lake is classified for Open Recreation.

CHAPTER 6 – SPECIAL TOPICS/ISSUES/CONSIDERATIONS

6.1 DEFORESTATION

Somerville Lake is surrounded by dense deciduous forests. The benefits provided by virtue of these forests are critical to the wildlife and recreational features provided to the public. Aside from operating the reservoir to meet the needs of those entities with contractual rights, there are many competing interests for the utilization of federal lands including recreational users, adjacent landowners, those who own mineral rights, utility providers, and all entities that provide and maintain public roads. Increasing droughts and previous floods have impacted the forests by diminishing the size and space for natural habitat and open spaces. Balancing the interests of each of these groups to ensure that valid needs are met while at the same time protecting natural and cultural resources is a challenge. The purpose of this Plan is to guide management into the foreseeable future to ensure responsible stewardship and sustainability of the project's resources for the benefit of present and future generations.

6.2 UTILITY CORRIDORS

USACE policy encourages the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. After obtaining public input and examining the location of existing roads and utility lines on project lands, USACE determined that utility corridors would be designated at Somerville Lake.

The following 7 utility corridors have been designated across USACE land at Somerville Lake with each corridor incorporating and/or running parallel to an existing easement. These corridors are shown on the maps in Appendix A. Future use of these corridors, where the corridor is limited to or incorporates an existing easement, would in most cases require prior approval of those entities that have legal rights to the easement. These non-corridor easements may be used for placement of additional utilities by the grantee holding the easement, but only for purposes which directly serve the grantee or are of direct benefit to the Government. Expansion or widening of existing non-corridor easements will generally not be permitted.

In summary, the following best management practices shall be applied in the future use of the corridors:

- Use existing easements before using additional space.
- Efficient use of the designated corridor space to allow the maximum number of utilities possible to occupy the space. Reduced cost is not a reason to occupy more space.
- In accordance with USACE policy Chapter 17 of EP 1130-2-550, Non-Recreation Outgrant Policy, the USACE will prohibit placement of utility lines on USACE land unless there is no reasonable alternative route.

- Underground utilities shall be installed by boring at all creek crossings, and where feasible, across the full extent of designated corridors. Bore pits shall be a minimum of 100 feet from the centerline of creeks and, depending on site conditions, may need to be placed farther than 100 feet.
- Overhead electric and communication lines must meet minimum sag height requirements to be specified by the USACE.
- Natural resources damaged or destroyed within corridors shall be mitigated per USACE requirements.
- Current and future identified cultural resources will be protected.

Table 6-1 Utility Corridors (see map in Appendix A)

UC#	Description
UC1	This corridor is located on the right of way of FM 1948 starting approximately 3.8 miles west along FM 1948 from Highway 36 and continuing west to the intersection of Old Landua Road. The length of the corridor is approximately 3,200 feet.
UC2	This corridor is located on the right of way of FM 1948 starting approximately 5 miles west along FM 1948 from Highway 36 and continuing west to a point 275 feet west of the FM 1948 and Longpoint Road intersection. The length of the corridor is approximately 4,936 feet.
UC3	This corridor is located on the right of way of CR 125/Flag Pond Road starting approximately 2,330 feet west along CR 125 from FM 2780 and continuing north-west to a point 3,248 feet east of the intersection between CR 125 and FM 180. The length of the corridor is approximately 8036 feet.
UC4	This corridor is located on the right of way of CR 125 starting approximately 2,770 feet west along CR 125 from the intersection of CR 125 and FM 180 and continuing north-west to a point 3 miles east along CR 125 from FM 1697. The length of the corridor is approximately 5,227 feet.
UC5	This corridor travels in a north-easterly direction along CR 124 starting at a point .75 miles northeast of the CR 124 and FM 1697 intersection and ending at the Lee and Burleson County Line. The start of CR 132 is approximately 12 miles following a route along FM 976 to CR 132 from Highway 36. The length of the corridor is approximately 5,224 feet.
UC6	This corridor travels in a north-easterly direction along CR 430 starting at a point 3.75 miles going northbound from the CR 430 and FM 141 intersection and ending .45 miles southwest of the CR 134 and CR 133 intersection. Approximately 103 feet of this corridor is along CR 430 toward the Lee and Burleson County line where the road changes name and 3,692 feet is located along CR 134. The length of the corridor is approximately 3,795 feet.
UC7	This corridor is located on the right of way of CR 415 starting approximately .75 miles west along CR 415 from the intersection of CR 415 and Recreational Road 4 and continuing northeasterly to a point .9 miles west along CR 415 from an intersection with CR 460. The length of the corridor is approximately 4028 feet.

6.3 SHORELINE MANAGEMENT POLICY

On 13 December 1974 the USACE published a regulation, ER 1130-2-406, in the Federal Register entitled “Civil Works Projects: Lakeshore Management.” This regulation was published as Part 327.30 of Chapter III, Title 36 of the Code of Federal Regulations. A subsequent change to the regulation was published in the Federal Register on 31 October 1990, incorporating the results of recent legislation and changing the name to “Shoreline Management at Civil Works Projects.” The focus of this regulation is to establish national policy, guidelines, and administrative procedures

for management of certain private uses of federal lands administered by USACE. A key requirement in the regulation is that private shoreline uses, as defined in the regulation, are not allowed at lakes where no such private uses existed as of 13 December 1974. No private shoreline uses such as private docks have been permitted since the changes to the Federal Register, and as such, private docks will not be allowed on Somerville Lake.

The private uses described in the regulation primarily include privately-owned floating facilities such as floating boat docks, fixed or movable piers, and vegetation modification activities such as plantings, mowing, and selective removal of shrubs and trees to the extent that exclusive benefits accrue to an individual or group and the general public is denied use of public lands or waters. Not included in the above definition are certain limited private activities that do not provide exclusive benefits to an individual or group, nor preclude general public use. These limited private activities may be allowed at Somerville Lake by written shoreline use permit for reasons of public safety, erosion control, benefits to wildlife, or to provide reasonable pedestrian access to the shoreline. USACE regulations at ER 1130-2-406 requires the preparation of a Shoreline Management Policy Statement (SMPS). In response to this requirement a SMPS was prepared for Somerville Lake in 1975.

The purpose of the SMPS is to set forth the policy and procedures by which USACE manages certain private uses of public lands at Somerville Lake. Private uses that accrue exclusive benefits to an individual are not allowed at Somerville Lake. The non-exclusive private uses that may be authorized by written permit from USACE include mowing and removal of underbrush to the extent needed for protection from wildfire and limited clearing to provide a pedestrian access path from private property to the shoreline. These non-exclusive uses may not be authorized in all areas and are subject to restrictions set forth in the SMPS. Inquiries regarding the SMPS at Somerville Lake should be directed to the USACE office at Somerville Lake.

6.4 FLAG POND 1135 PROGRAM

Section 1135(b) of the Water Resources Development Act of 1986, P.L. 99-662, as amended authorizes the Secretary of the Army to review the operation of Civil Works projects constructed by the Corps of Engineers to determine the need for modifications in the structures and operations of such projects for the purpose of improving the quality of the environment in the public interest. Two Section 1135 studies were identified at Somerville Lake, Flag Pond Wetland Restoration and Twelve Ponds Wetland Restoration. These projects were approved and constructed in the late 1990's with Texas Parks and Wildlife Department (TPWD) as cost-share partner who owns and operates the restoration projects.

Flag Pond is located on the west side of the lake in its upper reaches and is operated by TPWD within the Somerville Wildlife Management Area. Historically, Flag Pond, a 350-acre natural wetland, was a high-quality emergent marsh and bottomland hardwood habitat complex, which supported large populations of migratory waterfowl and resident wildlife. Construction of Somerville Lake resulted in breaching of the

primary earthen levee and the draining of Flag Pond through a channel into the lake effectively removing any ability to independently control water levels in Flag Pond located. As a result, water levels currently in Flag Pond are asynchronous with natural timetable necessary for the development of a high-quality wetland and have resulted in a significant loss in fish and wildlife habitat and esthetic quality to the human environment.

The project repaired the breeches in the levee and installed water-control structures allowing the ability to control water levels within the 350-acre wetland. TPWD controls water levels to develop and maintain wetland plant communities that produce food and cover for waterfowl and other wildlife.

Photo 6-1 Flag Pond Wetland Restoration (Source: USACE)

Construction and operation of Somerville Lake resulted in direct and in-direct losses of wetlands and bottomland hardwoods along the tributaries of Somerville Lake, predominately along Yegua Creek, as well as Jerdell Creek and Nails Creek. The loss of high-quality wetlands has resulted in a significant loss in fish and wildlife habitat and esthetic quality to the human environment.

The project constructed levees with water-control structures at 12 locations within TPWD's Somerville Wildlife Management Area, including D's Pond, Pipeline Pond, Mallow Northwest Pond, Cedar Elm Pond, WD-1 Pond, WD-2 Pond, Kite Pond, Zgabay Pond, Five-Well Pond, Collier Pond, Beaver Pond and Flippan Pond. Total wetlands created is approximately 300 acres. TPWD controls water levels within these wetlands to develop and maintain wetland plant communities that produce food and cover for waterfowl and other wildlife.

Photo 6-2 Flag Pond Wetland Construction (Source: USACE)

6.5 FERAL HOG MANAGEMENT

In recent years, the spread of feral hogs has become an increasing problem at Somerville Lake. Problems caused by feral hogs include habitat loss, property damage, and safety concerns for lake staff and visitors. In response, the USACE has created a feral hog hunting program to counteract their spread and remove the animal from USACE managed lakes including Somerville. Feral hog hunting is managed under permits provided by lake staff through the designated USACE hunting coordinator at the lake office.

Somerville Lake partners with the Texas AgriLife Extension Service – Wildlife Services to alleviate the threats posed by feral hogs to natural resources. The Texas Wildlife Services cooperates with federal, state, and private programs to provide resources for the following activities: protecting health and human safety, protecting facilities, structures and property, protecting livestock, and protecting wildlife. Partnerships with federal and state agencies typically involve a written agreement as well as a sharing of associated costs. These actions comply with the Natural Environmental Policy Act to guarantee that the biological, physical, and economic impacts of wildlife control activities are accounted for.

CHAPTER 7 – PUBLIC AND AGENCY COORDINATION

7.1 PUBLIC AND AGENCY COORDINATION OVERVIEW

The USACE is dedicated to serving the public interests in support of the overall development of land uses related to land management for cultural, natural, and recreational resources of Somerville Lake. An integral part of this effort is gathering public comment and engaging stakeholders in the process of planning. USACE policy guidance in ER and EP 1130-2-550 requires thorough public involvement and agency coordination throughout the Master Plan revision process including any associated NEPA process. Public involvement is especially important at Somerville Lake to ensure that future management actions are both environmentally sustainable and responsive to public outdoor recreation needs in a region which is experiencing rapid population growth. The following milestones provide a brief look at the overall process of revising the Somerville Lake Master Plan.

The USACE began planning to revise the Somerville Lake Master Plan in November 2020. The objectives for the Master Plan revision are to (1) revise land classifications to reflect changes in USACE land management policies since 1974, (2) prepare new resource objectives, and (3) revise the Master Plan to reflect new agency requirements for Master Plan documents in accordance with ER 1130-2-550, Change 7, January 30, 2013 and EP 1130-2-550, Change 5, January 30, 2013.

7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS

In the interest of public health and well-being due to the COVID-19 pandemic, the public input process was changed from a face-to-face public meeting to a virtual presentation detailing the specifics of the Master Plan revision. The presentation and public input process remained open for 30 days. The public comment period began February 24, 2021 and continued through March 26, 2021.

The presentation included a description and definition of a master plan, descriptions of the new land use classification options, and instructions for commenting on the Master Plan. Topics included in the presentation are listed below.

- Public Involvement Process
- Project Overview
- Overview of the NEPA process
- Master Plan and current land classifications
- Instruction for Submitting Comments

A total of 7 written comments were received following the initial public scoping announcement. Comments were received from representatives from the City of Somerville, TPWD, and numerous citizens. Much like national forests or parks, Somerville Lake is a federally owned and managed public property. It is USACE's goal to be a good neighbor as well as steward of the public interest as it concerns Somerville Lake. As such, USACE is bound to the equal enforcement of policies and rules for this publicly held national asset. Table F.1 in Appendix F summarizes the comments received during and following the initial scoping comment period for the Master Plan, as well as the USACE response. Comments in Table F.1 groups similar comments from the public together and divides comments with multiple topics into separate comments. Opportunities to submit a public comment form including the following.

- Downloading a comment form off the USACE Fort Worth District website to be returned within the 30-day comment period
- Submitting a comment using electronic mail (e-mail)
- Submitting a comment and mailing it in on letterhead or choice of paper

CHAPTER 8 – SUMMARY OF RECOMMENDATIONS

8.1 SUMMARY OVERVIEW

The preparation of the Somerville Lake Master Plan followed the USACE master planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 13 January 2013. Three major requirements set forth in the guidance include (1) the preparation of contemporary resource objectives, (2) classification of project lands using the newly approved classification standards, and (3) the preparation of a resource plan describing in broad terms how the land in each of the land classifications will be managed into the foreseeable future. Additional important requirements include public involvement throughout the process, and consideration of regional recreation and natural resource management priorities identified by other federal, state, and municipal authorities. The study team endeavored to follow this guidance to prepare a master plan that will provide for enhanced recreational opportunities for the public, improve environmental quality, and foster a management philosophy that promotes partnerships and the success of each stakeholder involved in the management of the lands and surface waters of Somerville Lake. Factors considered in the Plan were identified through public involvement and review of statewide planning documents including the following

- TPWD's 2018 and 2012 TORP
- TCAP – East Central Texas Plains Ecoregion

This Master Plan will ensure the long-term sustainability of the outdoor recreation program and natural resources associated with Somerville Lake.

8.2 LAND CLASSIFICATION PROPOSALS

A key component in preparing this Master Plan was examining prior land classifications and addressing the needed transition to the new land classification standards. During the public involvement process USACE sought public input into whether, besides the simple change in nomenclature, a shift in land classification was desired (for example, should lands with a recreation classification be reclassified to a wildlife classification or vice versa.). Chapter 7 of the Plan describes the public input process.

Based on an evaluation of documents such as the TORP and the 2012 TCAP, development of goals and objectives, as well as subject matter experts, the planning team prepared the land reclassification proposal for Somerville Lake. All changes reflect historic and projected public use and new guidance from ER 1130-2-550 and EP 1130-2-550. A summary of acreage changes from prior land classifications to the current classifications is provided in Table 8.1, water surface classifications in Table 8.2, and key decision points in the reclassification of project lands are presented in Table 8.3.

Table 8-1 Change from Prior Land Classifications to New Land Classifications

Prior Land Classifications (1963 Plan)	Acres	Proposed Land Classifications (2022)	Acres
Esthetics	11,755	High Density Recreation	2,091
Future Development Opportunities	289	Low Density Recreation	149
Nature Area	541	Wildlife Management Area	14,594
Project Operations	749	Project Operations	627
Public Use Area	3,528	Environmentally Sensitive Area	1,069
Wildlife Management Area	1,712		
Total Land Acres	**18,574**	**Total Land Acres**	**18,530**

Total Acreage differences from the 1963 total to the 2021 totals are due to improvements in measurement technology, deposition/siltation, and erosion. As real estate boundaries are researched, acreages may change slightly to reflect more precise boundary mapping. The fee simple and easement acreage identified in this Master Plan was obtained from the Real Estate Management Information System and is subject to change as the acquisition documents are audited.

Table 8-2 Change from Prior Water Surface Classifications to New Water Surface Classifications

Prior Water Surface Classifications (1963 Plan)	Acres	Proposed Water Surface Classifications (2022)	Acres
Flowage Easement	1,160	Flowage Easement*	3,572
Reservoir Area	10,830	Reservoir Area	11,395
--	--	– Restricted	8
--	--	– Designated No Wake	503
--	--	– Open Recreation	10,892

Total Acreage differences from the 1963 total to the 2021 totals are due to improvements in measurement technology, deposition/siltation, and erosion. * Flowage easement acres are approximate, and buildings for habitation will not be constructed on flowage easement land.

Table 8-3 Reclassification Proposals

Proposed Land Classication	Description	Justification
Project Operations (PO)	The Project Operations classification was decreased from 749 acres to 627 acres. • Approximately 4.4 acres to the south of Somerville Dam from Esthetics to PO to account for better representation of PO land boundaries. • Approximately 9.5 acres alongside State Hwy 36 N on the southeastern side of the lake were reclassified to PO to include previously unaccounted for fee boundaries. • Approximately 16.5 acres of PO to the eastern side of the lake were removed because acres are currently owned by the Texas Railroad Commission. • Approximately 6.8 acres of PUB to the eastern side of the lake were allocated to PO to better account for actual PO land boundaries. • Approximately 126.9 acres of PO were allocated to ESA to account for unique habitat types. • Approximately 583.3 acres to the east at Somerville Dam and project site. remained classified as PO. • Approximately 7.0 acres to the southeastern side of the lake were converted from PUB to PO to provide an accurate definition of the actual PO land boundary.	The decrease in acreage for Project Operations is to account for areas used for operations that are no longer currently classified as PO and for the more accurate classification of unique habitat types. The new area expands to include the entire dam, uncontrolled spillway, and discharge channel. The area also classified operations by others which includes municipal water operations near the dam and along Thornberry Road and L.B.J. Drive.

Multiple Resource Management Lands (MRML) - High Density Recreation (HDR)	Approximately 2,091 acres have been classified as MRML - HDR. The previous classification of Public Use Area contained 3,528 acres and is similar to the current HDR classification. Public Use Area is not included in the current land classification definitions. • Approximately 135.3 acres retained as HDR for Lake Somerville Marina and Overlook Campground. • Approximately 230.1 acres retained as HDR for Yegua Creek Park. • Approximately 307.1 acres retained as HDR for Rocky Creek Park. • Approximately 374.8 acres retained as HDR for Nails Creek State Park in TPWD. • Approximately 4.9 acres retained as HDR for Birch Creek State Park in TPWD lease area. • Approximately 486.9 acres retained as HDR for Birch Creek State Park in TPWD lease area. • Approximately 394.4 acres retained as HDR for Big Creek lease area. • Approximately 156.5 acres retained as HDR for Welch Park lease area.	Decreases from the previous Public Use Area land classification is to more appropriately reflect current recreational needs and uses. The new HDR classification includes areas with existing intense recreational development and many undeveloped acres that have the potential to meet future recreation needs. The conversion also accounts for more accurate measures of existing park boundaries.
Multiple Resource Management Lands (MRML) - Low Density Recreation (LDR)	Approximately 149 acres have been classified as MRML - LDR. This is a decrease from the previous land use classification of 289 acres of Future Development Opportunities. • On the southeast portion of the lake, approximately 38.0 acres of Esthetics have been classified as LDR to account for local land use practices.	Decreases from the previous land classification of Future Development Opportunities is to reflect current recreational facilities, needs and uses. The new LDR classification includes areas previously classified as Esthetics, Future Development Opportunities, and Public Use Area that have the potential to meet future recreation needs.

	• On the southern portion of the lake, approximately 17.5 acres of Esthetics have been classified as LDR to account for local land use practices. • On the southwest portion of the lake, approximately 10.1 acres of Esthetics have been classified as LDR to account for the Iron Bridge access area. • On the northwest portion of the lake, approximately 7.1 acres of Esthetics have been classified as LDR to account for the Birch Creek Forest boat ramp. • On the northeast portion of the lake, approximately 13.8 acres of Esthetics have been classified as LDR to account for the Apache Hills boat ramp. • On the southern portion of the lake, approximately 37.8 acres of Future Development Area were changed to LDR to account for local land use practices. • On the southwestern portion of the lake, approximately 24.2 acres were classified as LDR to account for the Pecan Lake Use area.	
Environmentally Sensitive Areas (ESA)	Approximately 1,069 acres have been classified as ESA areas – 617 acres were classified to ESA from Esthetics, 83 acres were classified to ESA from Nature Area, 127 acres were classified to ESA from PO, 167 acres were classified to ESA from Public Use Area, and 75 acres were classified to ESA from WMA. Of the Recreation Areas changed to ESA, approximately 40.5 acres were from Yegua Creek	The Environmentally Sensitive Area classification did not exist when the 1963 master plan designated land classifications. The new areas classified as ESA include unique or sensitive prairies, woodlands, wetlands, and aesthetic areas. Land areas surrounding Yegua Creek, Flag Pond, Birch Creek State Park, Big Creek, Big Creek Park, Yegua Creek, and Yegua Creek Park were classified as ESAs

	Park, 73.5 acres from Birch Creek State Park, and 53.3 acres from Big Creek Park. • See Section 5.1 for a detailed breakdown of all ESA areas.	to protect and preserve unique plant species and habitat types as well as riparian corridors. See Table 5.1 for a complete description of each ESA.
Multiple Resource Management Lands (MRML) – Wildlife Management (WM)	Approximately 14,594 acres have been classified as MRML – Wildlife Management. This is similar to the previous Wildlife Area classification, which included 1,712 acres. • On the eastern portion of the lake, approximately 38 acres of Esthetics have been classified as WM. • On the southeastern portion of the lake, approximately 391.1 acres of Esthetics have been classified as WM. • On the southwestern portion of the lake, approximately 1,908.9 acres of Esthetics have been classified as WM. • On the western portion of the lake, approximately 4544.9 acres of Esthetics have been classified as WM. • On the southwestern portion of the lake, approximately 883.2 acres of Esthetics have been classified as WM. • On the northwestern portion of the lake, approximately 1,780.2 acres of Esthetics have been classified as WM. • On the northern portion of the lake, approximately 984.1 acres of Esthetics have been classified as WM. • On the northeastern portion of the lake, approximately 102.2 acres of Future Development Area was converted to WM for habitat management.	Lands were converted from Esthetics, Nature Area, and Public Use Area to more appropriately align lands outlying recreational areas more appropriately for wildlife management. Land that was marked as Unclassified in the 1963 master plan was aligned to Wildlife Management to account for areas lying within Wildlife Management land fee boundaries.

	• On the northwestern portion of the lake, approximately 106.2 acres of Future Development Area was converted to WM for habitat management. • On the southwestern portion of the lake, approximately 43.2 acres of Future Development Area was converted to WM for habitat management. • On the southeastern portion of the lake, approximately 458.4 acres of natural area was reclassified for habitat management. • On the southeastern portion of the lake, approximately 491.4 acres of public use area originally part of Yegua Creek Park was reclassified to WM for habitat management. • On the southwestern portion of the lake, approximately 35.4 acres of public use area on this island was originally part of Pecan Lake Use area was reclassified to WM for habitat management. • On the southwestern portion of the lake, approximately 519.6 acres of public use area originally part of Pecan Lake use area was reclassified to WM for habitat management. • On the southwestern portion of the lake, approximately 118.5 acres of public use area originally defined as public use area was reclassified to WM to account for the McCain Creek Access area.	

	• On the northeastern portion of the lake, approximately 36.5 acres of public use area at Big Creek Park was reclassified for habitat management. • On the southeastern, southwestern, and northwestern portion of the lake 603.9 acres of the previous land use classification of WM was reclassified to WMA. • On the northwestern portion of the lake 1,033.2 acres of WM was reclassified to WMA with no change to use in the TPWD lease area.	
Water Surface Restricted	Approximately 8 acres of water surface have been classified as Restricted water surface where boats are not allowed.	These are comparatively small parcels that surround water intake structures, the USACE gate control tower, public beaches for Nails Creek Park, Birch Creek Park, Big Creek Park, Rocky Creek Park, Welch Park, and Lake Somerville Marina and overlook campground and the approach to the uncontrolled spillway.
Water Surface No Wake Designation	Approximately 503 acres of water surface have been classified as Designated No Wake area where vessels are not allowed to create a wake when underway.	These parcels include areas surrounding boat ramps, including Birch Creek State Park, Birch Creek Boat Ramp, Big Creek Park, Big Creek Boat Ramp, Rocky Creek Park, Rocky Creek Park Boat Ramp, Welch Park, Welch Park Boat Ramp, Lake Somerville Marina and Overlook Campground, Yegua Creek Park, and Yegua Creek Park Boat Ramp.
Water Surface Open Recreation	Approximately 10,892 acres of water surface have been classified as Open Recreation that are available for water-based recreation	Water surface that has not been classified as Restricted or No Wake are available for water-based recreation. Operation of a boat in these areas is at the owner's risk. Specific navigational hazards may or may not be marked with a buoy.

Note: The land classification changes described in this table are the result of changes to individual parcels of land ranging from a few acres to more than 100 hundred acres. Acreages were measured using GIS technology. The acreage numbers provided are approximate.

8.3 UTILITY CORRIDORS

USACE policy encourages the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. The primary alternative will be for the utility to find a route off USACE property, and when no external feasible alternative exists, can cross within a designated utility corridor. After obtaining public input and examining the location of existing roads and utility lines on project lands, USACE designated a total of 7 utility corridors which are described in Section 6.2 and included in the maps in Appendix A.

CHAPTER 9 – BIBLIOGRAPHY

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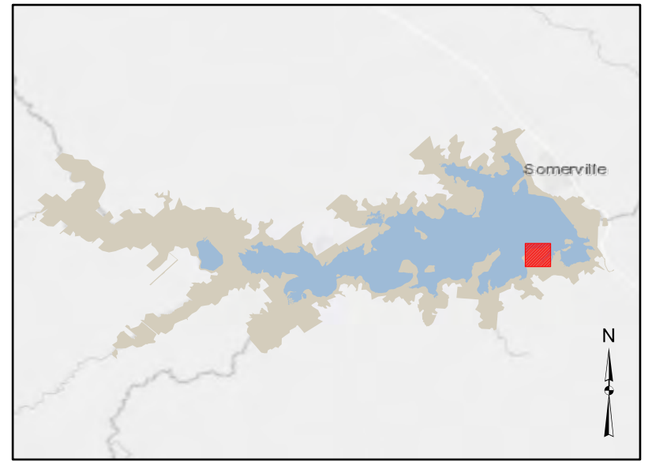
APPENDIX A – LAND CLASSIFICATION, MANAGING AGENCIES, AND RECREATION MAPS



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- PAVED ROADWAY
- UNPAVED ROADWAY
- SIDEWALK
- CAMPSITE
- TENT ONLY SITE
- HOST SITE
- BOATRAMP
- COURTESY DOCK
- FISHING DOCK
- RESTROOM
- DUMPSTATION
- GATEHOUSE
- AMPHITHEATER
- TRAILHEAD
- TRAIL

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

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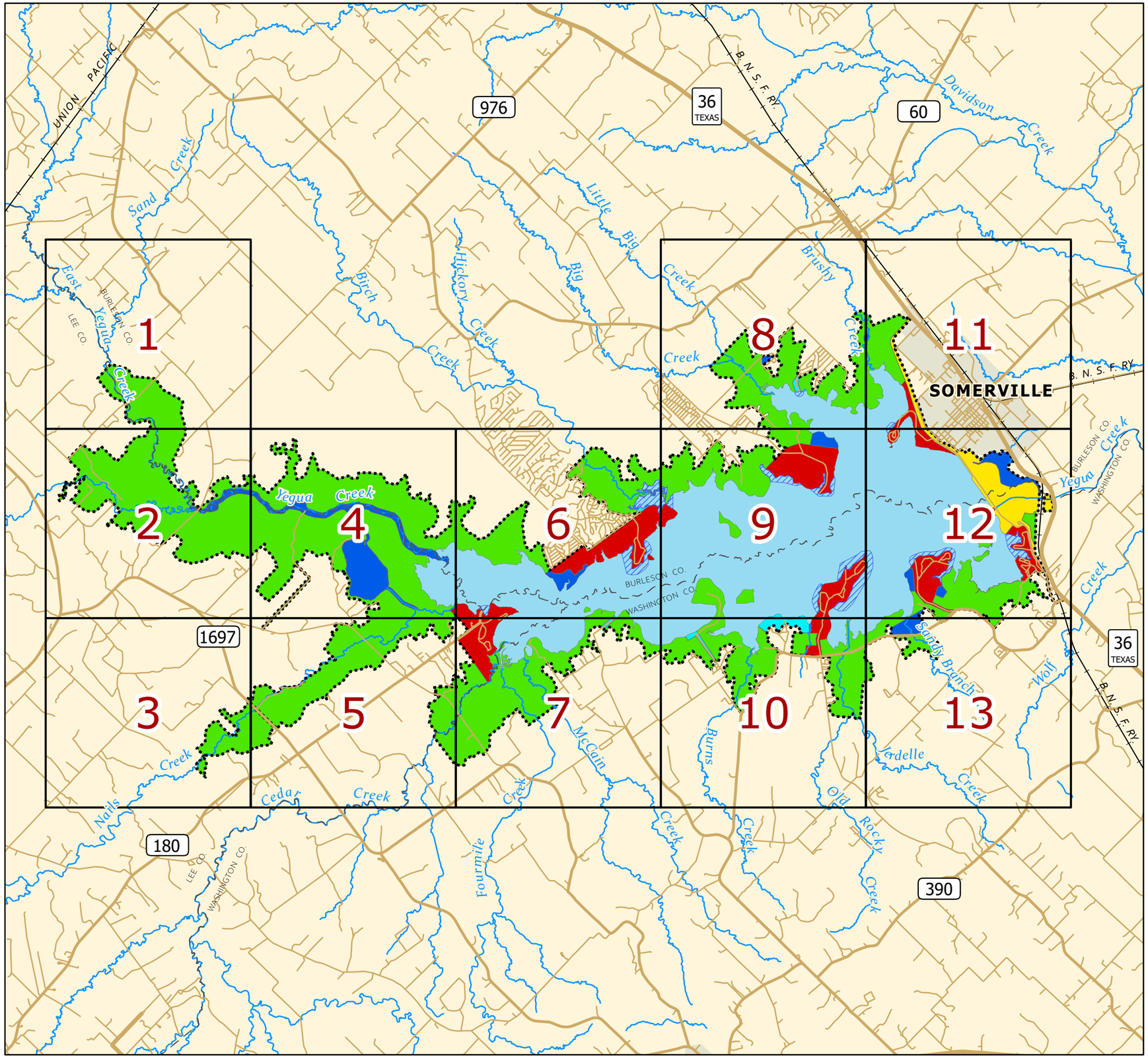
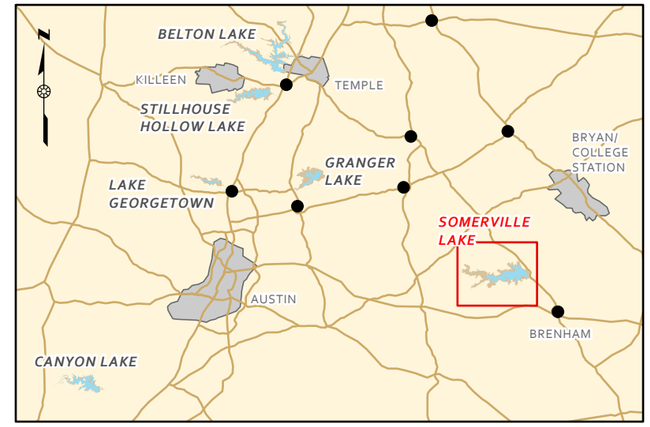




FEE PROPERTY

WATER CLASSIFICATION

- RESTRICTED
- DESIGNATED NO-WAKE
- OPEN RECREATION

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

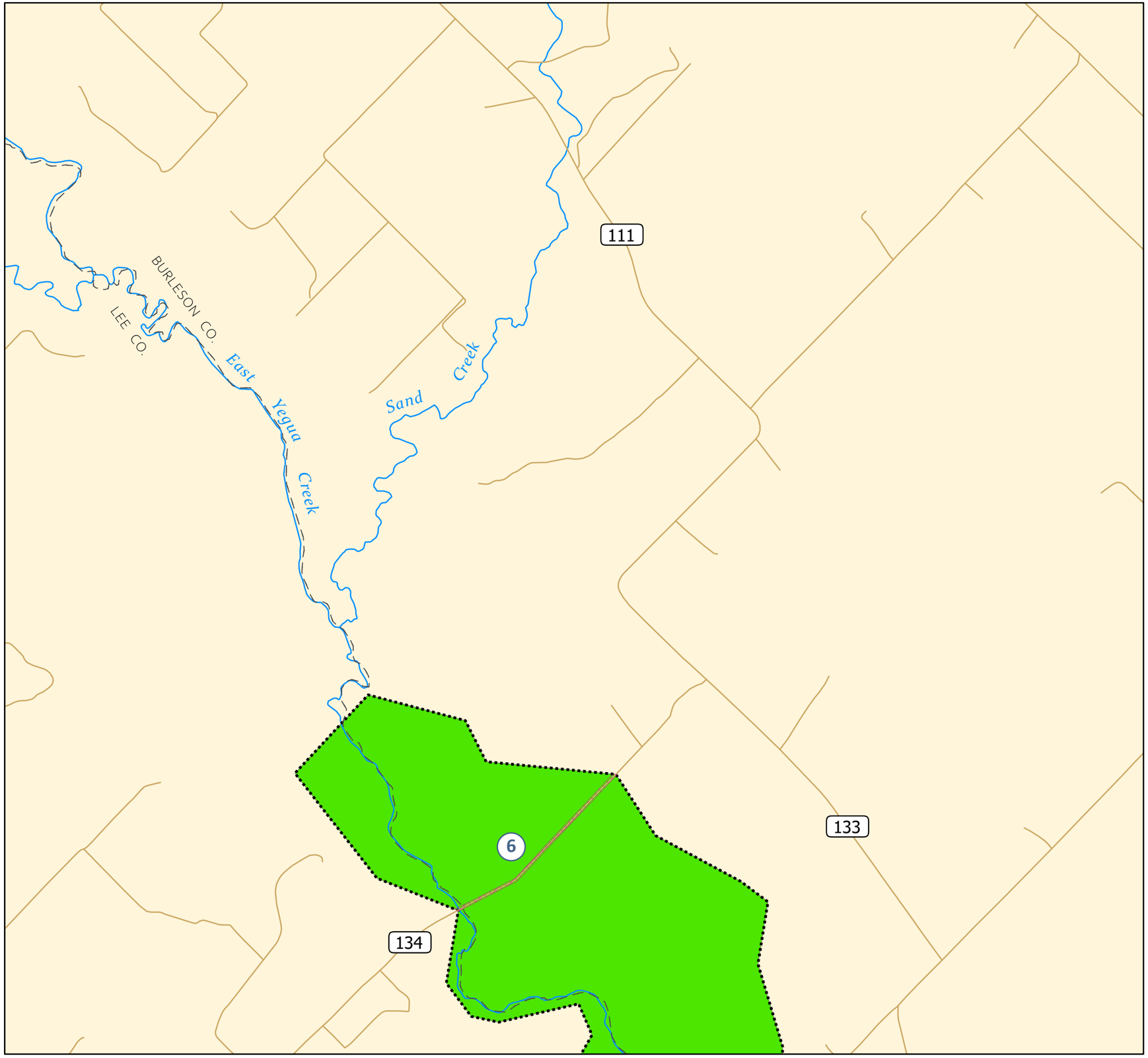
SOMERVILLE LAKE

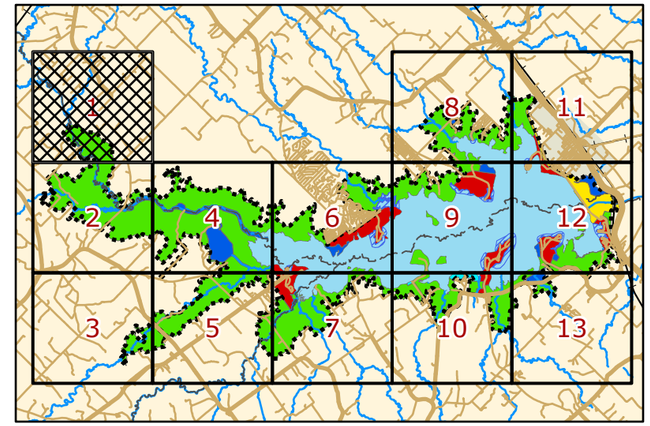
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION INDEX

2 0 2 4
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-00





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

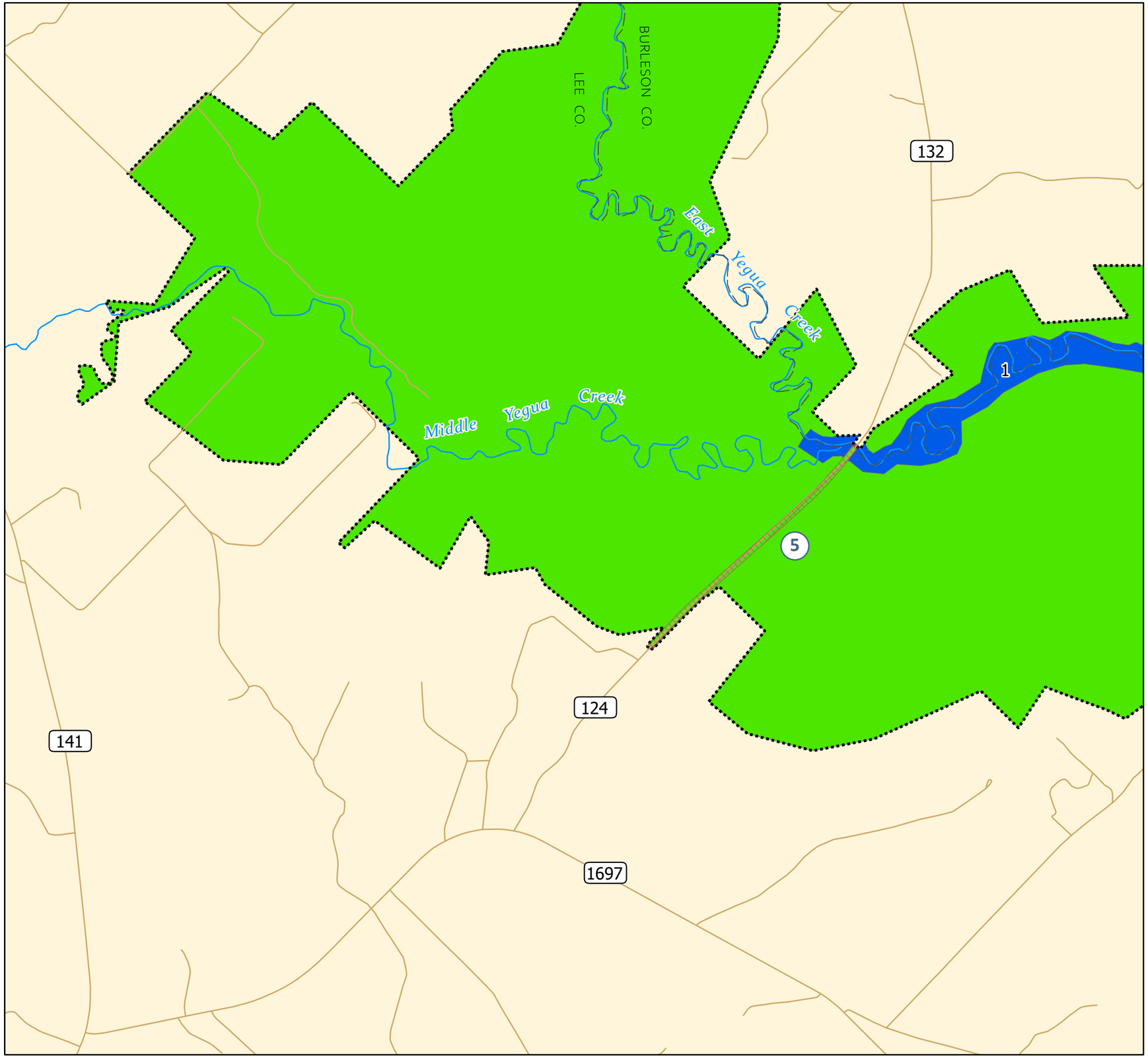
SOMERVILLE LAKE

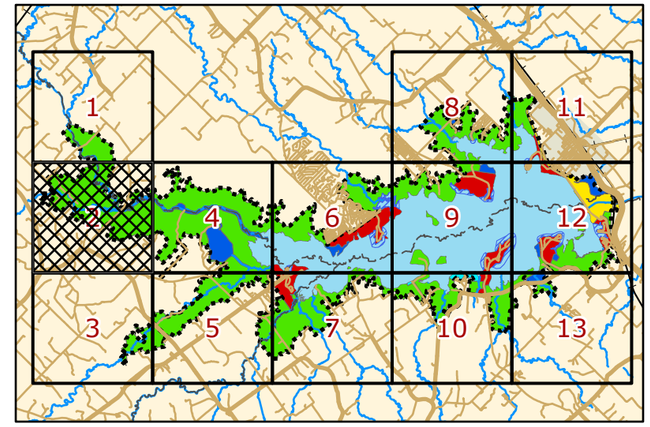
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 1)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-01





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

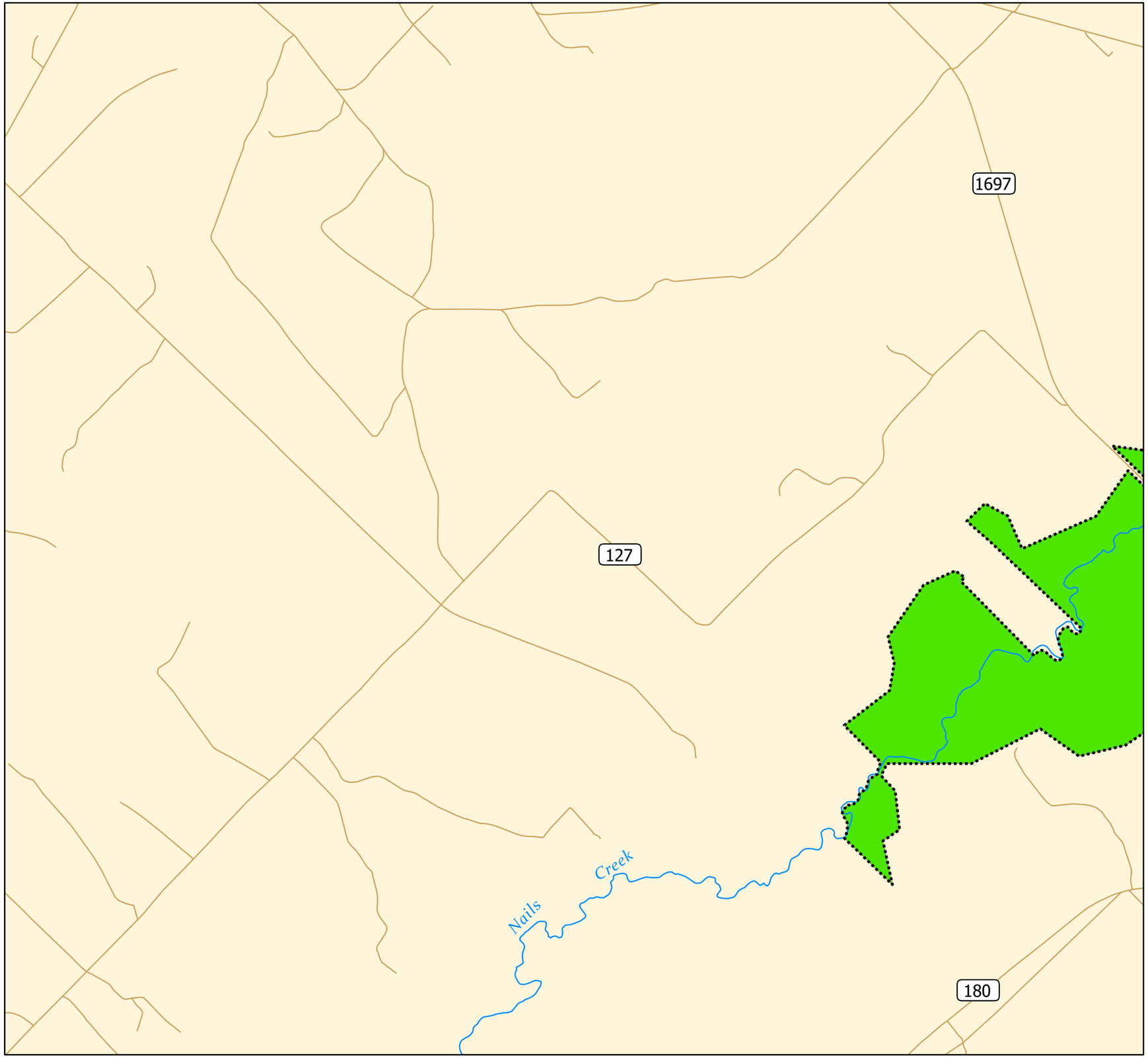
SOMERVILLE LAKE

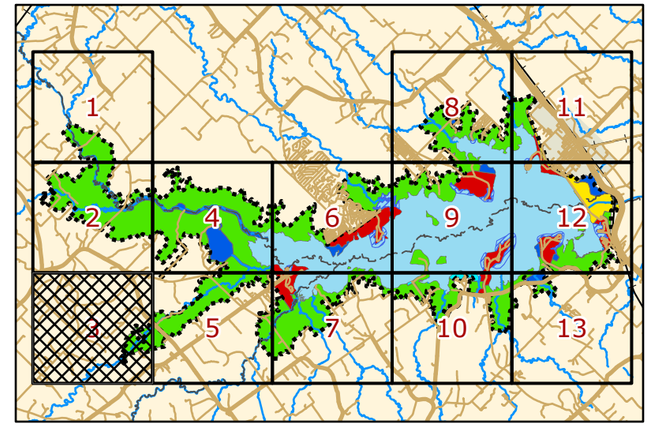
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 2)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-02





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 3)

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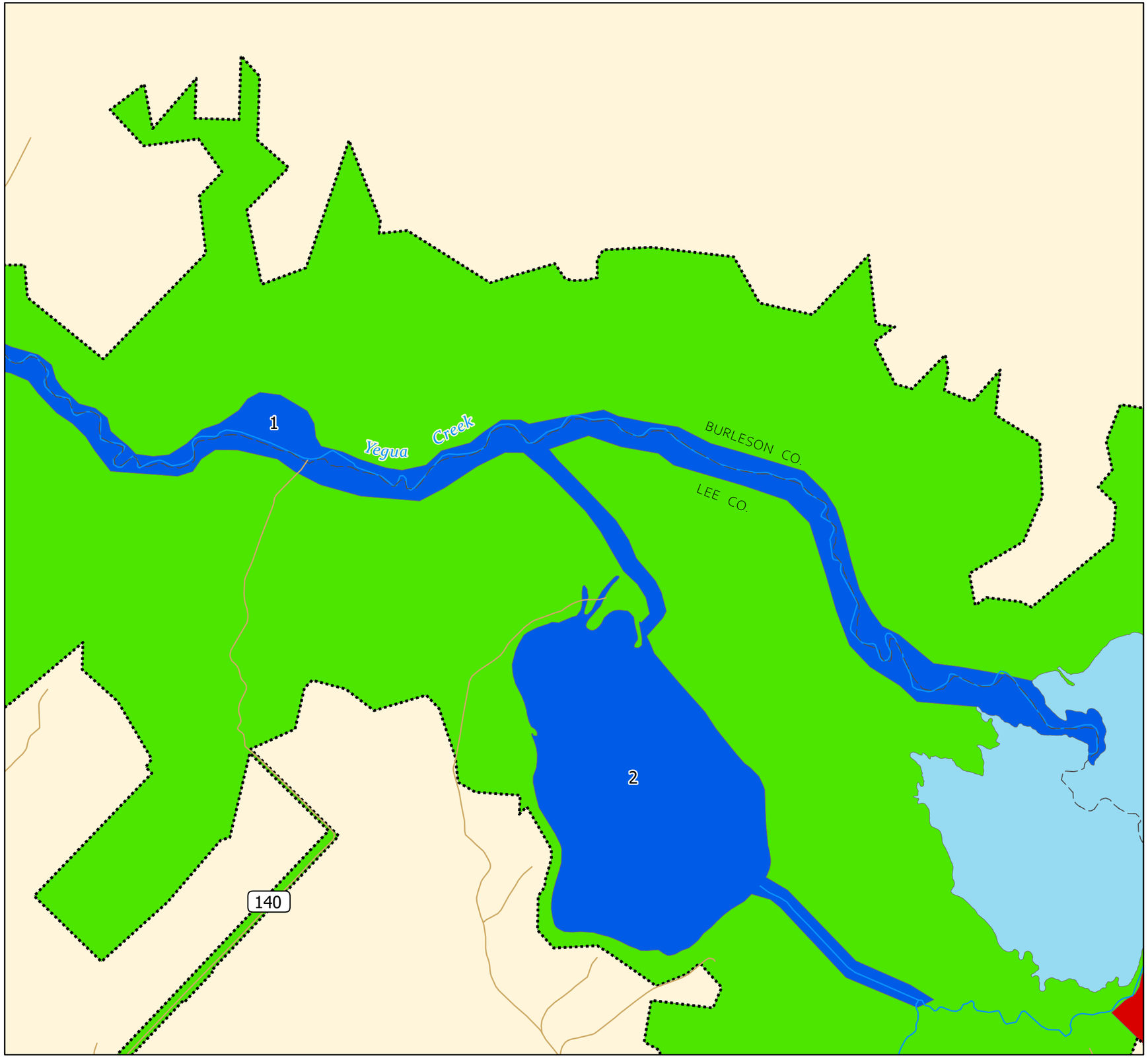
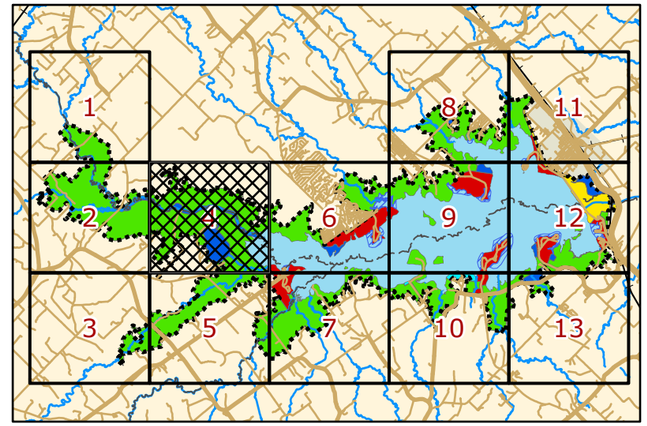
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-03





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

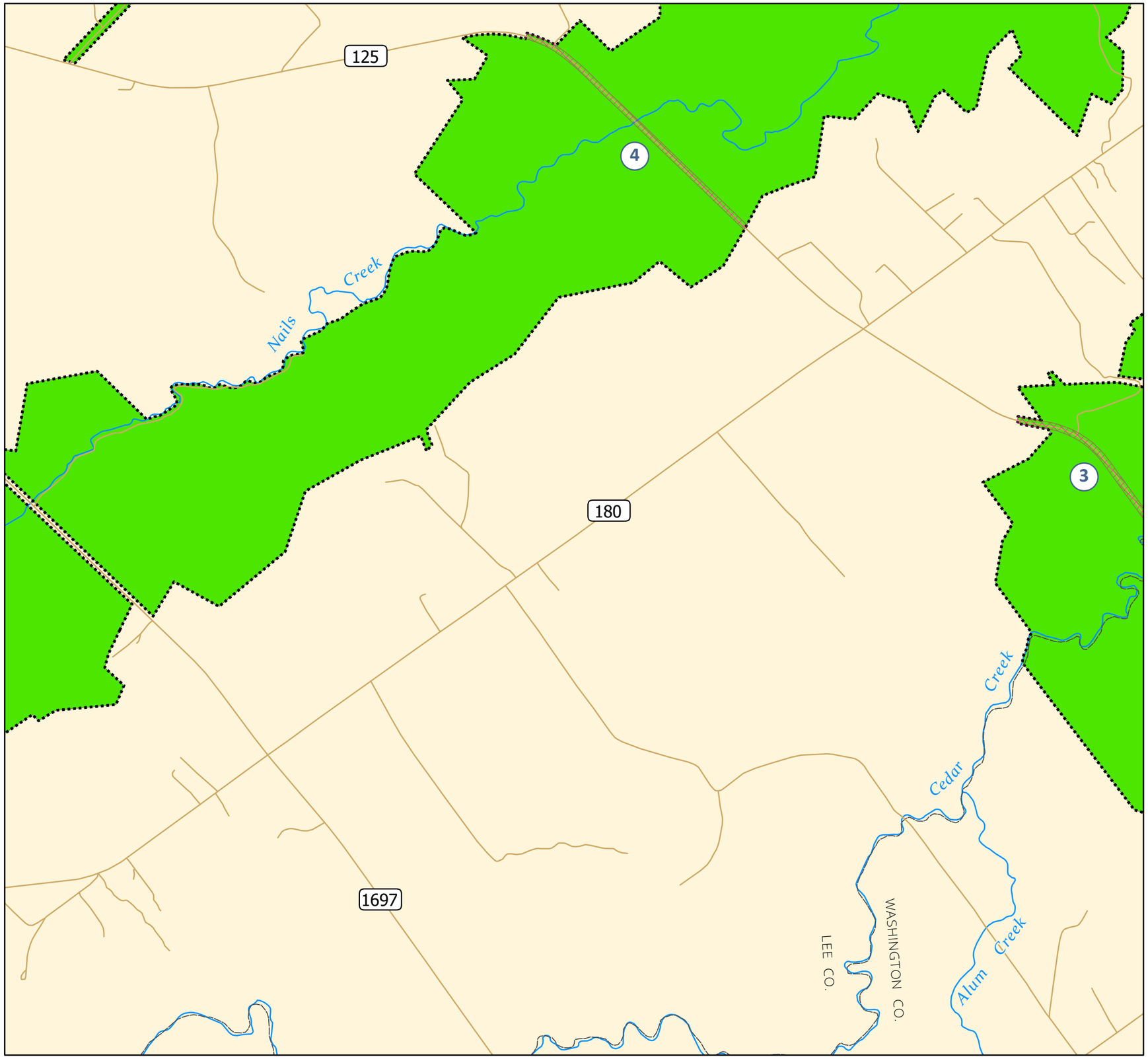
SOMERVILLE LAKE

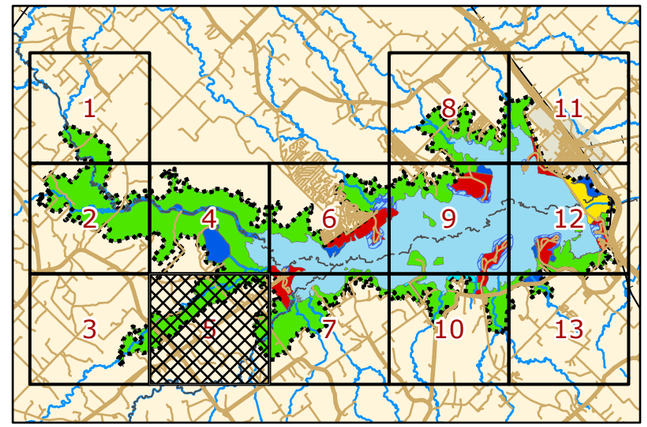
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 4)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-04





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

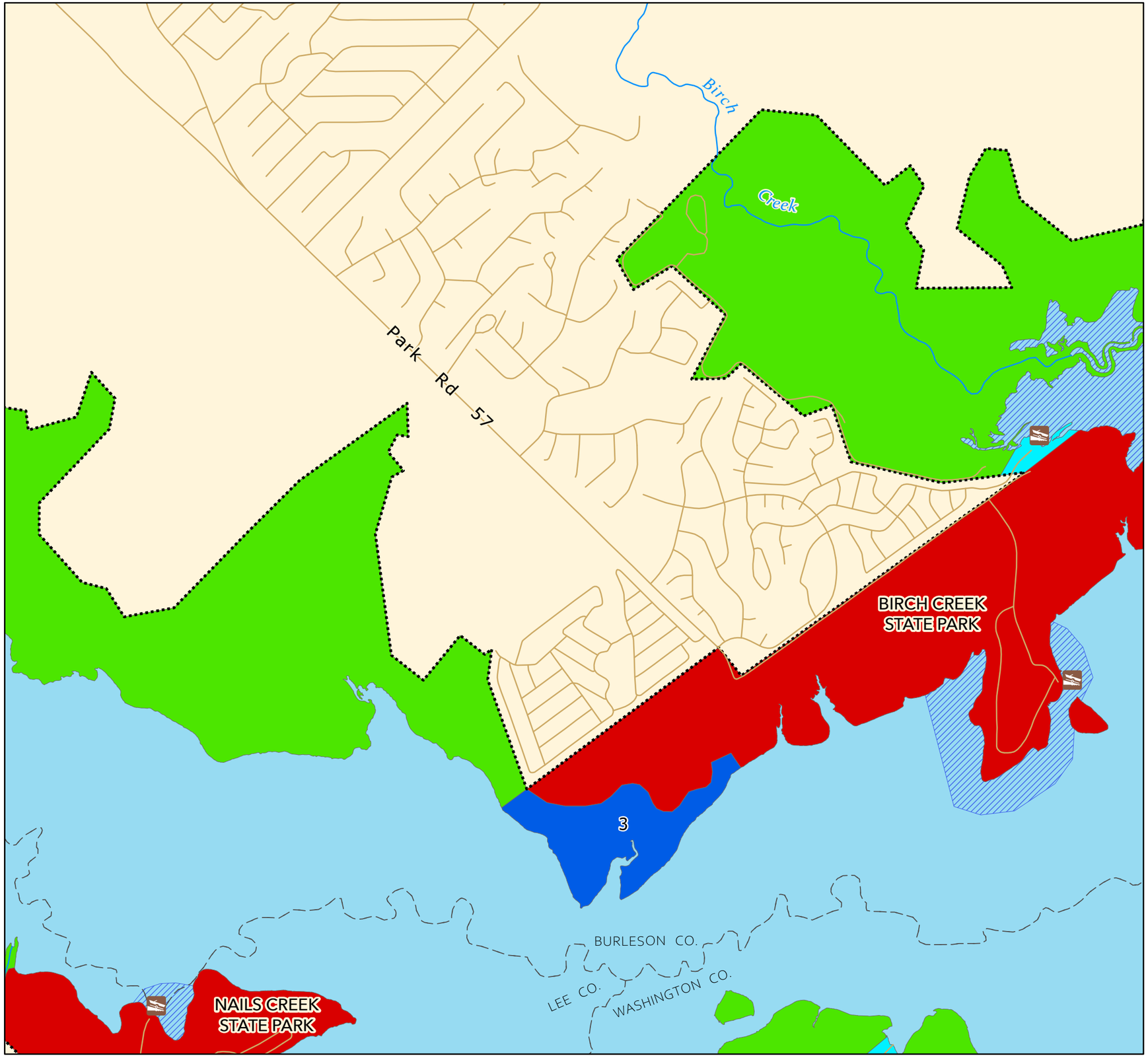
SOMERVILLE LAKE

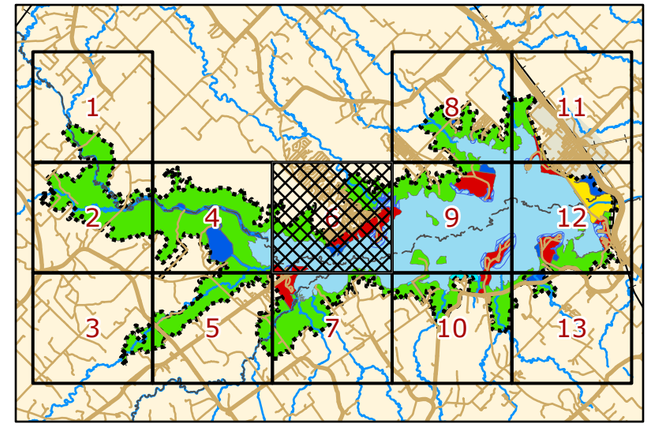
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 5)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-05





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

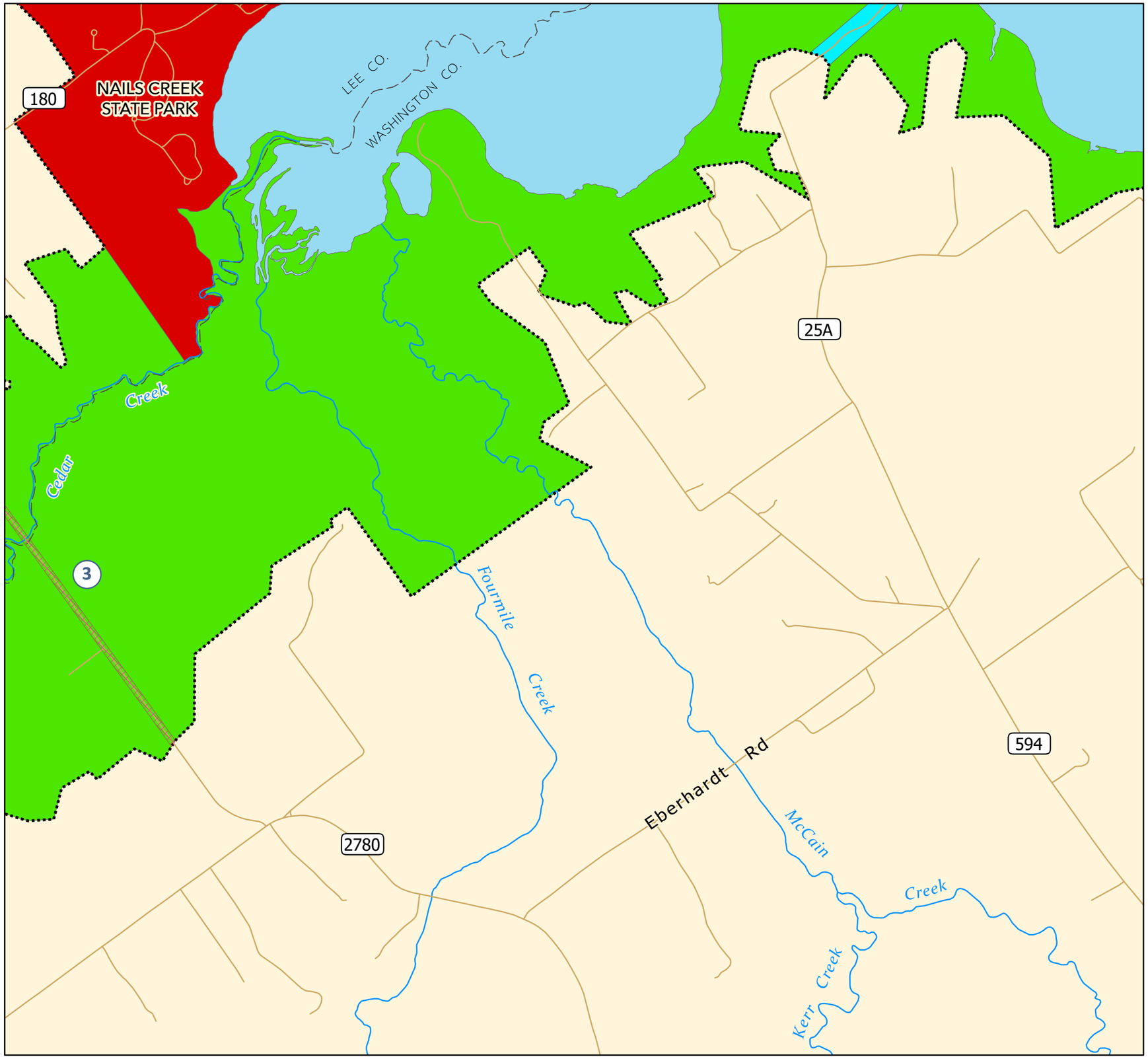
SOMERVILLE LAKE

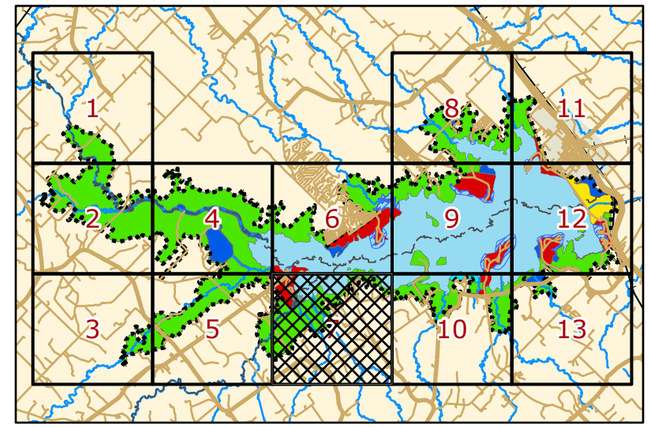
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 6)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-06





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

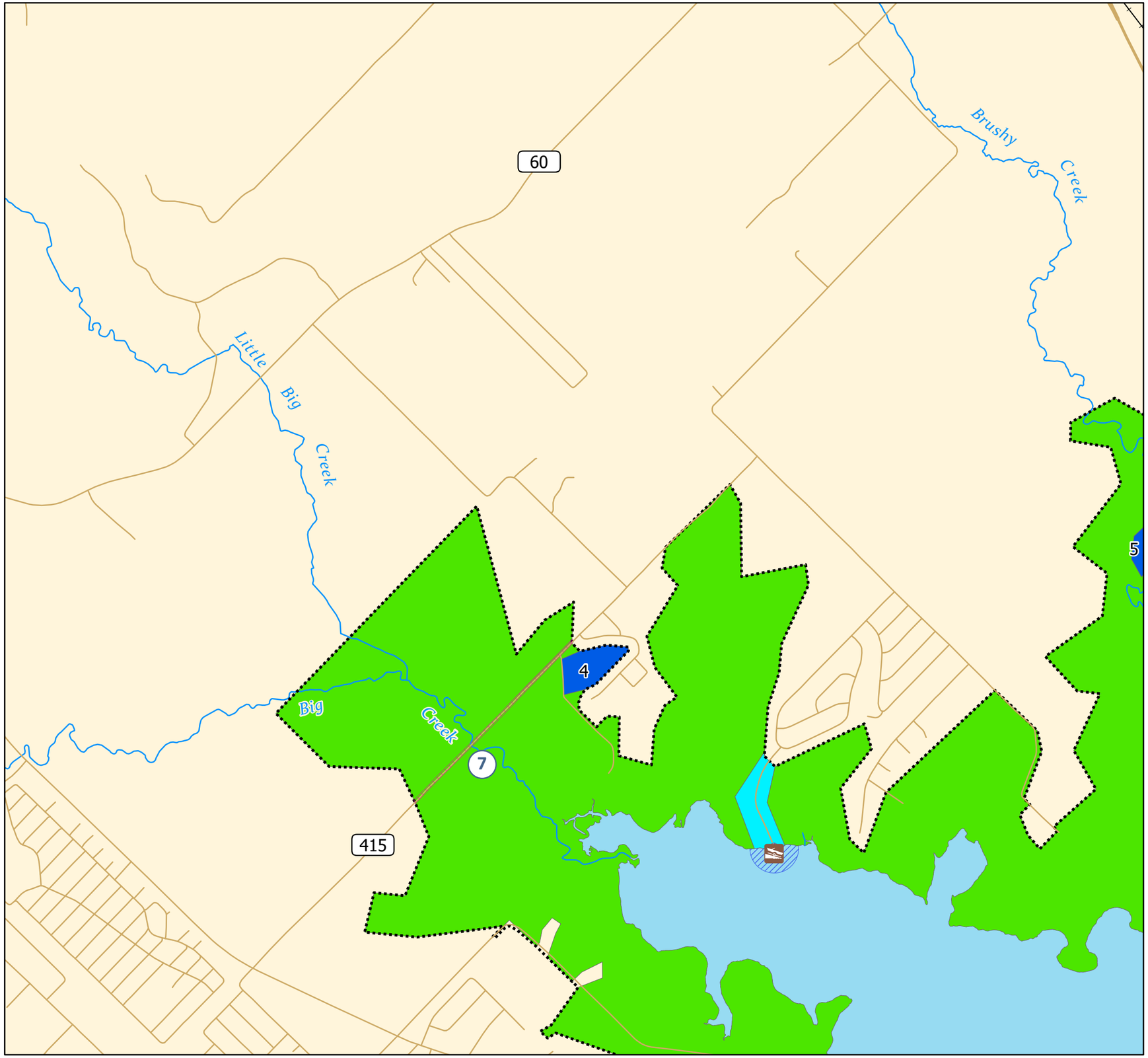
SOMERVILLE LAKE

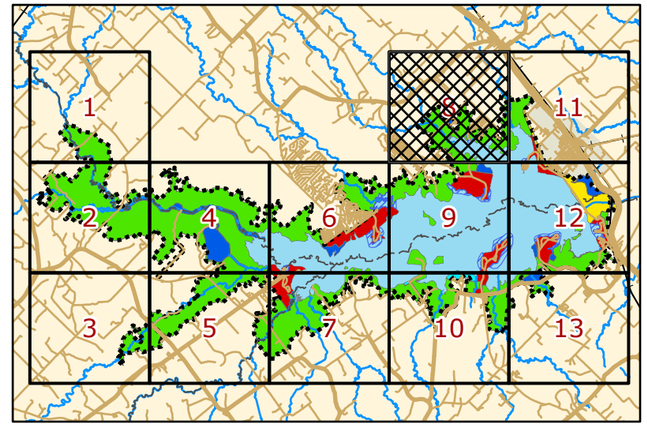
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 7)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-07





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

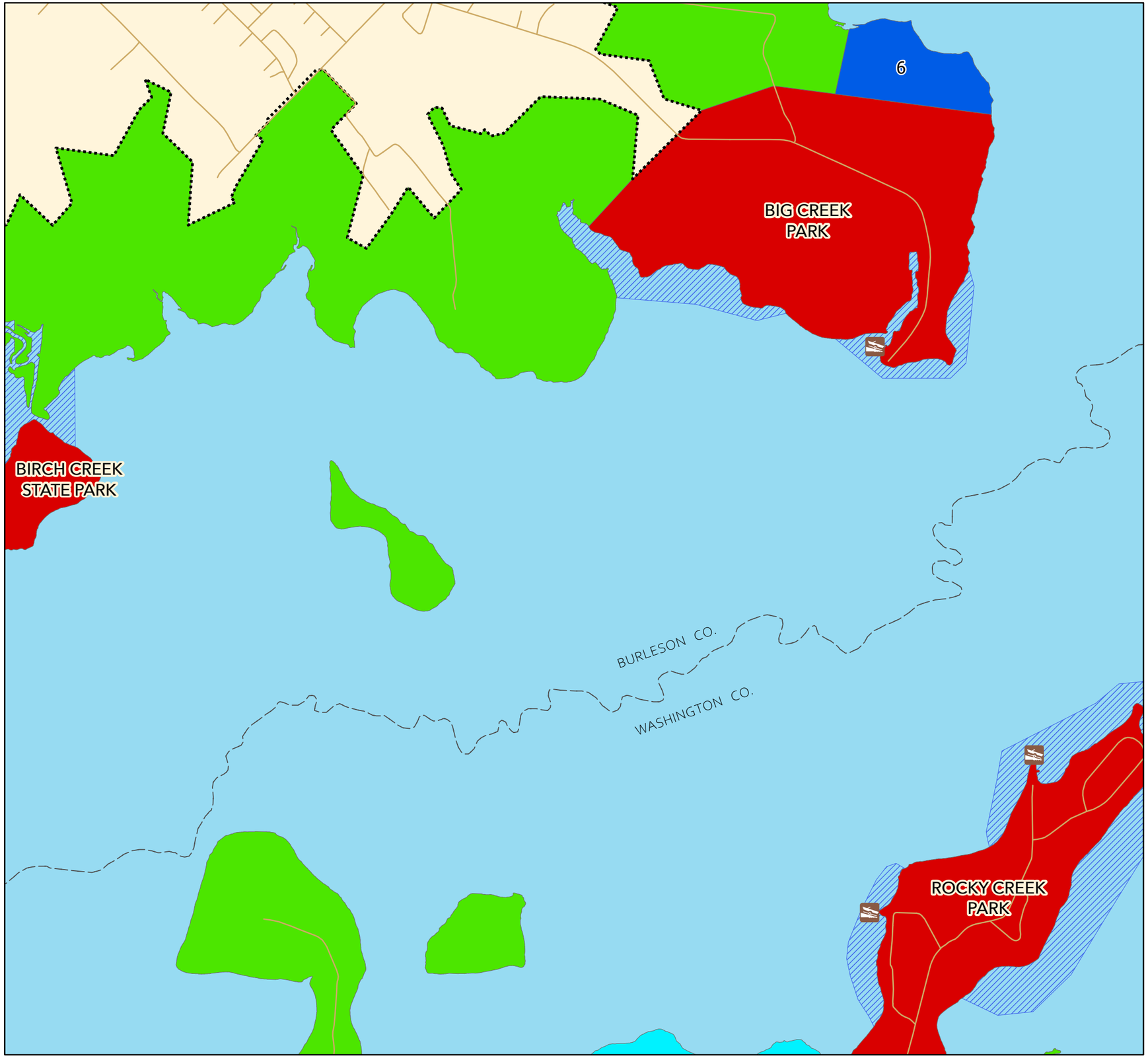
SOMERVILLE LAKE

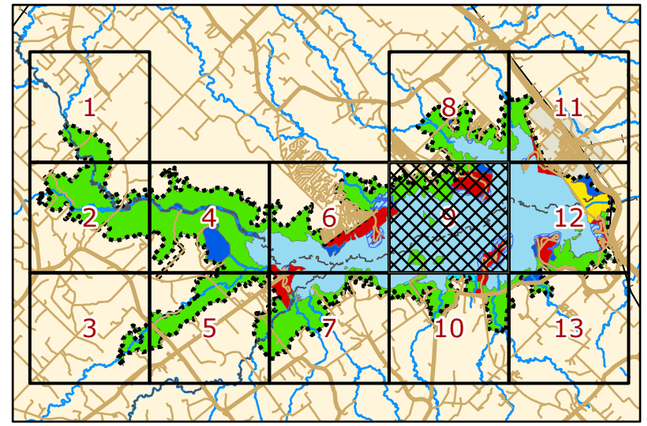
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 8)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-08





FEE PROPERTY
BOAT RAMP
SWIMBEACH
FISHING POINT
MARINA
FLOOD CONTROL STRUCTURE
WATER INTAKE
UTILITY CORRIDOR

WATER CLASSIFICATION

DESIGNATED NO-WAKE
OPEN RECREATION
RESTRICTED

LAND CLASSIFICATION

PROJECT OPERATIONS
HIGH DENSITY RECREATION
LOW DENSITY RECREATION
WILDLIFE MANAGEMENT AREA
ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 9)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
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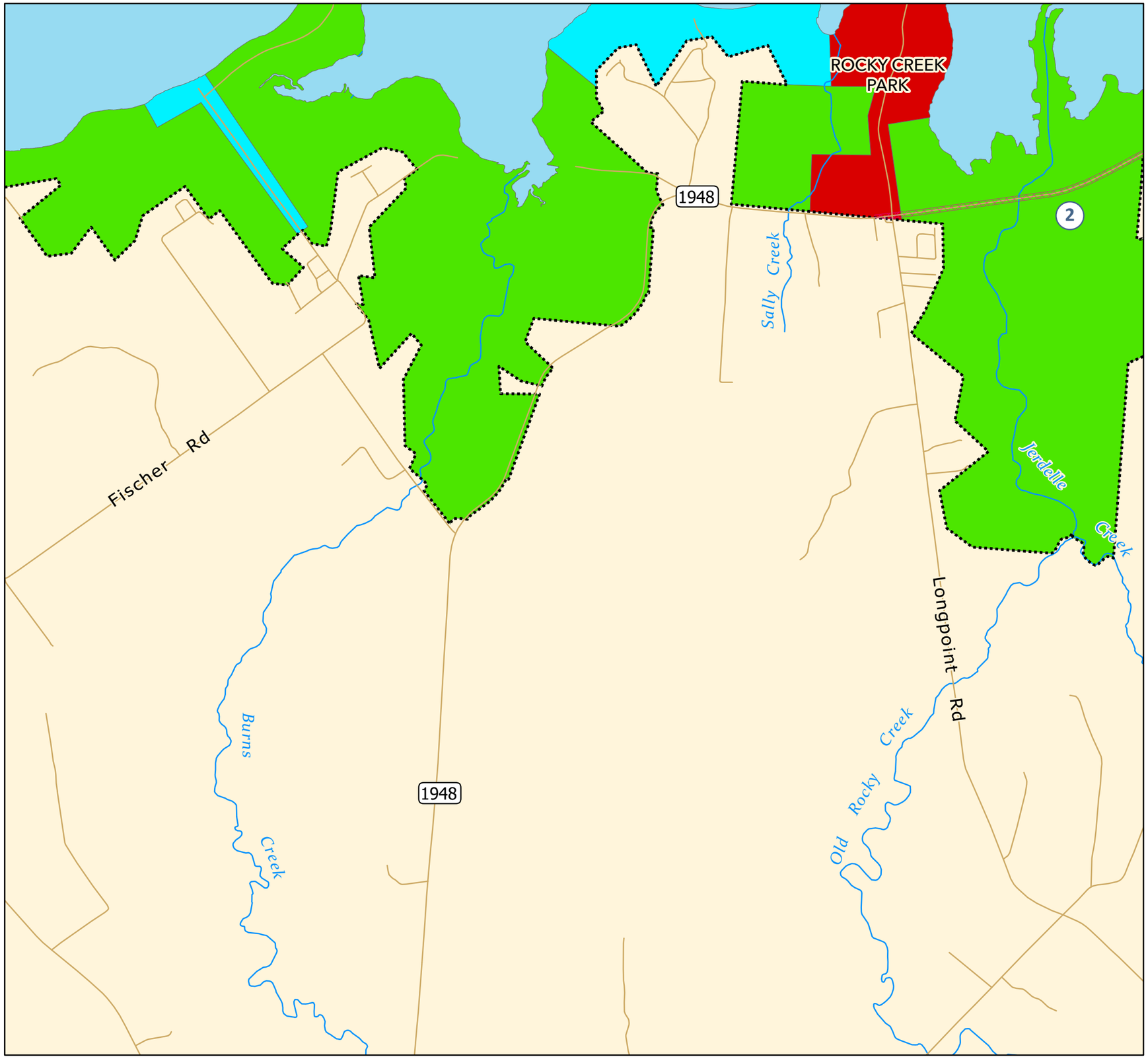

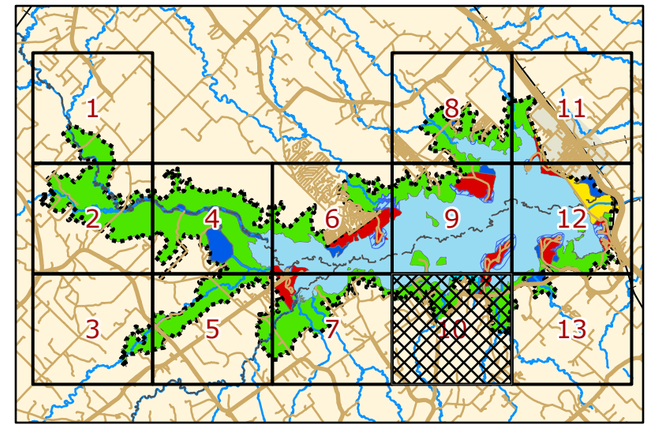

- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 10)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
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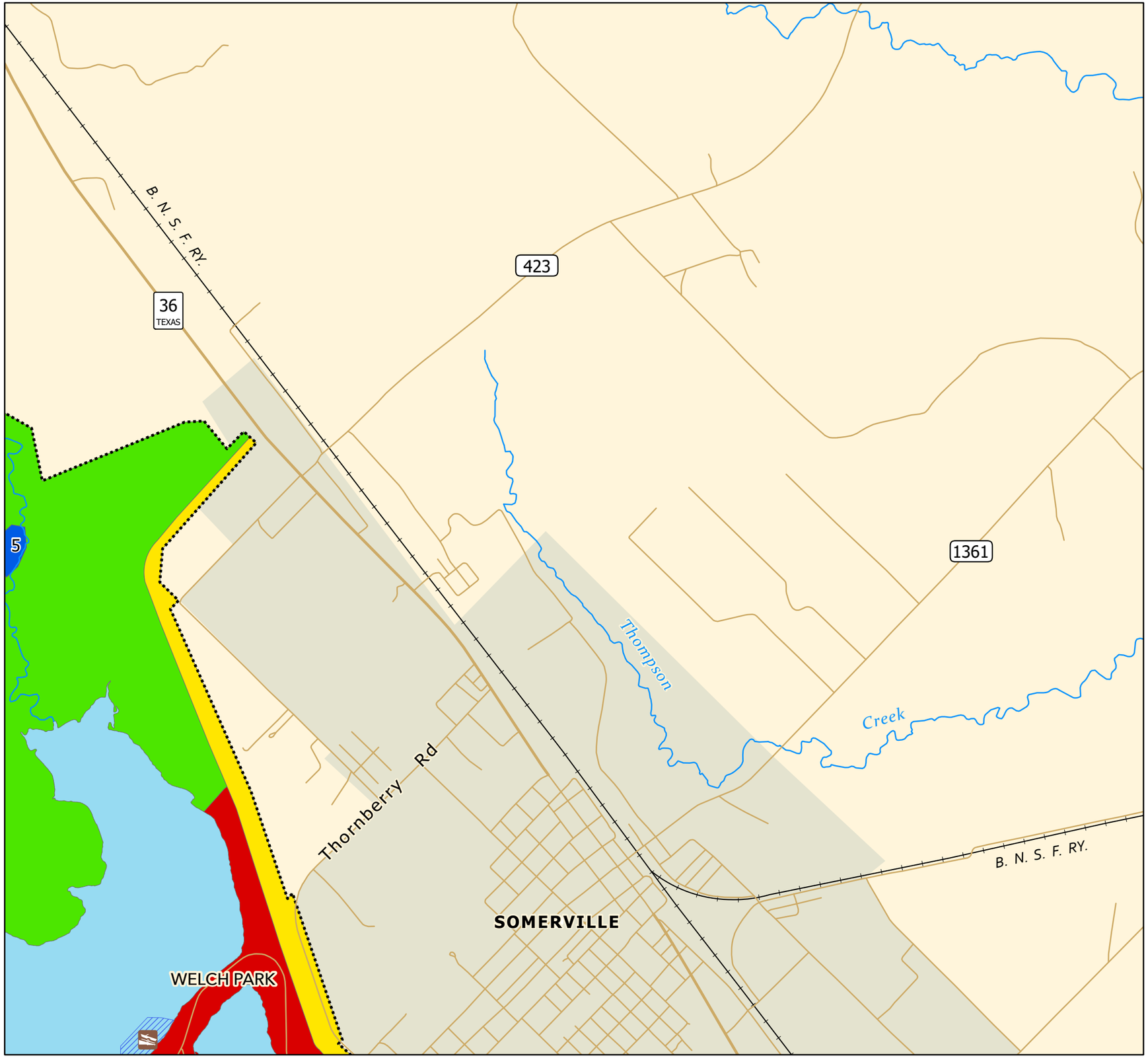
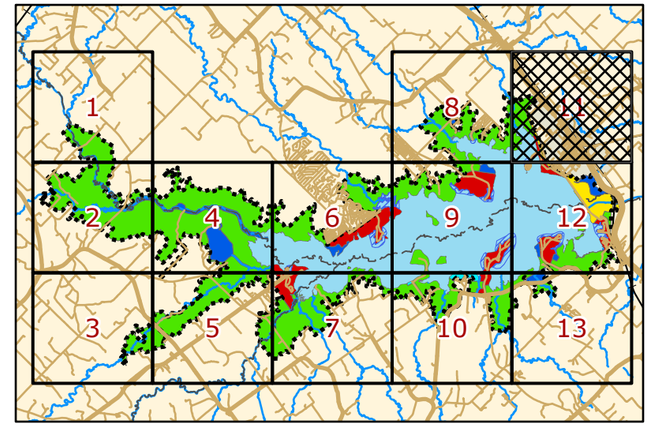




- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 11)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-11

WELCH PARK

SOMERVILLE

BURLESON CO.

WASHINGTON CO.

Thornberry Rd

LBJ Dr

Yegua Creek

36
TEXAS

B. N. S. F. RY.

7

9

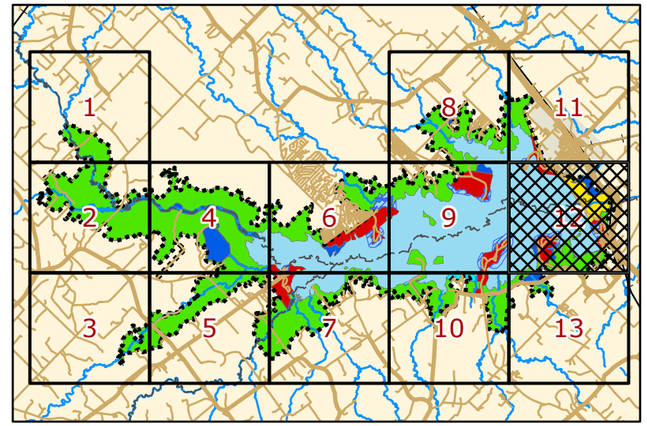
8

10

1948

YEGUA CREEK PARK

LAKE SOMERVILLE MARINA & OVERLOOK CAMPGROUND



- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

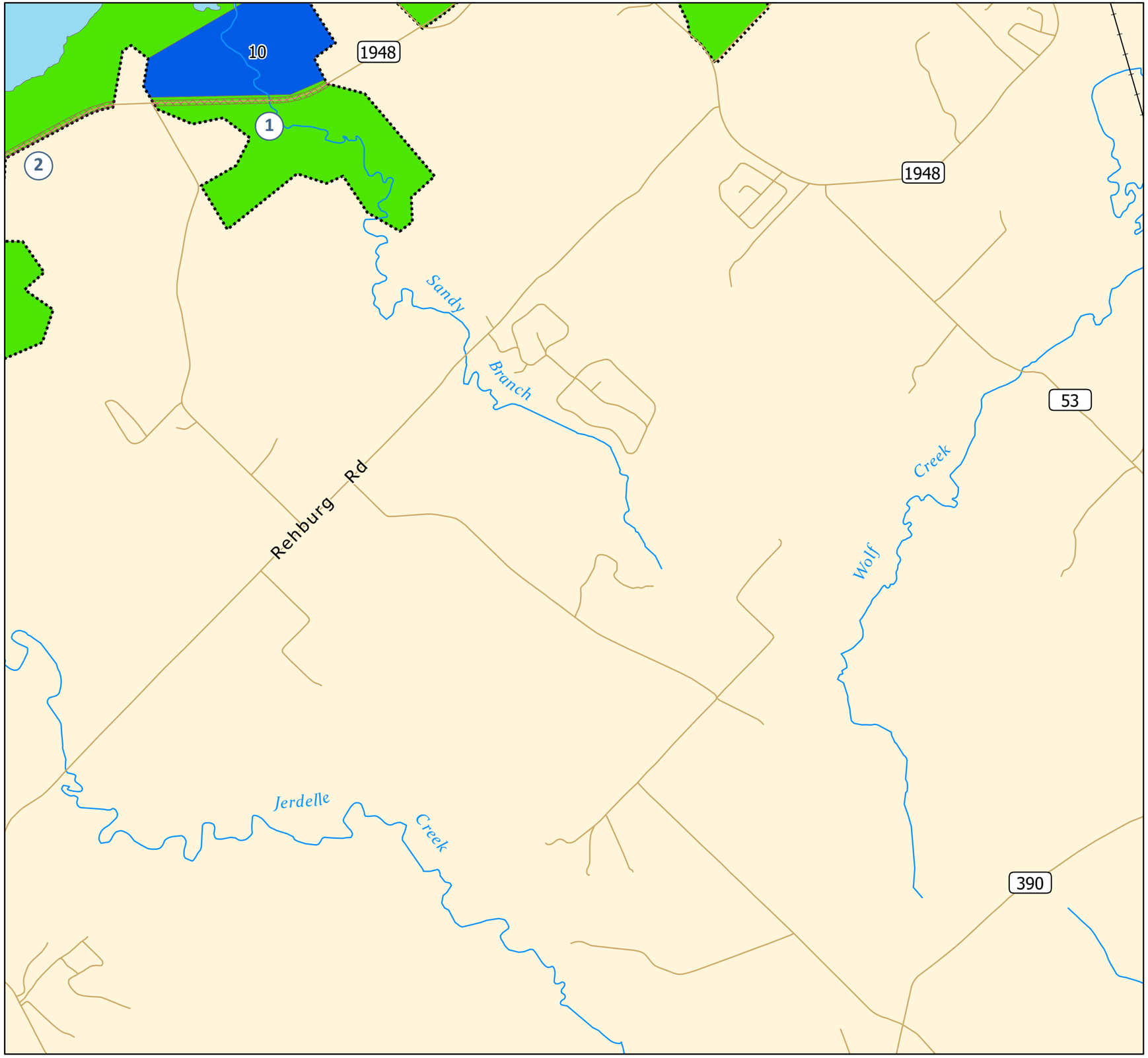
SOMERVILLE LAKE

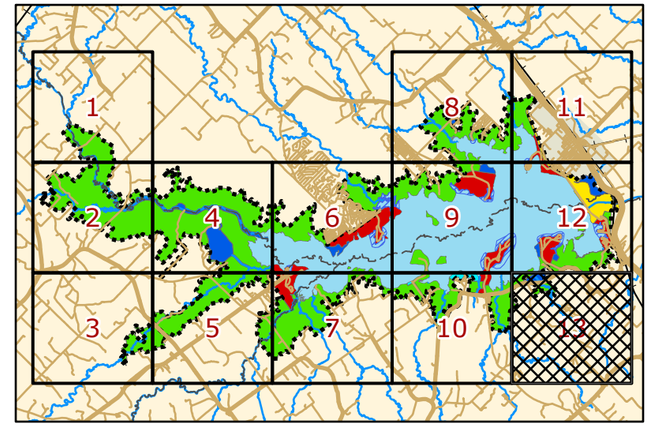
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 12)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-12





- FEE PROPERTY
- BOAT RAMP
- SWIMBEACH
- FISHING POINT
- MARINA
- FLOOD CONTROL STRUCTURE
- WATER INTAKE
- UTILITY CORRIDOR

WATER CLASSIFICATION

- DESIGNATED NO-WAKE
- OPEN RECREATION
- RESTRICTED

LAND CLASSIFICATION

- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- WILDLIFE MANAGEMENT AREA
- ENVIRONMENTALLY SENSITIVE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

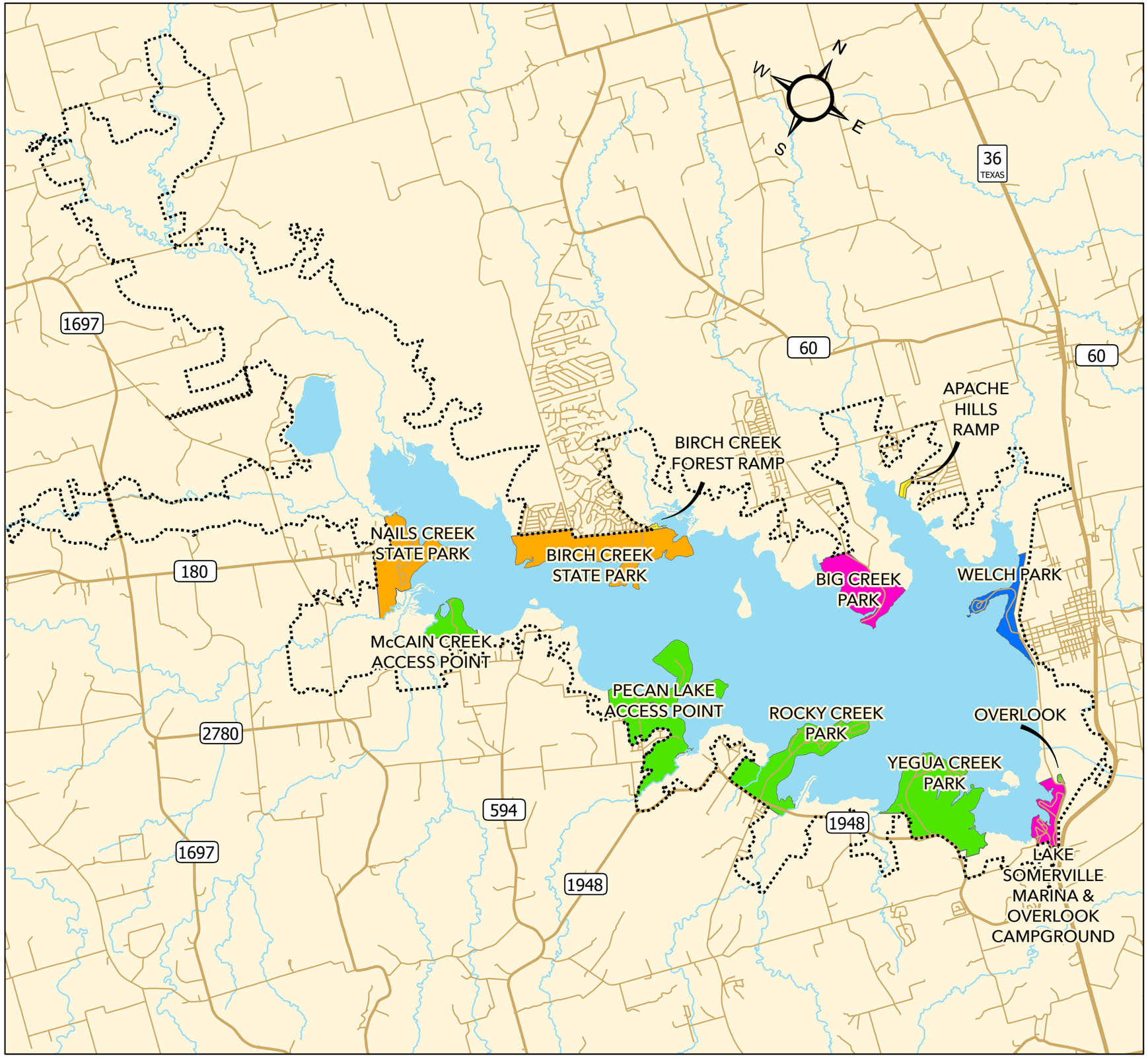
SOMERVILLE LAKE

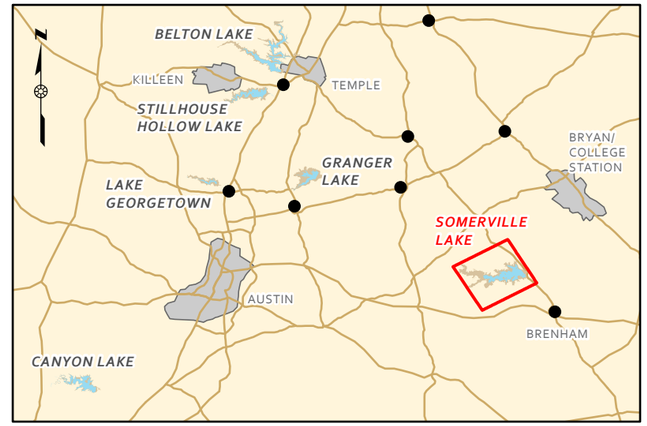
SOMERVILLE LAKE MASTER PLAN

LAND AND WATER CLASSIFICATION (SHEET 13)

0.25 0 0.25 0.5
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0C-13





- FEE PROPERTY LINE
- WATER SURFACE AREA
- U.S. ARMY CORPS OF ENGINEERS
- STATE OF TEXAS
- BURLESON COUNTY
- CITY OF SOMERVILLE
- PRIVATE

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

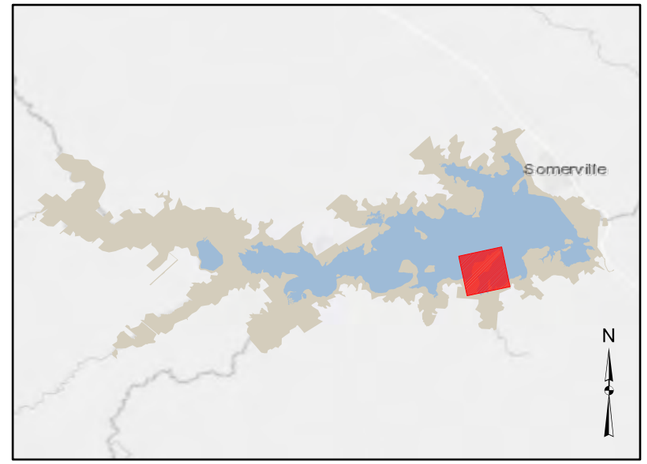
SOMERVILLE LAKE MASTER PLAN

RECREATIONAL DEVELOPMENT MAP

2 0 2 4

Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0R-0A



- FEE PROPERTY LINE
- PAVED ROADWAY
- UNPAVED ROADWAY
- SIDEWALK
- CAMPSITE
- TENT ONLY SITE
- HOST SITE
- BOATRAMP
- COURTESY DOCK
- FISHING DOCK
- RESTROOM
- DUMPSTATION
- GATEHOUSE
- AMPHITHEATER
- TRAILHEAD
- TRAIL

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

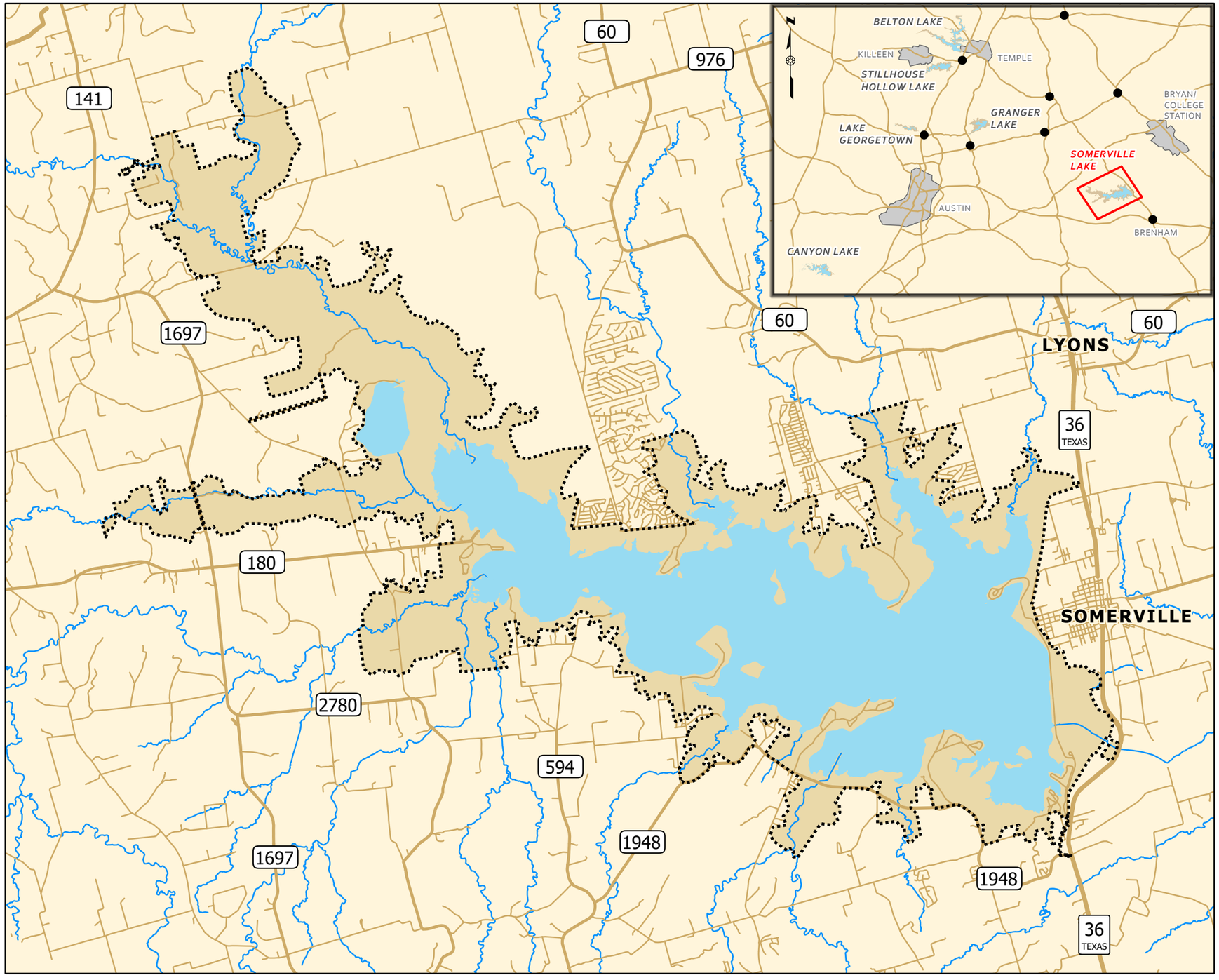
SOMERVILLE LAKE MASTER PLAN

ROCKY CREEK PARK PLATE

Feet

500 0 500 1,000

DATE:	MAP NO.
APRIL 2022	SO22MP-0R-01



LEGEND

- FEE PROPERTY LINE
- FEE PROPERTY AREA
- WATER SURFACE AREA
- TRIBUTARIES

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INDEX TO MASTER PLAN MAPS

GENERAL

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SO22MP-01-02	UTILITY CORRIDOR

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SO22MP-0C-02	LAND AND WATER CLASSIFICATION (SHEET 2)
SO22MP-0C-03	LAND AND WATER CLASSIFICATION (SHEET 3)
SO22MP-0C-04	LAND AND WATER CLASSIFICATION (SHEET 4)
SO22MP-0C-05	LAND AND WATER CLASSIFICATION (SHEET 5)
SO22MP-0C-06	LAND AND WATER CLASSIFICATION (SHEET 6)
SO22MP-0C-07	LAND AND WATER CLASSIFICATION (SHEET 7)
SO22MP-0C-08	LAND AND WATER CLASSIFICATION (SHEET 8)
SO22MP-0C-09	LAND AND WATER CLASSIFICATION (SHEET 9)
SO22MP-0C-10	LAND AND WATER CLASSIFICATION (SHEET 10)
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SO22MP-0C-12	LAND AND WATER CLASSIFICATION (SHEET 12)
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MAP NO.	TITLE
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SO22MP-0R-0B	TRAILS MAP
SO22MP-0R-01	ROCKY CREEK PARK PLATE
SO22MP-0R-02	YEGUA CREEK PARK PLATE

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

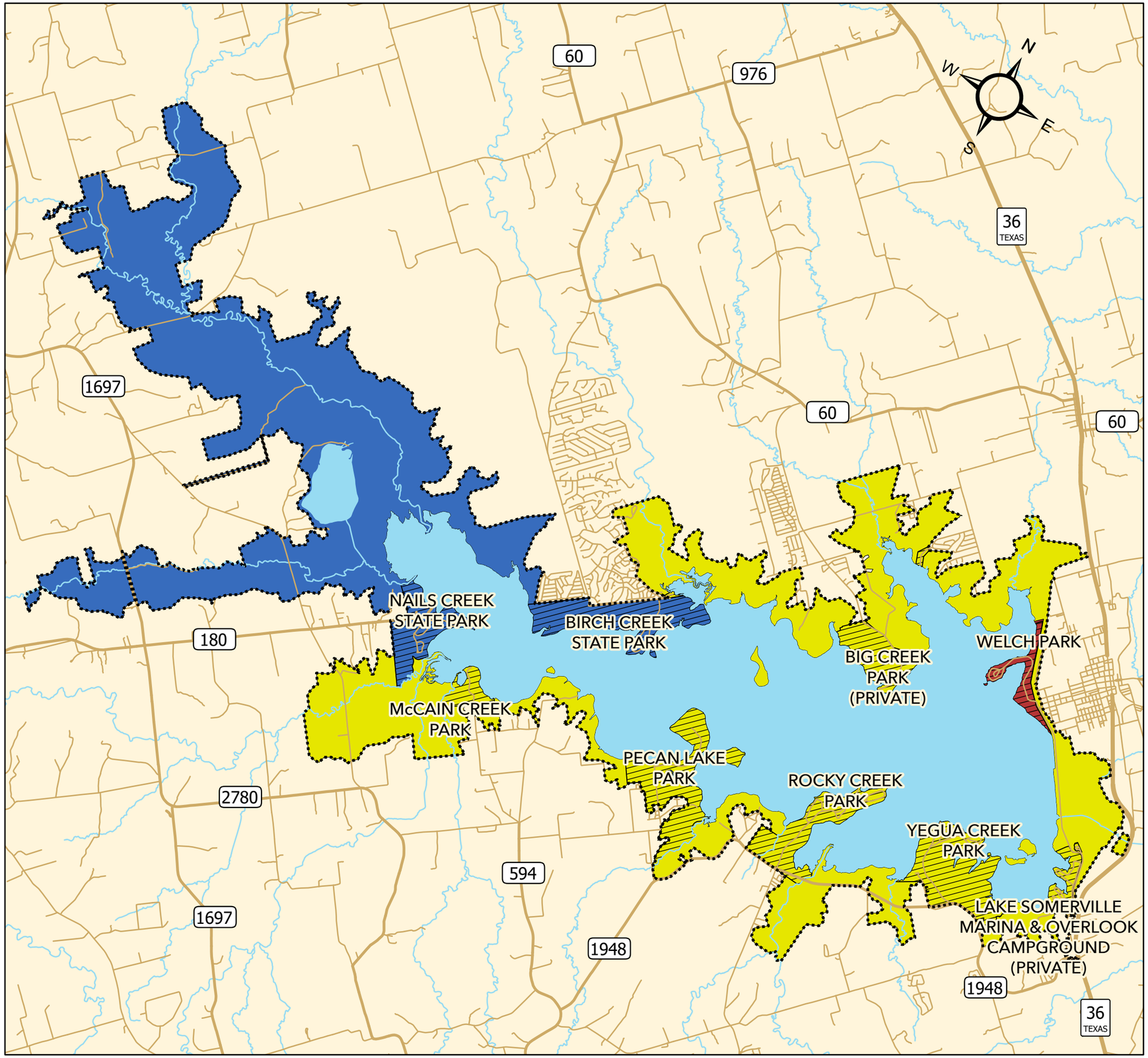
SOMERVILLE LAKE

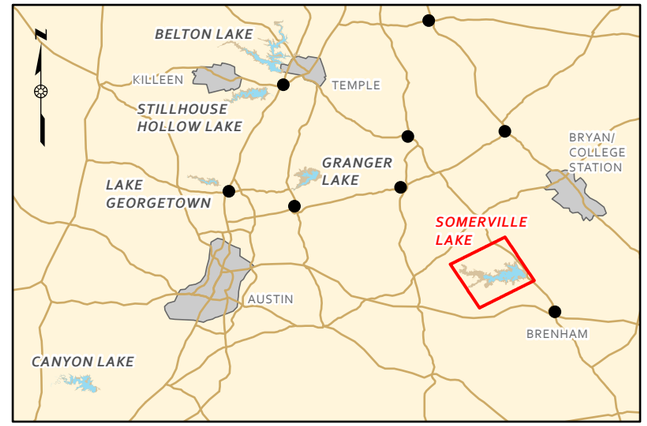
SOMERVILLE LAKE MASTER PLAN

PROJECT LOCATION AND INDEX

2 0 2 4
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-01-00





FEE PROPERTY LINE

WATER SURFACE AREA

TRIBUTARIES

RECREATION AREAS

MANAGING AGENCY

- CITY OF SOMERVILLE
- TEXAS PARKS AND WILDLIFE
- U.S. ARMY CORPS OF ENGINEERS

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

AGENCY LAND MANAGEMENT MAP

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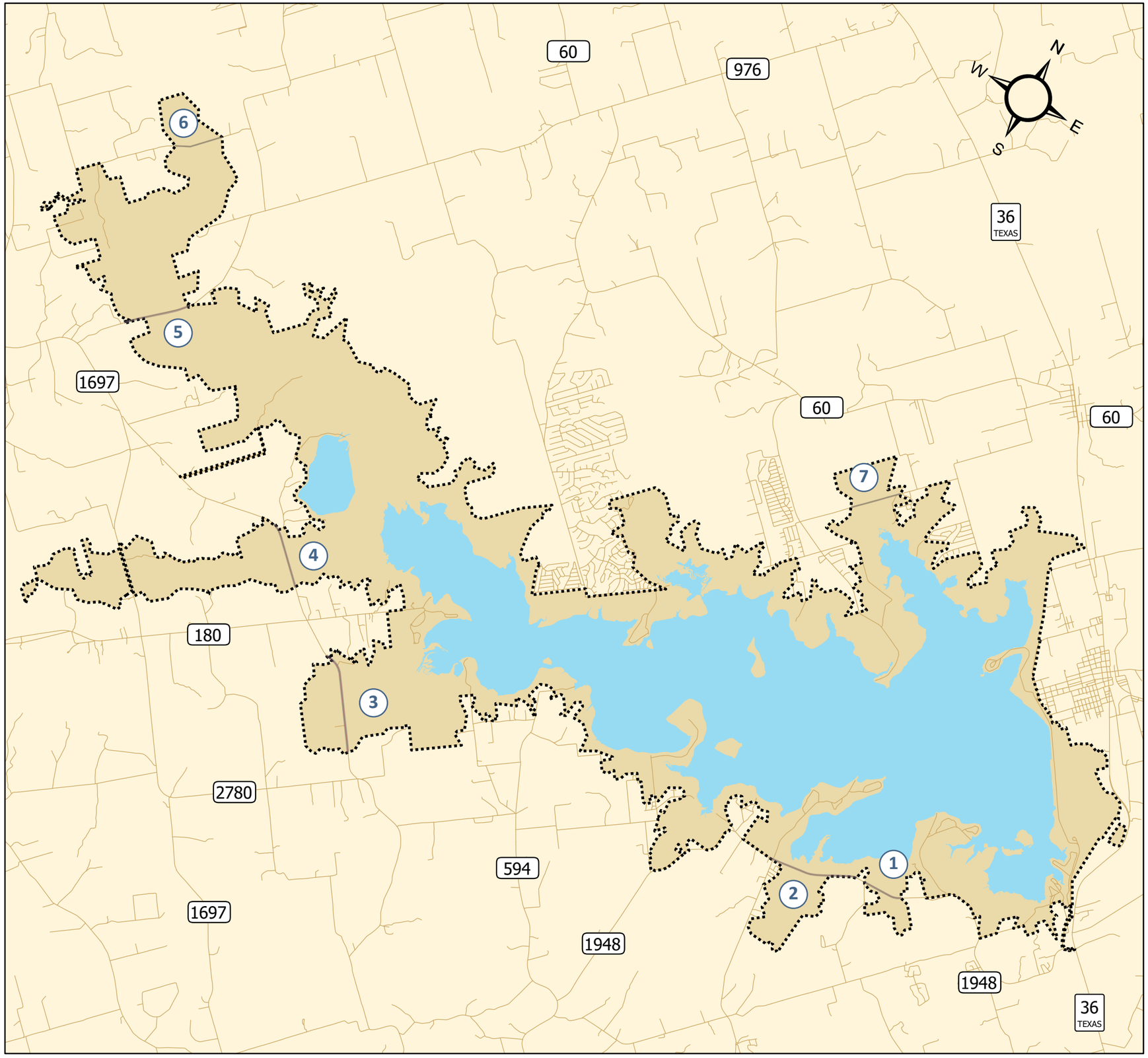
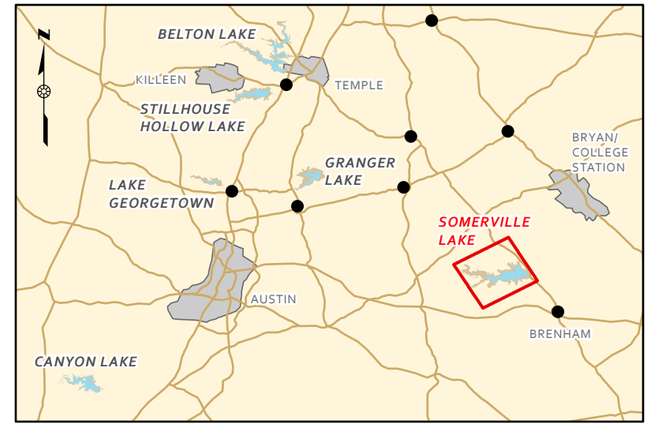
DATE:	MAP NO.
APRIL 2022	SO22MP-01-01





UTILITY CORRIDOR

FEE PROPERTY LINE

FEE PROPERTY AREA

WATER SURFACE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

UTILITY CORRIDOR MAP

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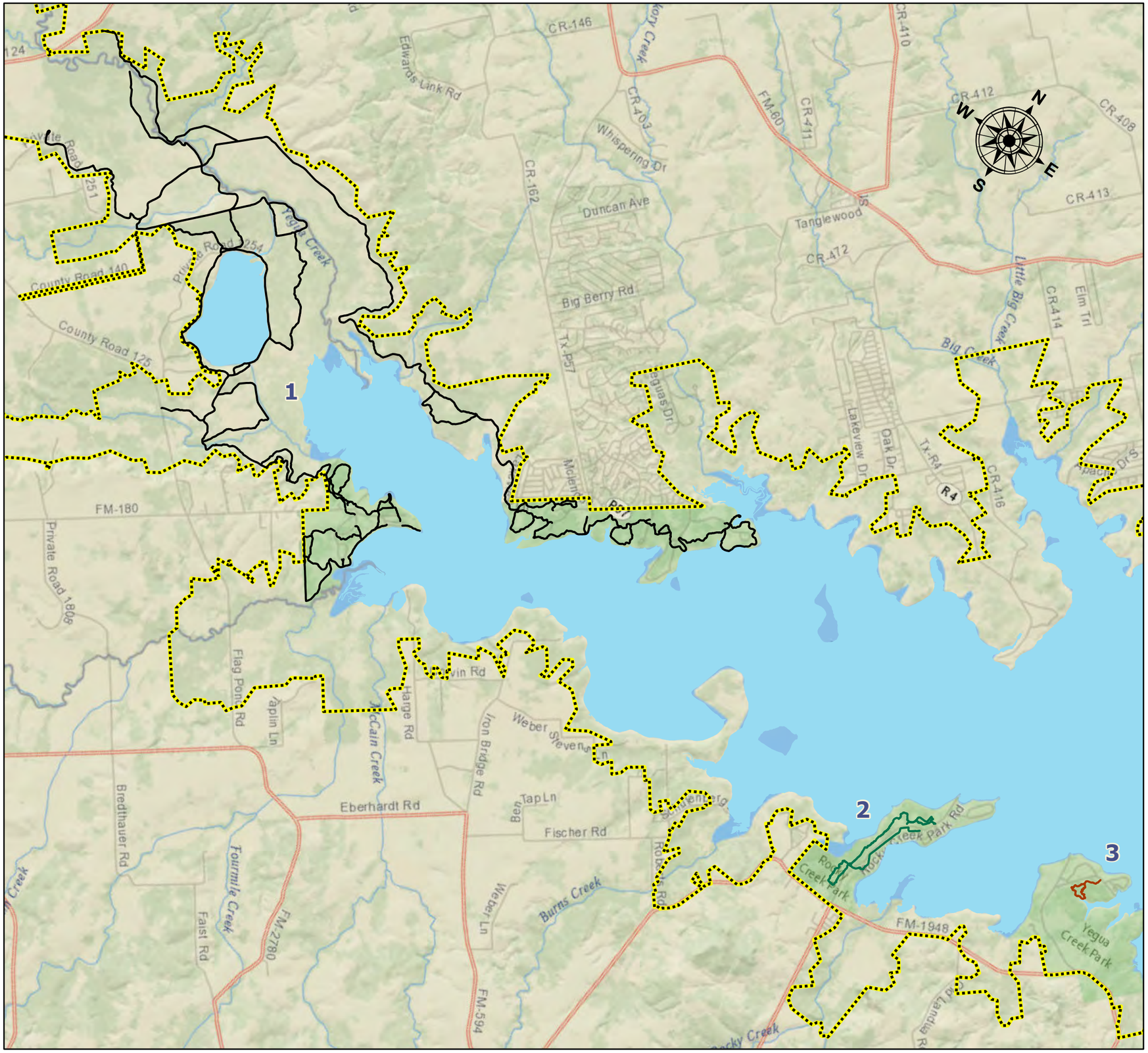

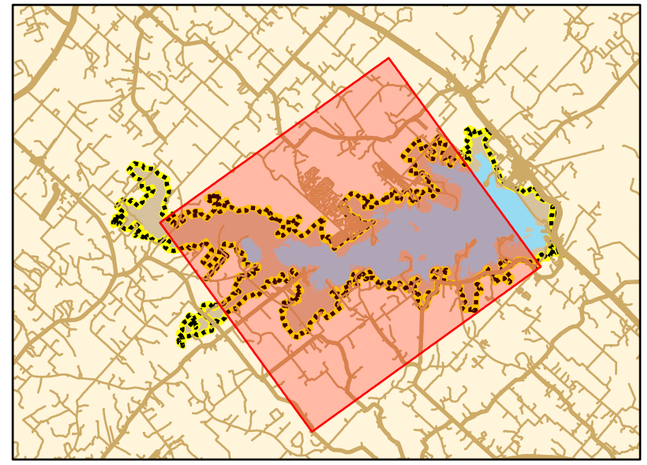

(1) TEXAS PARKS AND WILDLIFE TRAIL SYSTEM

(2) ROCKY CREEK TRAIL

(3) YEGUA CREEK TRAIL

FEE PROPERTY

WATER SURFACE AREA

US Army Corps of Engineers
Fort Worth District

SOMERVILLE LAKE — SOMERVILLE, TEXAS

SOMERVILLE LAKE

SOMERVILLE LAKE MASTER PLAN

TRAIL MAP

1 0 1 2
Miles

DATE:	MAP NO.
APRIL 2022	SO22MP-0R-0B

APPENDIX B – NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENTATION

FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT FOR THE
SOMERVILLE LAKE MASTER PLAN 2022
BRAZOS RIVER BASIN
BURLESON, LEE, AND WASHINGTON COUNTIES, TEXAS

Engineering Regulation (ER) 1130-2-550 Change 07, dated January 2013 and Engineering Pamphlet (EP) 1130-2-550 Change 05, dated 30 January 2013, require Master Plans for U.S. Army Corps of Engineers water resources development projects having a federally owned land base. The revision of the 1963 Somerville Lake Master Plan was conducted pursuant to this ER and EP, and is necessary to bring it up to date to reflect current ecological, socio-demographic, and outdoor recreation trends that are affecting the lake, as well as those anticipated to occur within the planning period of 2022 to 2048.

In accordance with the National Environmental Policy Act of 1969, as amended, including guidelines in 33 Code of Federal Regulations (CFR), Part 230, the U.S. Army Corps of Engineers, Fort Worth District (USACE) has conducted an environmental analysis on the draft Somerville Lake Master Plan 2022. The draft Somerville Lake Master Plan 2022 addresses the need for an updated comprehensive land management document for Somerville Lake in Burleson, Lee, and Washington Counties, Texas. The final recommendation will be contained in the Somerville Lake Master Plan 2022.

The Environmental Assessment (EA) for the draft Somerville Lake Master Plan 2022 evaluated an alternative that would revise the 1963 Somerville Lake Master Plan to meet current policy, and its assessment of impacts are summarized in Table 1 and are included as reference.

The revision of the *1963 Somerville Lake Master Plan* (hereafter Plan or Master Plan) is a framework built collaboratively to serve as a guide toward appropriate stewardship of USACE administered resources at Somerville Lake over the next 25 years.

In addition to a “no action” plan, one alternative that fully meets the project purpose was evaluated (proposed action/plan). Section 2.0 of the draft Somerville Lake Master Plan EA discusses the alternative formulation and selection as well the summary of the new goals and objectives. Section 8, Tables 8-1, and 8-2 of the Master Plan summarizes the changes to the land classifications. The proposed plan includes coordination with the public, updates to comply with the USACE regulations and guidance, and reflects changes in land management and land uses that have occurred since 1963. Land classifications were refined to meet authorized project purposes and current resource objectives that address a mix of natural resources and recreation management objectives that are compatible with regional goals, recognize outdoor recreation trends, and are responsive to public comments.

Table 1: Summary of Potential Effects of the Proposed Plan

Resource	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Aesthetics	☐	☐	☒
Air quality	☐	☐	☒
Aquatic resources/wetlands	☐	☐	☒
Invasive species	☐	☐	☒
Fish and wildlife habitat	☒	☐	☐
Threatened/Endangered species/critical habitat	☒	☐	☐
Historic properties	☐	☐	☒
Other cultural resources	☒	☐	☐
Floodplains	☐	☐	☒
Hazardous, toxic & radioactive waste	☐	☐	☒
Hydrology	☐	☐	☒
Land use	☐	☐	☒
Socio-economics	☐	☐	☒
Environmental justice	☐	☐	☒
Soils	☐	☐	☒
Water quality	☒	☐	☐
Climate change	☐	☐	☒

All practicable and appropriate means to avoid or minimize adverse environmentaleffects have been analyzed and incorporated into the proposed plan. The proposed plan will not entail any ground-disturbing activities. Future ground-disturbing activitieson USACE property will be subject to all necessary environmental evaluations and compliance regulations.

No compensatory mitigation is required as part of the proposed plan.

Public review of the draft Master Plan, Environmental Assessment, and Finding of No Significant Impact (FONSI) will be completed on --. All comments submitted during the public review period will be responded to in the final Master Plan.

Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the U.S.Army Corps of Engineers has determined that the proposed plan will have no effect on federally listed species or their designated critical habitat.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers has determined that the proposed plan willhave no effect on historic properties.

All applicable environmental laws were considered and coordination with appropriateagencies and officials has been completed.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on the draft report, the reviews by otherFederal, State, and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the proposed plan will not cause significant adverse impacts on the quality of the human environment, therefore, preparation of an Environmental Impact Statement is not required.

Date

Jonathan S. Stover, P.E., PMP
Colonel, EN
Commanding

Draft

Environmental Assessment for the Somerville Lake Master Plan

Brazos River Basin: Yegua River
Burleson, Lee, and Washington Counties, Texas

2022

US Army Corps of Engineers
Fort Worth District

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ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the potential environmental and socioeconomic impacts of the 2022 Somerville Lake Master Plan revision. This EA would facilitate the decision process regarding the Proposed Action and alternatives.

SECTION 1	*INTRODUCTION* of the Proposed Action summarizes the purpose of and need for the Proposed Action, provides relevant background information, and describes the scope of the EA.
SECTION 2	*PROPOSED ACTION AND ALTERNATIVES* examines alternatives for implementing the Proposed Action and describes the recommended alternative.
SECTION 3	*AFFECTED ENVIRONMENT* describes the existing environmental and socioeconomic setting. *ENVIRONMENTAL CONSEQUENCES* identifies the potential environmental and socioeconomic effects of implementing the Proposed Action and alternatives. *MITIGATION* summarizes mitigation actions required to enable a Finding of No Significant Impact for the Proposed Action.
SECTION 4	*Reasonably Foreseeable Future describes the impact on the environment that may result from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions.*
SECTION 5	*COMPLIANCE WITH ENVIRONMENTAL LAWS* provides a listing of environmental protection statutes and other environmental requirements.
SECTION 6	*IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES* identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented.
SECTION 7	*PUBLIC AND AGENCY COORDINATION* provides a listing of individuals and agencies consulted during preparation of the EA.
SECTION 8	*REFERENCES* provides bibliographical information for cited sources.
SECTION 9	*ACRONYMS/ABBREVIATIONS*
SECTION 10	*LIST OF PREPARERS* identifies persons who prepared the document and their areas of expertise.
ATTACHEMENT A	National Environmental Policy Act (NEPA) Coordination and Scoping

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DRAFT ENVIRONMENTAL ASSESSMENT

2022 Somerville Lake Master Plan

Burleson, Lee, and Washington Counties, Texas

SECTION 1:INTRODUCTION

The United States Army Corps of Engineers (USACE) is proposing to adopt and implement the 2022 Somerville Lake Master Plan (Master Plan) as a revision of the 1963 Master Plan. The 2022 Master Plan is the strategic land use management document that guides the efficient, cost-effective, comprehensive management, development, and use of recreation, natural resources, and cultural resources throughout the life of the Somerville Lake project. It is a vital tool for responsible stewardship and sustainability of the project's natural and cultural resources, as well as the provision of outdoor recreation facilities and opportunities on federal land associated with Somerville Lake for the benefit of present and future generations.

Adoption and implementation of the 2022 Master Plan (Proposed Action) would create potential impacts on the natural and human environments, and as such, this Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA, Public Law 91-190) as amended in 2020, the Council on Environmental Quality (CEQ) regulations (40 CFR, 1500–1508), and USACE regulations, including Engineer Regulation (ER) 200-2-2 (1988).

1.1 PROJECT DESCRIPTION

Somerville Lake and Dam (hereafter Somerville Lake) are located at river mile (RM) 20.0 on Yegua Creek, approximately 2 miles south of Somerville, Texas. The lake is located in Burleson and Washington Counties (Figure 1-1). The Yegua Creek watershed lies within the boundaries of Burleson, Lee and Washington Counties in the southeastern portion of the state of Texas and within the lower portion of the Brazos River basin. It is roughly a rectangular area, about 62 miles long and 32 miles wide, having a drainage area of 1,321 square miles. The total drainage area above Somerville Dam is 1,006 square miles, or about 76 percent of the Yegua Creek watershed. The watershed is characterized by undulating topography with moderate slopes, wide valleys, and a range of low rolling hills.

Yegua Creek is a principal tributary of the Brazos River. Yegua Creek is formed by the confluence of the East Yegua Creek (formally known as First Yegua), and Middle Yegua Creek at a point about 14 miles west of Somerville, Texas. The Middle Yegua Creek rises in Williamson County about 9 miles south of Taylor at an elevation of about 500 feet above the mean sea level (msl) and flows in an easterly direction for a distance of 48.7 river miles to its confluence with the East Yegua Creek at about elevation 239' msl. The East Yegua Creek rises in Milam County at an elevation of about 400' msl and flows in a southeasterly direction for a distance of 33 river miles to its confluence with

Middle Yegua Creek. Yegua Creek then flows in a general easterly direction for 41.8 river miles to its junction with the Brazos River.

The Somerville Dam and Lake project on the Yegua Creek was authorized by the Flood Control Act approved 3 September 1954 (Public Law 780, 83rd Congress, 2nd Session) for construction substantially in accordance with the recommendation of the Chief of Engineers contained in House Document No. 535 (81st Congress, 2nd Session) "Report of Survey of Brazos River and Tributaries, Texas, Oyster Creek, Texas, and Jones Creek, Texas, dated 16 August 1947".

Authority to initiate advanced planning is contained in the Public Works Appropriation Act or 1959, approved 2 September 1958 (Public Law 85-863) and in Advice of Allotment C-126, dated 6 October 1958. Construction of Somerville Lake Dam began in June of 1962, and was completed in December 1967. Deliberate impoundment began in 1967.

Somerville Dam and Lake are an integral part of the USACE plan for flood risk management and water conservation in the Brazos River Basin. The plan presently consists of nine major USACE flood mitigation projects – Whitney Dam, Aquilla Dam, Waco Dam, Proctor Dam, Belton Dam, Stillhouse Hollow Dam, North San Gabriel Dam, Granger Dam, and Somerville Dam. The nine USACE dam projects in the Brazos River system work in concert to control approximately 36,830 square miles of drainage area. Specifically, Somerville Lake has a conservation pool capable of storing 11,395 surface acres at elevation 238.0 feet NGVD29. Once the water elevation reaches 258.0 feet NGVD29 and fills an additional 13,005 surface acres of storage space, water overtops the spillway and is uncontrollably released downstream.

1.2 PURPOSE OF AND NEED FOR THE ACTION

The purpose of the Proposed Action is to ensure that the conservation and sustainability of the land, water, and recreational resources at Somerville Lake comply with applicable environmental laws and regulations and to maintain quality lands for future public use. The 2022 Master Plan is intended to serve as a comprehensive land and recreation management plan with an effective life of approximately 25 years.

The Master Plan must be kept current in order to provide effective guidance in decision-making that responds to changing regional and local needs, resource capabilities and suitabilities, and expressed public interests consistent with authorized project purposes and pertinent legislation and regulations. The current Somerville Lake Master Plan is over 50 years old and does not currently reflect ecological, socio-political, and socio-demographic changes that are currently affecting Somerville Lake, or those changes anticipated to occur through 2047. Changes in outdoor recreation trends, regional land use, population, current legislative requirements and USACE management policy have indicated the need to revise the plan. Additionally, increasing fragmentation of wildlife habitat, national policies related to climate change and growing demand for recreational access and protection of natural resources are all factors affecting Somerville Lake and project's region in general. In response to these

continually evolving trends, the USACE determined that a full revision of the 1963 plan is needed.

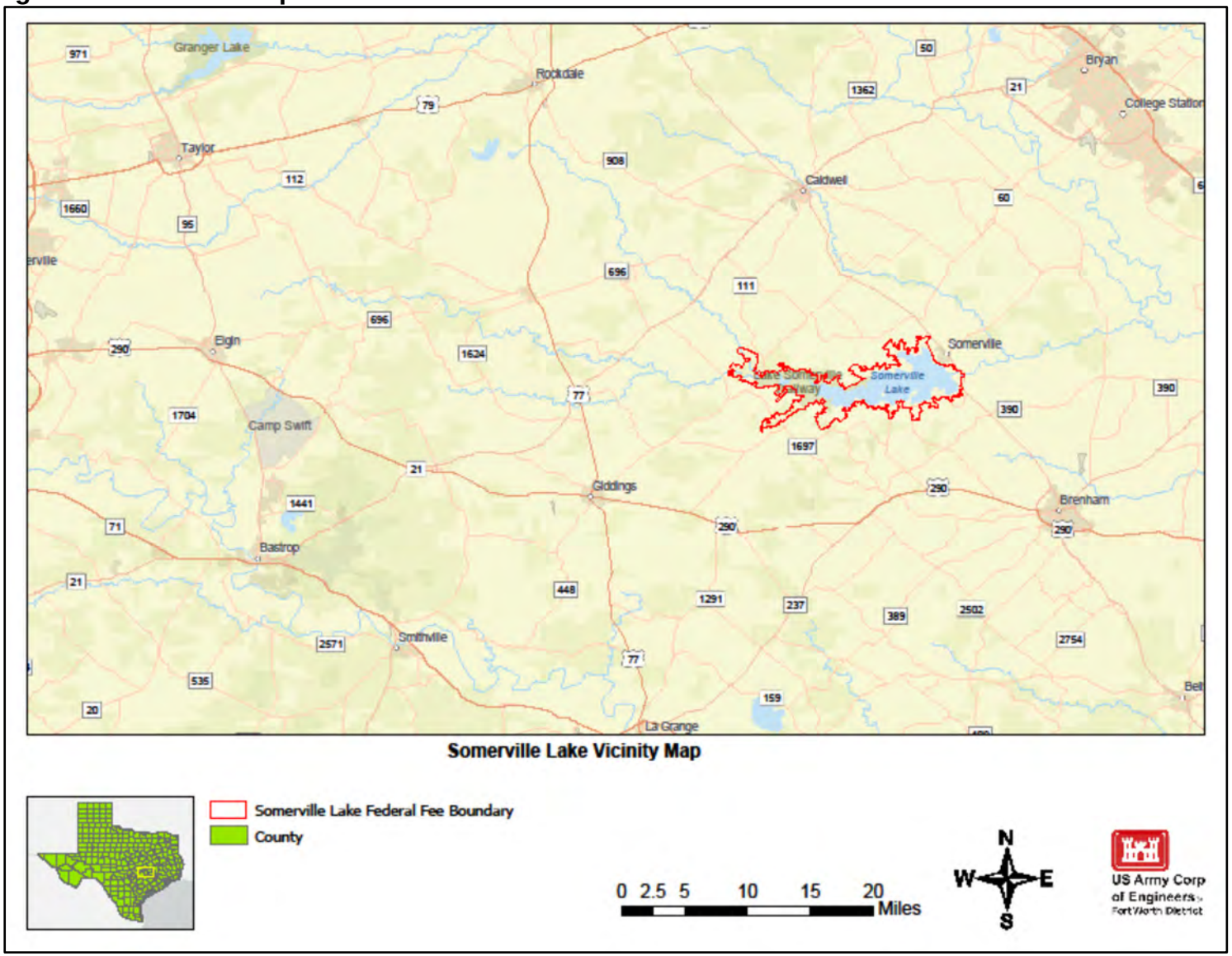
The following factors may influence reevaluation of management practices and land uses:

- Changes in national policies or public law mandates;
- Operations and maintenance budget allocations;
- Recreation area closures;
- Facility and infrastructure improvements;
- Cooperative agreements with stakeholder agencies (such as Texas Parks and Wildlife Department [TPWD] and the U.S. Fish and Wildlife Service [USFWS]) to operate and maintain public lands; and
- Evolving public concerns.

1.3 SCOPE OF THE ACTION

This EA was prepared to evaluate existing conditions and potential impacts of proposed alternatives associated with the implementation of the 2022 Master Plan. The alternative considerations were formulated with special attention given to revised land classifications, new resource management objectives, and a conceptual resource plan for each land classification category. The Draft 2022 Master Plan is currently available and is incorporated into this EA by reference. This EA was prepared pursuant to NEPA, Council on Environmental Quality (CEQ) regulations (40 CFR 1500–1508), and the USACE implementing regulations, Procedures for Implementing NEPA, ER 200-2-2 (USACE, 1988).

Figure 1-1 Location Map



The application of NEPA to more strategic decisions not only meets the Council on Environmental Quality (CEQ) implementing regulations (CEQ 2020) and USACE regulations for implementing NEPA (USACE 1988), but also allows the USACE to consider the environmental consequences of its actions long before any physical activity is implemented. Multiple benefits can be derived from such early consideration. Effective and early NEPA integration with the master planning process can significantly increase the usefulness of the 2022 Master Plan to the decision maker.

SECTION 2: PROPOSED ACTION AND ALTERNATIVES

The purpose and need of the proposed action is to revise the 1963 Master Plan so that it is compliant with current USACE regulations and guidance, incorporates public needs, and recognizes surrounding land use and recreational trends. As part of this process, which includes public outreach and comment, two alternatives were developed for evaluation, including a No Action Alternative and a Proposed Action Alternative. The alternatives were developed using land classifications that indicate the primary use for which project lands would be managed. USACE regulations specify five possible categories of land classification: Project Operations (PO), High Density Recreation (HDR), Mitigation, Environmentally Sensitive Areas (ESA), and Multiple Resource Managed Lands (MRML). MRML are divided into four subcategories: Low Density Recreation (MRML-LDR), Wildlife Management (MRML-WM), Vegetation Management (MRML-VM), and Inactive/Future Recreation (MRML-IFR) Areas.

USACE guidance recommends the establishment of resource goals and objectives for purposes of development, conservation, and management of natural, cultural, and man-made resources at a project. Goals describe the desired end state of overall management efforts, whereas resource objectives are specific task-oriented actions necessary to achieve the overall 2022 proposed Master Plan goals. Goals and objectives are guidelines for obtaining maximum public benefits while minimizing adverse impacts on the environment and are developed in accordance with 1) authorized project purposes, 2) applicable laws and regulations; 3) resource capabilities and suitabilities; 4) regional needs; 5) other governmental plans and programs; and 6) expressed public desires. The five project-wide management goals established for Somerville Lake that were used in determining the Proposed Action, as well as the nationwide USACE Environmental Operating Principles, are discussed in detail Chapter 3: Resource Goals and Objectives of the 2022 proposed Master Plan and are incorporated herein by reference (USACE, 2022).

The goals for proposed Somerville Lake Master Plan include the following:

GOAL A. Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.

GOAL B. Protect and manage the project's natural and cultural resources through sustainable environmental stewardship programs.

GOAL C. Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining the project's natural resources.

GOAL D. Recognize the unique qualities, characteristics, and potentials of the project.

GOAL E. Provide consistency and compatibility with national objectives and other State and regional goals and programs.

In addition to the above goals, USACE management activities are also guided by USACE-wide Environmental Operating Principles as follows:

- 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.

Specific resource objectives to accomplish these goals can be found in Chapter 3 of the 2022 Master Plan.

USACE will not address dam operations or water management of Somerville Lake under either the No Action or Proposed Action alternatives. Water management, which includes flood risk management and dam operations, is established in the Brazos River Basin Master Reservoir Regulation Manual and the Somerville Lake Water Control Manual.

2.1 ALTERNATIVE 1: NO ACTION

The No Action Alternative serves as a basis for comparison to the anticipated effects of the other action alternatives, and its inclusion in this EA is required by NEPA and CEQ regulations (40 CFR § 1502.14(c)). Under the No Action Alternative, the USACE would not approve the adoption or implementation of the 2022 Master Plan. Instead, the USACE would continue to manage Somerville Lake's natural resources as set forth in the 1963 Master Plan. The 1963 Master Plan would continue to provide the only source of comprehensive management guidelines and philosophy. However, the 1963 Master Plan is out of date and does not reflect the current ecological, socio-political, or socio-demographic conditions of Somerville Lake. The No Action Alternative, while it does not meet the purpose of, or need for, the Proposed Action, serves as a benchmark of existing conditions against which federal actions can be evaluated, and as such, the No Action Alternative is included in this EA, as prescribed by CEQ regulations.

2.2 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, the 2022 Master Plan would be reviewed, coordinated with the public, revised to comply with USACE regulations and guidance, and revised to

reflect changes in the land management and land uses that have occurred over time or are desired in the near future. The keys to this alternative would be the revision of land classifications to USACE standards and the preparation of the resource objectives that would reflect current and projected needs and would be compatible with regional goals while sustaining Somerville Lake's natural resources and providing recreational experiences for the next 25 years.

The proposed MP would classify all Federal land lying above elevation 238.0 NGVD29 into management classification categories. These management classification categories would allow uses of Federal property that meet the definition of the assigned category and ensure the protection of natural resources and environmental stewardship while allowing maximum public enjoyment of the lake's resources.

The proposed land classification categories are defined as follows:

- Project Operations: Lands required for the dam, spillway, switchyard, levees, dikes, offices, maintenance facilities, and other areas used solely for the operation of Granger Lake.
- High Density Recreation: Lands developed for the intensive recreational activities for the visiting public including day use and campgrounds. These areas could also be for commercial concessions and quasi-public development.
- Environmentally Sensitive Areas: Areas where scientific, ecological, cultural, or aesthetic features have been identified.
- Multiple Resource Management Lands (MRML): Allows for the designation of a predominate use with the understanding that other compatible uses may also occur on these lands.
    - MRML Low Density Recreation: Lands with minimal development or infrastructure that support passive recreational use (primitive camping, fishing, hunting, trails, wildlife viewing, etc.).
    - MRML Wildlife Management: Lands designated for stewardship of fish and wildlife resources.
    - MRML Vegetation Management**:** Lands designated for stewardship of vegetative resources.
    - MRML Inactive/Future Recreation:
- Water Surface: Allows for surface water zones.
    - Restricted: Water areas restricted for Somerville Lake operations, safety, and security.
    - Designated No-Wake: Water areas to protect environmentally sensitive shoreline areas and recreational water access areas from disturbance and areas to protect public safety.
    - Open Recreation: Water areas available for year-round or seasonal water-based recreational use.

Table 2-1 shows the proposed classifications and acres contained in each classification, Table 2-2 shows the water surface classifications, and Table 2-3 provides the justification for the proposed reclassification.

Table 2-1 Proposed Somerville Lake Land Classifications

Prior Land Classifications (1963 Plan)	Acres	Proposed Land Classifications (2022)	Acres
Esthetics	11,755	High Density Recreation	2,091
Future Development Opportunities	289	Low Density Recreation	149
Nature Area	541	Wildlife Management Area	14,594
Project Operations	749	Project Operations	627
Public Use Area	3,528	Environmentally Sensitive Area	1,069
Wildlife Management Area	1,712		
Total Land Acres	**18,574**	**Total Land Acres**	**18,530**

Total Acreage differences from the 1963 total to the 2022 totals are due to improvements in measurement technology, deposition/siltation, and erosion. As real estate boundaries are researched, acreages may change slightly to reflect more precise boundary mapping. The fee simple and easement acreage identified in this Master Plan was obtained from the Real Estate Management Information System and is subject to change as the acquisition documents are audited.

Table 2-2 Proposed Somerville Lake Surface Water Classifications

Prior Water Surface Classifications (1963 Plan)	Acres	Proposed Water Surface Classifications (2022)	Acres
Flowage Easement	1,160	Flowage Easement*	3,572
Reservoir Area	10,830	Reservoir Area	11,395
--	--	– Restricted	8
--	--	– Designated No Wake	503
--	--	– Open Recreation	10,892

Table 2-3 Justification for the Proposed Land Reclassifications

Land Classification	Description	Justification
Project Operations (PO)	The Project Operations classification was decreased from 749 acres to 627 acres. • Approximately 4.4 acres to the south of Somerville Dam from Esthetics to PO	The decrease in acreage for Project Operations is to account for areas used for operations that are no longer currently classified as PO and for the more accurate classification of unique habitat

	to account for better representation of PO land boundaries. • Approximately 9.5 acres alongside State Hwy 36 N on the southeastern side of the lake were reclassified to PO to include previously unaccounted for fee boundaries. • Approximately 16.5 acres of PO to the eastern side of the lake were removed because acres are currently owned by the Texas Railroad Commission. • Approximately 6.8 acres of PUB to the eastern side of the lake were allocated to PO to better account for actual PO land boundaries. • Approximately 126.9 acres of PO were allocated to ESA to account for unique habitat types. • Approximately 583.3 acres to the east at Somerville Dam and project site remained classified as PO.	types. The new area expands to include the entire dam, uncontrolled spillway, and discharge channel. The area also classified operations by others which includes municipal water operations near the dam and along Thornberry Road and L.B.J. Drive.
Multiple Resource Management Lands (MRML) - High Density Recreation (HDR)	Approximately 2,091 acres have been classified as HDR. The previous classification of Public Use Area contained 3,528 acres and is similar to the current HDR classification. Public Use Area is not included in the current land classification definitions. • Approximately 135.3 acres retained as HDR for Lake Somerville Marina and Overlook Campground. • Approximately 230.1 acres retained as HDR for Yegua Creek Park.	Decreases from the previous Public Use Area land classification is to more appropriately reflect current recreational needs and uses. The new HDR classification includes areas with existing intense recreational development and many undeveloped acres that have the potential to meet future recreation needs. The conversion also accounts for more accurate measures of existing park boundaries.

	• Approximately 307.1 acres retained as HDR for Rocky Creek Park. • Approximately 374.8 acres retained as HDR for Nails Creek State Park in TPWD. • Approximately 4.9 acres retained as HDR for Birch Creek State Park in TPWD lease area. • Approximately 486.9 acres retained as HDR for Birch Creek State Park in TPWD lease area. • Approximately 394.4 acres retained as HDR for Big Creek lease area. • Approximately 156.5 acres retained as HDR for Welch Park lease area.	
Multiple Resource Management Lands (MRML) - Low Density Recreation (LDR)	Approximately 149 acres have been classified as LDR. This is a decrease from the previous land use classification of 289 acres of Recreation Low Density Use. • On the southeast portion of the lake, approximately 38.0 acres of Esthetics have been classified as LDR to account for local land use practices. • On the southern portion of the lake, approximately 17.5 acres of Esthetics have been classified as LDR to account for local land use practices. • On the southwest portion of the lake, approximately 10.1 acres of Esthetics have been classified as LDR to account for the Iron Bridge access area.	Decreases from the previous land classification of Future Development Opportunities is to reflect current recreational facilities, needs and uses. The new LDR classification includes areas previously classified as Esthetics, Future Development Opportunities, and Public Use Area that have the potential to meet future recreation needs.

	• On the northwest portion of the lake, approximately 7.1 acres of Esthetics have been classified as LDR to account for the Birch Creek Forest boat ramp. • On the northeast portion of the lake, approximately 13.8 acres of Esthetics have been classified as LDR to account for the Apache Hills boat ramp. • On the southern portion of the lake, approximately 37.8 acres of Future Development Area were changed to LDR to account for local land use practices. • On the southwestern portion of the lake, approximately 24.2 acres were classified as LDR to account for the Pecan Lake Use area.	
Environmentally Sensitive Areas (ESA)	Approximately 1,069 acres have been classified as ESA areas – 617 acres were classified to ESA from Esthetics, 83 acres were classified to ESA from Nature Area, 127 acres were classified to ESA from PO, 167 acres were classified to ESA from Public Use Area, and 75 acres were classified to ESA from WMA. Of the Recreation Areas changed to ESA, approximately 40.5 acres were from Yegua Creek Park, 73.5 acres from Birch Creek State Park, and 53.3 acres from Big Creek Park. • See Section 5.1 for a detailed breakdown of all ESA areas.	The Environmentally Sensitive Area classification did not exist when the 1963 master plan designated land classifications. The new areas classified as ESA include unique or sensitive prairies, woodlands, wetlands, and aesthetic areas. Land areas surrounding Yegua Creek, Flag Pond, Birch Creek State Park, Big Creek, Big Creek Park, Yegua Creek, and Yegua Creek Park were classified as ESAs to protect and preserve unique plant species and habitat types as well as riparian corridors. See Table 5.1 for a complete description of each ESA.

Multiple Resource Management Lands (MRML) – Wildlife Management (WM)	Approximately 14,594 acres have been classified as MRML – Wildlife Management. This is similar to the previous Wildlife Area classification, which included 1,712 acres. • On the eastern portion of the lake, approximately 38 acres of Esthetics have been classified as WM. • On the south eastern portion of the lake, approximately 391.1 acres of Esthetics have been classified as WM. • On the south western portion of the lake, approximately 1,908.9 acres of Esthetics have been classified as WM. • On the western portion of the lake, approximately 4544.9 acres of Esthetics have been classified as WM. • On the southwestern portion of the lake, approximately 883.2 acres of Esthetics have been classified as WM. • On the northwestern portion of the lake, approximately 1,780.2 acres of Esthetics have been classified as WM. • On the northern portion of the lake, approximately 984.1 acres of Esthetics have been classified as WM. • On the northeastern portion of the lake,	Lands were converted from Esthetics, Nature Area, and Public Use Area to more appropriately align lands outlying recreational areas more appropriately for wildlife management. Land that was marked as Unclassified in the 1963 master plan was aligned to Wildlife Management to account for areas lying within Wildlife Management land fee boundaries.

	approximately 102.2 acres of Future Development Area was converted to WM for habitat management. • On the northwestern portion of the lake, approximately 106.2 acres of Future Development Area was converted to WM for habitat management. • On the southwestern portion of the lake, approximately 43.2 acres of Future Development Area was converted to WM for habitat management. • On the southeastern portion of the lake, approximately 458.4 acres of natural area was reclassified for habitat management. • On the southeastern portion of the lake, approximately 491.4 acres of public use area originally part of Yegua Creek Park was reclassified to WM for habitat management. • On the southwestern portion of the lake, approximately 35.4 acres of public use area on this island was originally part of Pecan Lake Use area was reclassified to WM for habitat management. • On the southwestern portion of the lake, approximately 519.6 acres of public use area originally part of Pecan Lake use area was reclassified to	

	WM for habitat management. • On the southwestern portion of the lake, approximately 118.5 acres of public use area originally defined as public use area was reclassified to WM to account for the McCain Creek Access area. • On the northeastern portion of the lake, approximately 36.5 acres of public use area at Big Creek Park was reclassified for habitat management. • On the southeastern, southwestern, and northwestern portion of the lake 603.9 acres of the previous land use classification of WM was reclassified to WMA. • On the northwestern portion of the lake 1,033.2 acres of WM was reclassified to WMA with no change to use in the TPWD lease area.	
Water Surface Restricted	Approximately 8 acres of water surface have been classified as Restricted water surface where boats are not allowed.	These are comparatively small parcels that surround water intake structures, the USACE gate control tower, public beaches for Nails Creek Park, Birch Creek Park, Big Creek Park, Rocky Creek Park, Welch Park, and Lake Somerville Marina and overlook campground and the approach to the uncontrolled spillway.
Water Surface No	Approximately 503 acres of water surface have been classified as Designated No Wake area where	These parcels include areas surrounding boat ramps, including Birch Creek State Park, Birch

Wake Designation	vessels are not allowed to create a wake when underway.	Creek Boat Ramp, Big Creek Park, Big Creek Boat Ramp, Rocky Creek Park, Rocky Creek Park Boat Ramp, Welch Park, Welch Park Boat Ramp, Lake Somerville Marina and Overlook Campground, Yegua Creek Park, and Yegua Creek Park Boat Ramp.
Water Surface Open Recreation	Approximately 10,892 acres of water surface have been classified as Open Recreation that are available for water-based recreation	Water surface that has not been classified as Restricted or No Wake are available for water-based recreation. Operation of a boat in these areas is at the owner's risk. Specific navigational hazards may or may not be marked with a buoy.

Note: The land classification changes described in this table are the result of changes to individual parcels of land ranging from a few acres to more than 100 hundred acres. Acreages were measured using GIS technology. The acreage numbers provided are approximate.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Other alternatives to the Proposed Action were initially considered as part of the scoping process for this EA. However, none met the purpose of and need for the Proposed Action or the current USACE regulations and guidance. Furthermore, no other alternatives addressed public concerns. Therefore, no other alternatives are being carried forward for analysis in this EA.

SECTION 3: AFFECTED ENVIRONMENT AND CONSEQUENCES

This section of the EA describes the natural and human environments that exist at the project and the potential impacts of the No Action Alternative (Alternative 1) and Proposed Action (Alternative 2) outlined in Section 2.0 of this document. For descriptions of existing conditions of various resources within the USACE Somerville Fee Boundary please refer to Chapter 2 of the 2022 Master Plan. Only those issues that have the potential to be affected by these alternatives are described, per CEQ guidance (40 CFR § 1501.5). Some topics are limited in scope due to the lack of direct effect from the Proposed Action on the resource, or because that particular resource is not located within the project area. For example, no body of water in the Somerville Lake watershed is designated as a Federal Wild or Scenic River, so this resource will not be discussed.

Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic (such as the effects on employment), social, or health effects. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

(2) A “but for” causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.

3.1 Land Use

Please refer to sections 2.5 and 2.6 of the proposed MP for existing land use information in and around Somerville Lake.

3.1.1 Alternative 1: No Action

Under the No Action Alternative, USACE would not implement the proposed MP, and thus the land use management would not be updated to current needs and demands. The operation and maintenance of USACE lands at Somerville Lake would continue as outlined in the existing MP to the existent that current and future laws and regulations would permit. Management would continue to lag behind the current and future recreational needs and public preferences. As the regulatory environment continues to change, management at Somerville Lake would diverge from the plan. This divergence would create a patchwork of management requirements that would be inefficient for Somerville Lake staff to implement. The management would also increasingly lack transparency to the public, or alternately create more of a burden to staff to communicate how the lake management differs from that in the management plan. Implementation of the No Action Alternative would have moderate, adverse, short and long term impacts on land use within and on USACE Somerville Lake project lands due to conflicting guidance and management of USACE lands.

3.1.2 Alternative 2: Proposed Action

The objectives for revising the Somerville Lake MP describe current and foreseeable land uses, all the while considering expressed public opinion, regional trends, and USACE policies that have evolved to meet day-to-day operational needs. The proposed reclassifications in the MP were developed to help fulfill regional goals associated with good stewardship of land and water resources that would allow for continued use and development of project lands.

While HDR is technically a new management classification, the bulk of the proposed 2,091 acres of HDR land is from areas previously classified as Public Use Area. MRML-LDR is also a new land classification with the bulk coming from areas previously classified as Future Development Opportunities. Even though the acres are decreasing for HDR and MRML-LDR from 3,528 to 2,091 acres and 289 to 149 acres, recreational opportunities would not decrease. The change in acreages reflects current land usage and foreseeable recreational trends for the area.

HDR and MRML-LDR are not the only new management classification introduced in the proposed MP. The establishment and reclassification of 1,069 acres as ESA would allow for greater protection of sensitive habitats or cultural resources. Conservation efforts within USACE Somerville Lake fee owned boundary would be further aided by increasing the 1,712 acres of previous Wildlife Management Area by 12,882 acres (total 14, 594 acres) into a new classification, and maintaining 149 acres as MRML-LDR. MRML-LDR are lands that have minimal development or infrastructure that support passive public use such as hiking, nature photography, bank fishing, and hunting. Future uses may include designating additional natural surface hike/bike trails. Even though these areas are managed for recreational purposes, this designation still provides more protection for wildlife and vegetation than HDR but less than ESA, but the same amount as MRML-WM.

On the waters of Somerville Lake, the proposed MP would add established surface water use categories that would replace the current ad hoc management of the lake. The proposed establishment of 8 acres of Restricted, 503 acres of No Wake, and 10,892 acres of Open Recreation to the water surface would allow for delineated and safer management of the lake's waters when the lake is at conservation pool. These classifications would help to improve safety of those recreating on and around Somerville Lake. The Somerville Lake Project Office would still maintain the authority to make ad hoc adjustments as needed by lake level, which would prevent the proposed classifications from being overly rigid or even ineffectual at various lake level conditions.

The 7 proposed utility corridors as explained in section 6.2 and in Table 6.1 of the proposed MP would have major positive short and long term impacts on land use within Somerville Lake. The positive impacts comes from the condensing of disturbances associated with utility operations to limited areas which then frees up more land for other land uses. Future use of these corridors, where the corridor is limited to or incorporates an existing easement, would in most cases require prior approval of those entities that have legal rights to the easement. These non-corridor easements may be used for placement of additional utilities by the grantee holding the easement, but only for purposes which directly serve the grantee or are of direct benefit to the Government.

Expansion or widening of existing non-corridor easements will generally not be permitted.

The majority of the land use classifications proposed in the MP would maintain the functional management that is currently occurring. The updated land classifications are proposed after considerable public input, and seek to maintain the values the public holds highest at Somerville Lake. Additionally, the land reclassifications provide a balance between public use, both intensive and passive, and natural resources conservation. Therefore, the implementation of the Proposed Action would have major, long-term beneficial impacts to land use as the proposed land classes and utility corridors further refine areas for appropriate activities.

3.2 WATER RESOURCES

Please refer to section 2.1.6 of the proposed MP for existing water resource information in and around Somerville Lake.

3.2.1 Alternative 1: No Action

There would be no impacts on water resources as a result of implementing the No Action Alternative since there would be no change to the existing MP. There are no known water resource related problems that the 1963 MP are helping to increase nor maintain.

3.2.2 Alternative 2: Proposed Action

The reclassifications and resource management objectives required for implementing the proposed MP would allow land management and land uses to be adjusted for current and reasonably foreseeable future changes in water resources. For example, the establishment of 1,069 acres as ESA lands would help stabilize soils through the promotion of and restoration native habitat. In turn, the habitat would help buffer and filter storm runoff before making its way into the lake. Minor, beneficial impacts to water quality may be realized during storm events as the natural areas may help to reduce erosion and subsequent water turbidity. Classifying 14,594 acres of MRML-LDR lands would result in more upland areas and wetlands being protected from erosion and sedimentation. Resource objectives makes it mandatory that all decision making processes take into consideration their impacts to Somerville Lake watershed, lake water supply, and water quality.

Additionally, 503 acres of surface waters are proposed to be classified as designated No Wake. These areas are near shorelines where wave action can increase erosion. This proposed Designated No Wake classification would be expected to help prevent further erosion and further reduce water turbidity.

Implementation of the proposed MP would have negligible positive short- and long-term impacts on water resources within and on USACE project lands.

3.3 CLIMATE, CLIMATE CHANGE AND GHG

Please refer to section 2.1.2 and 2.1.3 of the proposed MP for existing climate, climate change and greenhouse gas information in and around Somerville Lake.

3.3.1 Alternative 1: No Action

The No Action Alternative would not result in any change in management of Somerville Lake project land. Implementation of the 1963 MP would have no impact (beneficial or adverse) on existing or future climate conditions. Current policy (Executive Orders [EO] 13783 and 13990, and related USACE policy) requires project lands and recreational programs be managed in a way that advances broad national climate change mitigation goals including, but not limited to, climate change resilience and carbon sequestration. These policies would continue to be implemented under this Alternative which are not addressed in the 1963 MP goals and objectives, which is further proof of the 1963 MP inability to meet current laws and regulations.

3.3.2 Alternative 2: Proposed Action

The proposed MP would have negligible positive impacts to climate, climate change and GHG emissions in the region. The impacts would come from the proposed MP promotion of land management practices and design standards that promote sustainability. Management under the proposed MP would also follow current policy to meet climate change goals as described for the No Action Alternative. Ground disturbing activities that arise from guidance from this document would go through the NEPA and design process prior to implementation. It is during that time, impacts to the climate would be analyzed for those ground disturbing activities. The proposed MP would then promote land management practices and design standards that promote sustainability which would have negligible impacts.

3.4 AIR QUALITY

Please refer to section 2.1.4 of the proposed MP for existing air quality information in and around Somerville Lake.

3.4.1 Alternative 1: No Action

The continual implementation of the 1963 MP would not result in any changes to current and reasonably foreseeable future air quality in the region. No significant increase in vehicular traffic is anticipated, and no mass permanent vegetation removal or the building of mass industrial facilities would occur. The No Action Alternative would remain compliant with the Clean Air Act because the 1963 MP includes only guidelines and does not incorporate actions which produce criteria pollutants as explained in the previous sentence.

3.4.2 Alternative 2: Proposed Action

As with the No Action Alternative, the proposed MP would not result in any change to current and reasonably foreseeable air quality in the region. The Proposed Action does not propose any actions (i.e. ground disturbing activities) that directly or indirectly produce criteria pollutants (i.e. total emissions is 0); therefore, this action is compliant

with the Clean Air Act and State Implementation Plan and is not subject to a conformity determination. Negligible air quality benefits may be realized through the proposed classification of 1,069 acres as ESA lands, keeping 1,712 acres as MRML-WM lands as well as it being increased by an additional 12,882 acres, the reduction of HDR lands from 3,528 to 2,091 acres, and keeping 149 acres as MRML-LDR lands. These areas contain natural vegetation communities that filter and sequester air pollutants.

3.5 TOPOGRAPHY, GEOLOGY, AND SOILS

Please refer to section 2.1.5 of the proposed MP for existing topography, geology, and soils information in and around Somerville Lake.

3.5.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions, so there would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts on topography, geology, soils, or prime farmland as a result of implementing the No Action Alternative.

3.5.2 Alternative 2: Proposed Action

The proposed MP takes into consideration of the various topographical, geological, and soils aspects of USACE Somerville Lake project lands. The reduction of HDR lands (3,528 acres to 2,091 acres) and the designation of 1,069 acres as ESA, 1,712 acres as MRML-WM lands as well as it being increased by an additional 12,882 acres, and keeping 149 acres as MRML-LDR lands would help to increase the long term preservation and stabilization of the soils within USACE Somerville Lake project lands. The 7 proposed utility corridors would condense disturbances associated with utility operations to limited areas, further helping to reduce soil exposure to erosive wind and water forces. The establishment and management of the above land classes, as well as the implementation of resource objectives and goals discussed in Chapter 3 of the proposed MP, would have minor, positive, long-term impacts on soil conservation and topography, and geology at Somerville Lake.

3.6 NATURAL RESOURCES

Please refer to section 2.2.1 of the proposed MP for existing natural resources information in and around Somerville Lake.

3.6.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions; therefore, no short- or long-term, major, moderate, or minor, beneficial, or adverse impacts on natural resources would be anticipated as a result of implementing the No Action Alternative.

3.6.2 Alternative 2: Proposed Action

The implementation of the reclassifications of land management classes, improvement of resource management objectives, and the overall improvement of the proposed MP would allow natural resources within USACE Somerville Federal Project

lands to be better managed for the area's natural resources. Implementing the knowledge gained from the Wildlife Habitat Appraisal Procedure (WHAP) (Appendix C of the proposed MP) done for Somerville Lake would help to establish high quality and unique areas around the lake. The implementation of proposed land reclassifications would allow project lands to continue and further support the USFWS and the TPWD missions associated with wildlife conservation and implementation of operational practices that would protect and enhance wildlife and fishery populations and habitat. The new resource objectives also allows for natural resources to be managed with consideration of how they would be impacted from the retention of flood waters. The reduction of HDR lands (3,528 acres to 2,091 acres), classification of 14,594 acres as MRML-WM lands, maintaining 149 acres as MRML-LDR lands, and the designation of 1,069 acres as ESA in prime ecological areas helps to protect natural resources from various types of adverse impacts such as habitat fragmentation. The proposed 7 utility corridors described in section 6.2 and Table 6.1 of the proposed MP would increase the acreage of future undisturbed habitat by consolidating utility-related disturbances to specific areas. Therefore, under the Proposed Action, there would be major short- and long-term beneficial impacts on natural resources as a result of implementing the proposed MP.

3.7 THREATENED AND ENDANGERED SPECIES

Please refer to section 2.2.4 of the proposed MP for existing information on threatened and endangered species within the USACE fee owned boundary.

3.7.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions; therefore, no short- or long-term, major, moderate, or minor, beneficial, or adverse impacts on threatened and endangered species would be anticipated as a result of implementing the No Action Alternative.

3.7.2 Alternative 2: Proposed Action

The implementation of the proposed MP would allow for better cooperative management plans with the USFWS and TPWD that would help to preserve, enhance, and protect vegetation and wildlife habitat resources that are essential to various endangered and threatened species that may be found within USACE Somerville Lake federal project lands. To further management opportunities and beneficially impact habitat diversity, the reclassifications proposed in the MP include 1,069 acres as ESAs. Under this reclassification, several land parcels previously classified as Recreational Areas and Aesthetics Areas and Multiple Use Recreation Areas were converted to ESA in order to recognize those areas having the highest ecological value and to ensure they are given the highest order of protection among possible land classifications. Resource objectives makes it mandatory that threatened and endangered species are managed by various ecosystem management principles. In addition, all new utilities would be built along existing rights-of-way and the 7 proposed utility corridors. This would help to reduce future loss of natural resources that could potentially occur from placement of utility lines on project lands. Any future activities that could potentially result in impacts on federally listed species would be coordinated with USFWS through Section 7 of the

Endangered Species Act. There would be negligible impacts on federally threatened and endangered species anticipated as a result of implementing the Proposed Action Alternative. Any future activities that could potentially result in impacts on federally listed species would be coordinated with USFWS through Section 7 of the Endangered Species Act. Therefore, USACE has determined that the proposed MP would have No Effect on all federally threatened and endangered species within the study area.

3.8 3.8 INVASIVE SPECIES

Please refer to section 2.2.5 of the proposed MP for existing information on invasive species within the USACE fee owned boundary.

3.8.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions, so Somerville Lake would continue to be managed according to the existing invasive species management practices. There would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts from invasive species as a result of implementing the No Action Alternative.

3.8.2 Alternative 2: Proposed Action

The implementation of the reclassifications of land management classes, improvement of resource management objectives, and the overall improvement of the proposed MP would allow invasive species within USACE Somerville federal project lands to be better managed. Implementation of the knowledge gained from the Wildlife Habitat Appraisal Procedure (WHAP) survey done for Somerville Lake will help identify high value and unique areas that would benefit from further protection, thus reducing the opportunity for invasive species encroachment. The reduction of HDR lands (3,528 acres to 2,091 acres) and the designation of 1,069 acres as ESA, 14,594 acres as MRML-WM lands, and keeping 149 acres as MRML-LDR lands, especially in prime ecological areas helps to protect natural resources from various types of adverse impacts such as habitat fragmentation which increases the opportunity for the spread of invasive species. These areas will also receive more invasive species management efforts. Updated resource objectives also required monitoring and reporting of invasive species, as well as action items to prevent and/or reduce the spread of these species. The 7 proposed utility corridors would help to further reduce the spread of invasive species by removing avenues of entry that they can be introduced and spread by keeping all new utilities being built along those areas. Therefore, under the Proposed Action, there would be short- and long-term minor, beneficial impacts on invasive species as a result of implementing the proposed MP.

3.9 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

Please refer to section 2.3 of the proposed MP for existing information on cultural, historical, and archaeological resources within the USACE fee owned boundary.

3.9.1 Alternative 1: No Action

There would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts on cultural, historical, or archaeological resources as a result of implementing the No Action Alternative, as there would be no changes to the existing MP.

3.9.2 Alternative 2: Proposed Action

The implementation of revised land management classes, improvement of resource management objectives, and the overall improvement of the proposed MP would allow cultural, historical, and archaeological resources within USACE Somerville Federal Project Lands to be better managed. The proposed reclassifications, proposed utility corridors, resource objectives, and resource plan would not change current cultural resource management plans or alter areas where these resources exist. All future activities would be coordinated with the State Historic Preservation Officer and federally recognized Tribes to ensure compliance with Section 106 of the NHPA, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act. Therefore, no significant adverse impacts on cultural, historical, or archaeological resources would occur as a result of implementing the proposed MP. Beneficial impacts may occur as a result of the proposed MP, as lands classified as PO, ESA, MRML-LDR or MRML- WM would generally protect any historic properties within those lands against ground disturbing activities.

3.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Please refer to section 2.4 of the proposed MP for existing socioeconomic and environmental justice information in and around Somerville Lake.

3.10.1 Alternative 1: No Action

The continual implementation of the 1963 MP would result in the existing beneficial socioeconomic impacts to continue, as visitors would continue to come to the lake from surrounding areas. In addition to camping, many visitors purchase goods such as groceries, fuel, and camping supplies locally, eat in local restaurants, stay in local hotels and resorts, play golf at local golf courses, and shop in local retail establishments. These activities would continue to bring revenues to local companies, provide jobs for local residents, and generate local and state tax revenues. There would not be any disproportionately high or adverse impacts on minority or low-income populations or children with the implementation of the No Action Alternative.

3.10.2 Alternative 2: Proposed Action

The implementation of the proposed MP land reclassifications, resources objectives, and resource plan reflect changes in land management and land uses that have occurred since 1963. Somerville Lake offers a variety of recreational opportunities for visitors. It is beneficial to the local economy through direct and indirect job creation and local spending by visitors. Beneficial impacts would be similar to the No Action Alternative. There would be no adverse impacts on economy in the area nor any disproportionately high or adverse impacts on minority or low-income populations or children as a result of the Proposed Action.

3.11 RECREATION

Please refer to section 2.5 of the proposed MP for existing recreation information in and around Somerville Lake.

3.11.1 Alternative 1: No Action

Under the No Action Alternative, there would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts on recreational resources, as there would be no changes to the existing MP.

3.11.2 Alternative 2: Proposed Action

The USACE proposes to continue to lease recreation lands at Somerville Lake to non-federal partners, who are anticipated to maintain and improve existing facilities with potential plans for future expansion.

Somerville Lake is beneficial to the local visitors and also offers a variety of free recreation opportunities. Even though the amount of acreage available for High Density Recreation would decrease (3,528 acres to 2,091 acres) as well as for LDR (289 acres to 149 acres) with implementation of the proposed MP, these land reclassifications reflects changes in land management and land uses that have occurred since 1963 at Somerville Lake. Passive recreational activities would still be allowed as they are now within all lands regardless of the land classification. The resource objectives makes it mandatory that all decisions made in regard to the lake take into consideration their impacts to recreation and monitored should adjustments be needed. Therefore, under the Proposed Action, there would no adverse, short- or long-term impacts on recreation as numerous recreation opportunities would remain in and around Somerville Lake to accommodate various outdoor based recreation activities.

3.12 AESTHETIC RESOURCES

Please refer to section 2.2.6 of the proposed MP for existing aesthetic resource conditions in and around Somerville Lake.

3.12.1 Alternative 1: No Action

There would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts on visual resources as a result of implementing the No Action Alternative, as there would be no changes to the existing MP.

3.12.2 Alternative 2: Proposed Action

Somerville Lake currently plays a pivotal role in availability of parks and open space in Burleson, Lee, and Washington Counties as well as the surrounding region. The amount of acreage classified for recreation would reduce from 3,528 acres to 2,091 acres for HDR and from 289 acres to 149 acres for MRML-LDR with implementation of the proposed MP. These land reclassifications reflect changes in land management and land uses that have occurred since 1963 at Somerville Lake. The conversion of these lands would have no effect on current or projected public use or visual aesthetics as

views from natural and recreation areas would remain in place. Furthermore, designation of 1,069 acres as ESA, 14,594 acres as MRML-WM lands, and keeping 149 acres as MRML-LDR lands would protect lands that are aesthetically pleasing and available for passive recreation activity and limit future development. All new utilities would be built along existing right of ways and the 7 proposed utility corridors to limit aesthetics impacts to natural landscapes. Additionally, proposed resource objectives places an emphases on increasing public education on recreation, nature, cultural resources, and ecology resources at Somerville Lake. Therefore, under the Proposed Action, there would be no short- and long-term minor, adverse impacts to aesthetic resources as a result of implementing the proposed MP.

3.13 HAZARDOUS MATERIALS AND SOLID WASTE

Please refer to section 2.1.7 of the proposed MP for information concerning hazardous materials and solid waste in and around Somerville Lake fee owned boundary.

3.13.1 Alternative 1: No Action

There are no hazardous or solid waste advisories for the within Somerville Lake federal fee boundary. Nor has DSHS issued any DSHS fish consumption advisory warnings within the same area. USACE staff would continue annual environmental compliance assessments for potential hazardous materials and/or wastes to ensure compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). As such, there would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts from hazardous wastes as a result of implementing the No Action Alternative, as there would be no changes to the existing MP.

3.13.2 Alternative 2: Proposed Action

Similar to the No Action Alternative, USACE staff would continue annual environmental compliance assessments for potential hazardous materials and/or wastes to ensure compliance with CERCLA. Implementation of the Proposed Action would result in no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts from hazardous wastes.

3.14 HEALTH AND SAFETY

Please refer to section 2.1.8 of the proposed MP for information concerning health and safety in and around Somerville Lake fee owned boundary.

3.14.1 Alternative 1: No Action

Under the No Action Alternative, the current 1963 MP would not be revised. No adverse impacts on human health or safety would be anticipated.

3.14.2 Alternative 2: Proposed Action

The implementation of the proposed MP would result in the classification of Restricted Surface Water (8 acres), Designated No-Wake areas (503 acres), and Open-Recreation (10,892). These classifications maintain and in some cases, improve boating, non-motorized recreation, and swimming safety near the Somerville Lake Dam, water intake structures, and key recreational water access areas such as boat ramps and designated swimming areas.

The project would continue to have reporting guidelines in place should water quality become a threat to public health. Existing regulations and safety programs throughout the Somerville Lake project area would continue to be enforced to ensure public safety. The resource objectives makes it mandatory that various factors that impacts human safety at the lake are monitored and that actions are taken to address, eliminate or reduce those factors. Additionally, the objectives places an emphases on educating the public on water safety and on flood risk management efforts at Somerville Lake. Therefore, under the Proposed Action, there would be short- and long-term minor, beneficial impacts on health and safety as a result of implementing the proposed MP.

3.15 SUMMARY OF CONSEQUENCES AND BENEFITS

Table 3-8 provides a tabular summary of the consequences and benefits for the No Action and Proposed Action alternatives for each of the 13 assessed resource categories.

Table 3-1 Summary of Consequences and Benefits

Resource	Change Resulting from Revised MP	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Land Use	No effect on private lands. Emphasis is on protection of wildlife and environmental values on USACE land and maintaining current level of developed recreation facilities.	Fails to recognize recreation trends and regional natural resource priorities.	Recognizes recreation trends and regional natural resource priorities identified by TPWD, and public comments.	Land classification changes and new resource objectives fully recognize passive use recreation trends and regional environmental values such as protection of prairies.
Water Resources Including Groundwater, Wetlands, and Water Quality	Small change to recognize value of wetlands.	Fails to recognize the water quality benefits of good land stewardship and need to protect wetlands.	Promotes restoration and protection of wetlands and good land stewardship.	Specific resource objective promotes restoration and protection of wetlands.
Climate, Climate Change, and Greenhouse Gases	Minor change to recognize need for sustainable, energy efficient design.	Fails to promote sustainable, energy efficient design.	Promotes land management practices and design standards that promote sustainability.	Specific resource objectives promote national climate change mitigation goal. LEED standards for green design, construction, and operation activities would be employed to the extent practicable.
Air Quality	No change	No effect	No effect	No added benefit
Topography, Geology and Soils	Minor change to place emphasis on good stewardship of land and water resources.	Fails to specifically recognize known and potential soil erosion problems.	Encourages good stewardship that would reduce existing and potential erosion.	Specific resource objectives call for stopping erosion from overuse and land disturbing activities.
Natural Resources	Moderate benefits through land reclassification and resource objectives.	Fails to recognize ESAs, and regional priorities calling for protection of wildlife habitat.	Gives full recognition of sensitive resources and regional trends and priorities related to natural resources.	Reclassification of lands included 1,069 acres to ESA and an increase in lands emphasizing wildlife management.

Resource	Change Resulting from Revised MP	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Threatened and Endangered Species, including TXNDD species.	Minor change to recognize both federal and state-listed species.	Fails to recognize current federal and state-listed species.	Fully recognizes federal and state-listed species as well as SGCN listed by TPWD and Rare species listed by TPWD.	The proposed MP sets forth the most recent listing of federal and state-listed species and addresses on-going commitments associated with USFWS Biological Opinions.
Invasive Species	Minor change to recognize several recent and potentially aggressive invasive species.	Fails to recognize current invasive species and associated problems.	Fully recognizes current species and the need to be vigilant as new species may occur.	Specific resource objectives specify that invasive species shall be monitored and controlled as needed.
Cultural Resources	Minor change to recognize current status of cultural resources.	Included cursory information about cultural resources that is inadequate for future management and protection.	Recognizes the presence of cultural resources and places emphasis on protection and management.	Reclassification of lands included 1,069 acres to ESA and specific resource objectives were included for protection of cultural resources.
Socioeconomics and Environmental Justice	No change	No effect	No effect	No added benefit
Recreation	Moderate benefits to outdoor recreation programs.	Fails to recognize current outdoor recreation trends.	Fully recognizes current outdoor recreation trends and places special emphasis on trails.	Specific management objectives focused on outdoor recreation opportunities and trends are included.
Aesthetic Resources	Minor benefits through land reclassification and resource objectives.	Fails to minimize activities that disturb the scenic beauty and aesthetics of the lake.	Promotes activities that limit disturbance to the scenic beauty and aesthetics of the lake.	No added benefit Specific management objectives to minimize activities that disturb the scenic beauty and aesthetics of the lake.

Resource	Change Resulting from Revised MP	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Health and Safety	Minor change to promote public safety awareness.	Fails to emphasize public safety programs.	Recognizes the need for public safety programs.	Includes specific management objectives to increase water safety outreach efforts. Also, classifies 8 acres of water surface as restricted and designated no-wake for public safety purposes.

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SECTION 4: REASONABLY FORESEEABLE FUTURE

The most severe environmental degradation may not result from the direct effects of any particular action, but from the reasonably foreseeable future. As defined in 40 CFR 1508.1 (aa) (CEQ Regulations) as amended in 2020, “reasonably foreseeable means sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision.” Which is further clarified in 1508.1(g) under effects or impacts as to applying to “changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives.”

4.1 PAST IMPACTS WITHIN THE ZONE OF INTEREST

Somerville Lake was originally authorized for construction in 1954. Construction of Somerville Lake Dam began in June of 1962 and was completed in December of 1967. Deliberate impoundment began in January 1967. The total project area at Somerville Lake encompasses 29,925 acres, of which the reservoir makes up 11,395 acres at normal pool elevation of 238.0. The entire 29,925 acres were acquired in fee simple title by USACE, with an additional 3,572 acres in perpetual Flowage Easements.

4.2 CURRENT AND REASONABLY FORESEEABLE PROJECTS WITHIN AND NEAR THE ZONE OF INTEREST

Future management of the 3,572 acres of Flowage Easement Lands at Somerville Lake includes routine inspection of these areas to ensure that the Government’s rights specified in the easement deeds are protected. In almost all cases, the Government acquired the right to prevent placement of fill material or habitable structures on the easement area. Placement of any structure that may interfere with the USACE flood risk management and water conservation missions may also be prohibited.

National USACE policy set forth in ER 1130-2-550, Appendix H, states that USACE lands would, in most cases, only be made available for roads that are regional arterials or freeways (as defined in ER 1130-2-550). All other types of proposed roads, including driveways and alleys, are generally not permitted on USACE lands. The proposed expansion or widening of existing roadways on USACE lands would be considered on a case-by-case basis. There are not any major projects being proposed nor being built in and within vicinity of Somerville Lake.

4.3 ANALYSIS OF IMPACTS WITHIN THE REASONABLY FORESEEABLE FUTURE

Impacts on each resource were analyzed according to how other actions and projects within the zone of interest might be affected by the No Action Alternative and Proposed Action. Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis the

intensity of impacts would be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3.0. Moderate growth and development are expected to continue in the vicinity of Somerville Lake within the reasonably foreseeable future and adverse impacts on resources would not be expected when added to the impacts of activities associated with the Proposed Action or No Action Alternative. A summary of the anticipated impacts into the reasonably on each resource is presented below.

4.3.1 Land Use

A major impact would occur if any action were inconsistent with adopted land use plans or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Land use around Somerville Lake has experienced major change, it is rapidly being developed from agricultural fields into urbanized communities. Under the No Action Alternative, land use would not change. Although the Proposed Action would result in the reclassification of project lands, the reclassifications were developed to help fulfill regional goals associated with good stewardship of land resources that would allow for continued use of project lands.

Section 6.1 of the proposed MP also identifies the need and location for proposed utility corridors. The purpose of utility corridors is to condense the footprint and associate impacts of any future roads and utilities crossings on USACE lands. Therefore, reasonably foreseeable future impacts on land use within the area surrounding Ray Roberts Lake, when combined with past and proposed actions in the region, are anticipated to be negligible.

4.3.2 Water Resources

A major impact would occur if any action were inconsistent with adopted surface water classifications or water use plans, or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Somerville Lake is currently managed for flood control, water conservation, fish and wildlife, and recreation purposes. The reclassifications and resource objectives required to revise the 1963 MP are compatible with water use plans and surface water classification; further, they were developed to help fulfill regional goals associated with good stewardship of water resources that would allow for continued use of water resources associated with Somerville Lake. Therefore, reasonably foreseeable future impacts on water resources within the area surrounding Ray Roberts Lake, when combined with past and proposed actions in the region, are anticipated to be minor.

4.3.3 Climate

The Proposed Action would neither affect nor be affected by the climate. Therefore, implementation of the revised land use classifications in the proposed MP, when combined with other existing and proposed projects in the region, would not result in major reasonably foreseeable future impacts on the climate.

4.3.4 Climate Change and GHG

Under the Proposed Action, current Somerville Lake project management plans and monitoring programs would not be changed. In the event that GHG emission issues become significant enough to impact the current operations at Somerville Lake, the

proposed MP and all associated documents would be reviewed and revised as necessary. Therefore, implementation of the proposed MP, when combined with other existing and proposed projects in the region, would not result in reasonably foreseeable future impacts on climate change or GHG.

4.3.5 Air Quality

The Proposed Action would not adversely impact air quality within the area. Vehicle traffic along park and area roadways and routine daily activities in nearby communities contribute to current and future emission sources; however, the impacts associated with the reclassification of lands at Somerville Lake under the Proposed Action would be negligible. Seasonal prescribed burning could occur on Somerville Lake to help maintain the various prairies found throughout the fee boundary, but would have minor, negative impacts on air quality through elevated ground-level O_3 and particulate matter concentrations; however, these seasonal burns would be scheduled so that impacts are minimized. Implementation of the 2022 MP, when combined with other existing and proposed projects in the region, could result in minor adverse and beneficial reasonably foreseeable future impacts on air quality.

4.3.6 Topography, Geology, and Soils

A major impact could occur if a proposed future action exacerbates or promotes long-term erosion, if the soils are inappropriate for the proposed construction and would create a risk to life or property, or if there would be a substantial reduction in agricultural production or loss of Prime Farmland soils. Reasonably foreseeable future impacts on topography, geology, and soils within the area surrounding Somerville Lake, when combined with past and proposed actions in the region, are anticipated to be negligible.

4.3.7 Natural Resources

The significance threshold for natural resources would include a substantial reduction in ecological processes, communities, or populations that would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be offset or otherwise compensated. Past, present, and future projects are not anticipated to impact the viability of any plant species or community, rare or sensitive habitats, or wildlife. The establishment of ESA, and keeping MRML-WM & LDR areas, as well as resource objectives that favor protection and restoration of valuable natural resources would have beneficial reasonably foreseeable future impacts. No identified projects would threaten the viability of natural resources. Therefore, there would be major long-term beneficial impacts to natural resources resulting from the revision of the proposed MP when combined with past and proposed actions in the area.

4.3.8 Threatened and Endangered Species

The Proposed Action and No Action Alternative would not adversely impact threatened, endangered and TXNDD species within the area. Should federally listed species change in the future (e.g., delisting of the Least Tern or other species or listing of new species), associated requirements would be reflected in revised land management practices in coordination with the USFWS. The USACE would continue cooperative management plans with the USFWS and TPWD to preserve, enhance, and protect critical wildlife habitat resources.

No new projects are proposed for USACE lands within the Somerville Lake project area, and past, present, and future projects are not anticipated to impact threatened and endangered species as they would be coordinated with the appropriate resource agencies. Therefore, implementation of the Proposed Action, when considering reasonably foreseeable future impacts, would have No Effect on Federally-listed species in the Somerville Lake Project Area.

4.3.9 Invasive Species

To the extent that funding would allow, USACE would continue its proactive herbicide treatments to control invasive species that affect not only the natural biological resources, but also recreational opportunities. Pesticide treatment for invasive ants would also continue. The USACE would also continue to monitor for zebra mussels and take all practicable measures to prevent them from becoming a nuisance to Somerville Lake.

Invasive species control has and would continue to be conducted on various areas across the project lands. Implementing Best Management Practices (BMP) would help reduce the introduction and distribution of invasive species, ensuring that proposed actions in the region would not contribute to the overall reasonably foreseeable future impacts related to invasive species.

The land reclassifications required to revise the 1963 MP are compatible with Somerville Lake invasive species management practices. Therefore, there would be minor long-term beneficial impacts on reducing and preventing invasive species within the area surrounding Somerville Lake.

4.3.10 Cultural, Historical, and Archaeological Resources

The Proposed Action would not affect cultural resources or historic properties, as the proposed MP does not involve any ground disturbing activities. However, ESA and Wildlife Management lands would provide additional protection against ground disturbances. Additionally, the proposed Utility Corridors would restrict any future pipelines, roads, or other infrastructure to already disturbed areas, further limiting impacts on cultural resources. Therefore, this action, when combined with other existing and proposed projects in the region, would not result in reasonably foreseeable future impacts on cultural resources or historic properties.

4.3.11 Socioeconomics and Environmental Justice

The Proposed Action would not result in the displacement of persons (minority, low-income, children, or otherwise) as a result of implementing the reclassifications, resources objectives, and resource plan proposed in the 2022 MP. Therefore, the effects of the Proposed Action on environmental justice and the protection of children, when combined with other ongoing and proposed projects in the Somerville Lake area, would not result in reasonably foreseeable future impacts.

4.3.12 Recreation

Somerville Lake provides regionally significant outdoor recreation benefits including a variety of recreation opportunities. Even though the amount of acreage available for High Density Recreation and Low Density Recreation would decrease as a result of implementing the reclassifications, resources objectives, and resource plan proposed in

the 2022 MP, these changes reflect changes in land management and historic recreation use patterns that have occurred since 1963 at Somerville Lake. The conversion of these lands would have no effect on current or projected public use. Therefore, the Proposed Action, when combined with other existing and proposed projects in the region, would result in negligible beneficial reasonably foreseeable future impacts on area recreational resources.

4.3.13 Aesthetic Resources

No impacts on visual resources would occur as a result of implementing the reclassifications, resources objectives, and resource plan proposed in the 2022 MP.

4.3.14 Hazardous Materials and Solid Waste

No hazardous material or solid waste concerns would be expected with implementation of the proposed MP; therefore, when combined with other ongoing and proposed projects in the Somerville Lake area, there would be no reasonably foreseeable future impacts from hazardous materials and solid waste.

4.3.15 Health and Safety

No health or safety risks would be created by the Proposed Action. The effects of implementing the 2022 MP, when combined with other ongoing and proposed projects in the Somerville Lake area, would not result in any reasonably foreseeable impacts.

SECTION 5: COMPLIANCE WITH ENVIRONMENTAL LAWS

This EA has been prepared to satisfy the requirements of all applicable environmental laws and regulations, and has been prepared in accordance with the CEQ's implementing regulations for NEPA, 40 CFR Parts 1500 – 1508, and the USACE ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The revision of the 1963 MP is consistent with the USACE's Environmental Operating Principles. The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

Fish and Wildlife Coordination Act of 1958, as amended – The USACE initiated public involvement and agency scoping activities to solicit input on the revision of the 1963 MP, as well as identify reclassification proposals, and identify significant issues related to the Proposed Action. Information provided by USFWS and TPWD on fish and wildlife resources has been utilized in the development of the proposed MP.

Endangered Species Act of 1973, as amended – Current lists of threatened or endangered species were compiled for the 2022 MP. There would be no adverse impacts on threatened or endangered species resulting from the revision of the 1963 MP. However, beneficial impacts, such as habitat protection, could occur as a result of the revision of the 1963 MP by classification of ESA and Vegetation Management lands.

Executive Order 13186 (Migratory Bird Habitat Protection) – Sections 3a and 3e of EO 13186 direct Federal agencies to evaluate the impacts of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative impacts on migratory birds. The revision of the 1963 MP would not result in adverse impacts on migratory birds or their habitat. Beneficial impacts could occur through protection of habitat as a result of the proposed MP revision.

Migratory Bird Treaty Act, as amended – The Migratory Bird Treaty Act of 1918 extends Federal protection to migratory bird species. The nonregulated "take" of migratory birds is prohibited under this act in a manner similar to the prohibition of "take" of threatened and endangered species under the Endangered Species Act. The timing of resource management activities would be coordinated to avoid impacts on migratory and nesting birds.

CWA of 1977, as amended – The Proposed Action is in compliance with all state and Federal CWA regulations and requirements and is regularly monitored by the USACE and TCEQ for water quality. A state water quality certification pursuant to Section 401 of the CWA is not required for the proposed MP. There would be no change in the existing management of the reservoir that would impact water quality.

National Historic Preservation Act (NHPA) of 1966, as amended – Compliance with the NHPA of 1966, as amended, requires identification of all properties in the project area listed in, or eligible for listing in, the NRHP. All previous surveys and site salvages were coordinated with the Texas State Historic Preservation Officer. Known sites are mapped and avoided by maintenance activities. Areas that have not undergone cultural resources surveys or evaluations would need to do so prior to any earthmoving or other potentially impacting activities.

Clean Air Act of 1977, as amended – The USEPA established nationwide air quality standards to protect public health and welfare. Existing operation and management of the reservoir is compliant with the Clean Air Act and would not change with the implementation of the proposed MP.

Farmland Protection Policy Act (FPPA) of 1980 and 1995 – The FPPA's purpose is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. There are Prime Farmland and farmland of state importance on Somerville Lake project lands, but these would not be significantly impacted.

Executive Order 11990, Protection of Wetlands, as amended – EO 11990 requires Federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in executing Federal projects. The Proposed Action complies with EO 11990.

Executive Order 11988, Floodplain Management, as amended – This EO directs Federal agencies to evaluate the potential impacts of proposed actions in floodplains. The operation and management of the existing project complies with EO 11988.

CEQ Memorandum dated August 11, 1980, Prime or Unique Farmlands – Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The Proposed Action would not impact Prime Farmland present on Somerville Lake project lands.

Executive Order 12898, Environmental Justice – This EO directs Federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The revisions in the proposed MP would not result in a disproportionate adverse impact on minority or low-income population groups.

SECTION 6: IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

NEPA requires that Federal agencies identify "any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented" (42 U.S.C. § 4332). An irreversible commitment of resources occurs when the primary or secondary impacts of an action result in the loss of future options for a resource. Usually, this is when the action affects the use of a nonrenewable resource, or it affects a renewable resource that takes a long time to regenerate. The impacts for this project from the reclassification of land would not be considered an irreversible commitment because subsequent MP revisions could result in some lands being reclassified to a prior, similar land classification. An irretrievable commitment of resources is typically associated with the loss of productivity or use of a natural resource (e.g., loss of production or harvest). No irreversible or irretrievable impacts on Federally protected species or their habitat is anticipated from implementing revisions to the Somerville Lake MP.

SECTION 7: PUBLIC AND AGENCY COORDINATION

In accordance with 40 CFR §§ 1501.9, and 1506.6, the USACE initiated public involvement and agency scoping activities to solicit input on the revision of the 1963 MP, as well as identifying reclassification proposals and significant issues related to the Proposed Action. The USACE began its public involvement process with a public scoping meeting to provide an avenue for public and agency stakeholders to ask questions and provide comments. Out of concern for public safety regarding the ongoing COVID-19 virus pandemic, this public scoping meeting consisted of an online presentation that was held on February 24, 2021. The USACE, Fort Worth District, placed advertisements on the USACE webpage, social media, and print publications prior to the public scoping meeting.

The USACE will also hold a virtual public meeting to introduce the draft proposed MP and EA to the public. Public review and comment period on the draft proposed MP and EA will begin on May 6, 2022, and end on June 6, 2022.

At the close of the 30-day public review period, public comments received will be incorporated and formally addressed in Appendix F of the MP. Attachment A includes the ads published in the local newspaper, the agency coordination letters, and the distribution list for the coordination letters. The EA is being coordinated with agencies having legislative and administrative responsibilities for environmental protection.

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SECTION 8: REFERENCES

Council on Environmental Quality (CEQ). 2020. Executive Office of the President. *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*.

United States Army Corps of Engineers (USACE). 2022. Proposed Somerville Lake Master Plan, Brazos River Basin: Yegua Creek. Burleson, Lee, and Washington Counties, Texas. USACE, Fort Worth District.

USACE. 1988. *Engineering Regulation 200-2-2, Procedures for Implementing NEPA*. Washington, DC.

USACE. 2019. Somerville Dam Water Control Manual.

SECTION 9: ACRONYMS/ABBREVIATIONS

%	Percent
°	Degrees
ac-ft	acre-feet
AQCR	Air Quality Control Region
BMP	Best Management Practice
BP	Before Present
CAP	Climate Action Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO2e	CO2-equivalent
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
DSHS	Department of State Health Services (Texas)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Ecological Mapping System (TPWD)
EO	Executive Order
EP	Engineer Pamphlet
ER	Engineer Regulation
ERS	Environmental Radiation Surveillance
ESA	Environmentally Sensitive Area
F	Fahrenheit
FAA	Federal Aviation Administration
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gas
gpm	gallons per minute
HDR	High Density Recreation
HTRW	Hazardous, Toxic, Radioactive Wastes
IFR	Inactive/Future Recreation
IPAC	Information for Planning and Consultation (USFWS)
LDR	Low Density Recreation
MP	Master Plan
MRML	Multiple Resource Management Lands
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NO	Nitrogen Oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRRS	National Recreation Reservation Service
NWI	National Wetlands Inventory (USFWS)
O_3	Ozone
OAQPS	Office of Air Quality Planning and Standards
Pb	Lead

PCB	Polychlorinated Biphenyls
PCPI	Per Capita Personal Incomes
PL	Public Law
$PM_{2.5}$	Particulate Matter Less than 2.5 Microns
PM_{10}	Particulate Matter Less than 10 Microns
PO	Project Operations
RM	River Mile
ROD	Record of Decision
RPEC	Regional Planning and Environmental Center
SGCN	Species of Greatest Conservation Need
SMU	Southern Methodist University
SO_2	Sulfur Dioxide
SUPER	USACE Suite of Computer Programs
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPWD	Texas Parks and Wildlife Department
TSWQS	Texas Surface Water Quality Standards
TXNDD	Texas Natural Diversity Database
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Group
VOC	Volatile Organic Compounds
WHAP	Wildlife Habitat Appraisal Procedures
WM	Wildlife Management
VM	Vegetation Management
ZOI	Zone of Interest

SECTION 10: LIST OF PREPARERS

Paul E. Roberts - Biologist, Regional Planning and Environmental Center, Fort Worth District- 7 years of USACE experience.

Blake Westmoreland – Biologist, Regional Planning and Environmental Center, Fort Worth District. 4 years of USACE experience.

ATTACHMENT A: NEPA COORDINATION AND PUBLIC SCOPING

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

12 February 2021

Public Notice

Public Input for Somerville Lake Master Plan Revision,
Somerville Lake, Brazos River Basin
Burleson, Lee, & Washington Counties, Texas

The Fort Worth District, U.S. Army Corps of Engineers (USACE) is revising the Somerville Lake Master Plan. The public is invited to view a brief presentation describing the revision process, a map of current land classifications, and instructions on how to submit public comments at the following website:

https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Master-Plan-Updates/Somerville-Lake/

The public involvement process will be conducted online in lieu of face-to-face workshops due to the COVID-19 pandemic. All members of the public are encouraged to submit online comments and suggestions from **24 February** through **26 March 2021**. The presentation and online review materials will be available during the 30-day comment period.

A Master Plan is defined by USACE as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project. In general, it defines “how” the resources will be managed for public use and resource conservation, and is a vital tool used by USACE to guide the responsible stewardship of USACE administered lands and resources for the benefit of present and future generations.

The current 1963 master plan was last updated in 1971 and is in need of a full revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. Key topics to be addressed in the revised master plan include revised land classifications, natural, cultural, and recreational resource management objectives, recreation facility needs, and special topics such as threatened and endangered species habitat. **Public participation is critical to the successful revision of the Master Plan.**

Questions pertaining to the proposed revision can be addressed to: **Russell Meier**, Lake Manager, U.S. Army Corps of Engineers, m2swfodso@usace.army.mil, (979) 596-1622.

Sincerely,

Amanda McGuire

Amanda M. McGuire
Chief, Environmental Branch
Regional Planning and Environmental Center

Somerville Lake Master Plan Revision

Presentation for Public and Agency Input

The Fort Worth District, U.S. Army Corps of Engineers (USACE) is hosting an online review to provide information and receive public input to begin the process of revising the Master Plan for Somerville Lake. Normally, USACE would conduct a face-to-face public workshop to announce the start of the revision and to request comments from the public. However, precautions associated with the COVID-19 virus have made it necessary to conduct the public involvement process online instead of hosting a face-to-face workshop. Please watch the following video presentation or download the PDF copy to read the presentation.
The existing Master Plan documents and map are available to download at the bottom of the page as well as a comment form with instructions on how to send comments.

Watch video on YouTube
Download a PDF copy to read the presentation.

General Information

The U.S. Army Corps of Engineers (USACE), Fort Worth District, is revising the Somerville Lake Master Plan. The Master Plan is intended to serve as a comprehensive land and recreational management plan with a life span of 25 years. The Plan guides the stewardship of natural and cultural resources and the provision of outdoor recreation facilities with opportunities to ensure sustainability of federal land associated with Somerville Lake.

About Somerville Lake

Somerville Lake was authorized by the Flood Control Act approved 03 September 1954 (Public Law (PL) 83-780) for the purpose of flood control, water conservation storage, recreation, and fish and wildlife enhancement. Somerville Lake is currently a multipurpose water resources project operated by USACE that includes balancing the needs of the surrounding population, visitors, and the ecological system. The lake, located on the Yegua Creek River in the Brazos River Basin, is also managed for public recreation and environmental stewardship, including fish and wildlife conservation.

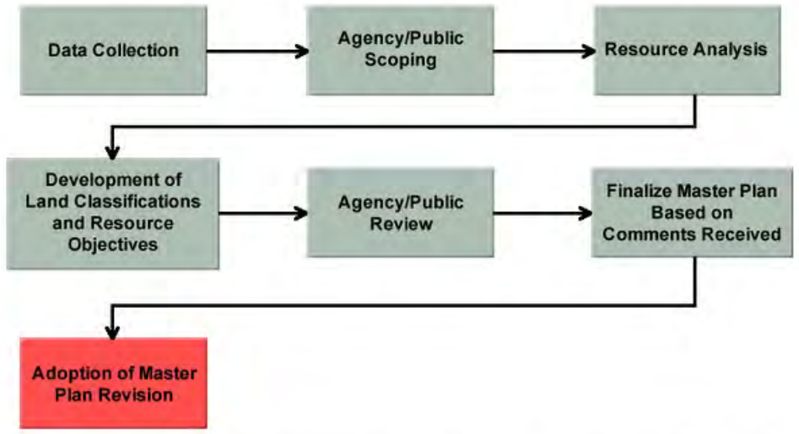
What is a Master Plan?

The Master Plan is the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources of the lake throughout the life of the water resources project.

Why Revise the Somerville Master Plan?

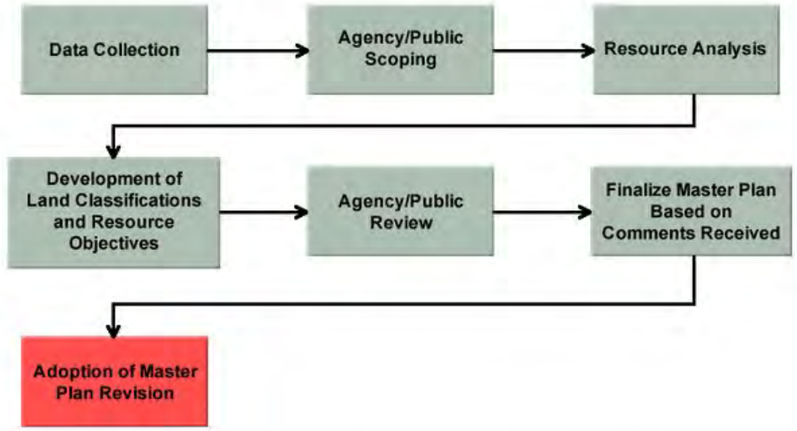
The current Master Plan for Somerville Lake was last updated in 1971, which was a supplement to the 1963 Master Plan. The Plan and the land classifications are in need of revision to address changes in regional land use, population, outdoor recreation trends and USACE management policy. Key topics to be addressed in the revised Master Plan include revised land classifications, new natural and recreational resource management objectives, recreation facility needs and special topics such as invasive species management and threatened and endangered species habitat. Public participation is critical to the successful revision of the Master Plan.

The Master Planning Process



Comments may be submitted online by filling out the Comment Form below and clicking the link provided on the comment form, or by mailing the comments to the address below. Only written comments will be accepted. The comment period begins February 24, 2021 and ends March 26, 2021. Comments and questions pertaining to the master plan revision can be addressed to:

The Master Planning Process



Comments may be submitted online by filling out the Comment Form below and clicking the link provided on the comment form, or by mailing the comments to the address below. Only written comments will be accepted. The comment period begins February 24, 2021 and ends March 26, 2021. Comments and questions pertaining to the master plan revision can be addressed to:

U.S. Army Corps of Engineers
Attn: Russell Meier, Lake Manager

Phone: (979) 596-1622
OR
Email: m2swfodso@usace.army.mil

Related Files

February 24, 2021

- Public Involvement Presentation (630 KB)
- Comment Form with Instructions (264 KB)
- Lake Project Overview Map (5 MB)
- Master Plan Updated Land Use Appendix C - April 1971 (1.2 MB)
- Master Plan - February 1963 (27 MB)
- General Development Plan - February 1963 (1.2 MB)

February 12, 2021

- News Release NR 21-004
- Public Notice: Public Input for Somerville Lake Master Plan Revision, Somerville Lake, Brazos River Basin, Burleson, Lee, and Washington Counties, Texas

NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

For Immediate Release: NR 21-004
February 12, 2021

Contact: Clay Church, 817-886-1314
clayton.a.church@usace.army.mil

U.S. Army Corps of Engineers officials to host virtual public involvement presentation for the Somerville Lake Master Plan revision

FORT WORTH, Texas – U.S. Army Corps of Engineers, Fort Worth District official announce the initiation of the process to revise the Somerville Lake Master Plan. The public is invited to view the online public involvement video presentation along with pertinent information at the following website:

https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Master-Plan-Updates/Somerville-Lake/

Beginning on February 24, the USACE website above will contain a brief video presentation describing the revision process, a copy of the current (1963) master plan, a map of the current land use classifications, and instructions for submitting comments to USACE. The public involvement process will be conducted online in lieu of face-to-face workshops due to the COVID-19 pandemic. All members of the public are encouraged to submit written comments and suggestions during the 30-day public comment period from February 24 through March 26.

USACE defines a master plan as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project. The master plan is a vital tool produced and used by USACE to guide the responsible stewardship of USACE administered lands and resources for the benefit of present and future generations. Public participation is critical to the successful revision of the master plan.

The current 1963 master plan was last updated in 1971 and is in need of a full revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. Key topics to be addressed in the revised master plan include revised land classifications, natural, cultural, and recreational resource management objectives, recreation facility needs, and special topics such as threatened and endangered species habitat.

Questions pertaining to the proposed revision can be addressed to: Lake Manager Russell Meier, U.S. Army Corps of Engineers, m2swfodso@usace.army.mil, (979) 596-1622.

-30-

Visit the Fort Worth District Web site at: www.swf.usace.army.mil and social media at: https://about.me/usacefortworth

US Army Corps of Engineers®

Public Workshop

Comment Form

Somerville Lake, Texas

Master Plan Revision

Somerville, Texas

24 February through 26 March 2021

Questions, comments, or suggestions?

Your input on the Master Plan revision and any related environmental comments under the National Environmental Policy Act (NEPA) is valuable. Your participation is key to development of a successful Master Plan. Please write your questions, comments, or suggestions in the space provided below. Feel free to use additional pages if needed. Instructions for commenting are given below, and all written comments must be received within the 30 day window above. Thank you for your participation!

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Optional Information (used for mailing list to keep you informed and will not be used for any other purpose):

Name:_____ Affiliation:_____

Address:_____ City:_____ State:_____

Zip code:_____ Phone: ____/_____ Email:_____

Mail or email comment sheet to the following Point of Contact:

Russell Meier, USACE – Somerville Lake Manager
1560 Thornberry Drive
Somerville, Texas 77879
Email: m2swfodso@usace.army.mil

Additional information and comment sheets can be found at the following:
http://www.swf.usace.army.mil/About/LakesandRecreationInformation/MasterPlanUpdates.aspx

US Army Corps of Engineers®

Comment Form Instructions

Somerville Lake, Texas

Master Plan Revision

Comment Period

24 February - 26 March 2021

The U.S. Army Corps of Engineers is in the process of revising the Somerville Lake Master Plan. The master plan revision will guide the land and recreational management of the federally owned property that make up the lake and its shoreline for the next 25 years. Management activities include protecting natural and cultural resources, providing public land and water recreation, protecting the public, and ensuring reservoir and dam operations. Pertinent dam and reservoir information and a copy of the current land use map can be found on the web address below.

To add your comments, ideas, or concerns about the future land and recreational management for Somerville Lake, please submit comments using any of the following methods:

- view the presentation, current master plan, and map and fill out a comment form available at: http://www.swf.usace.army.mil/About/LakesandRecreationInformation/MasterPlanUpdates/Somerville-Lake
- provide comments in an email message or use comment form and send to: m2swfodso@usace.army.mil
- provide comments in a letter or use comment form and mail to:

Russel Meier, USACE
Somerville Lake Manager
1560 Thornberry Drive
Somerville, Texas 77879

Thank you for your participation in helping develop the Master Plan for Somerville Lake.

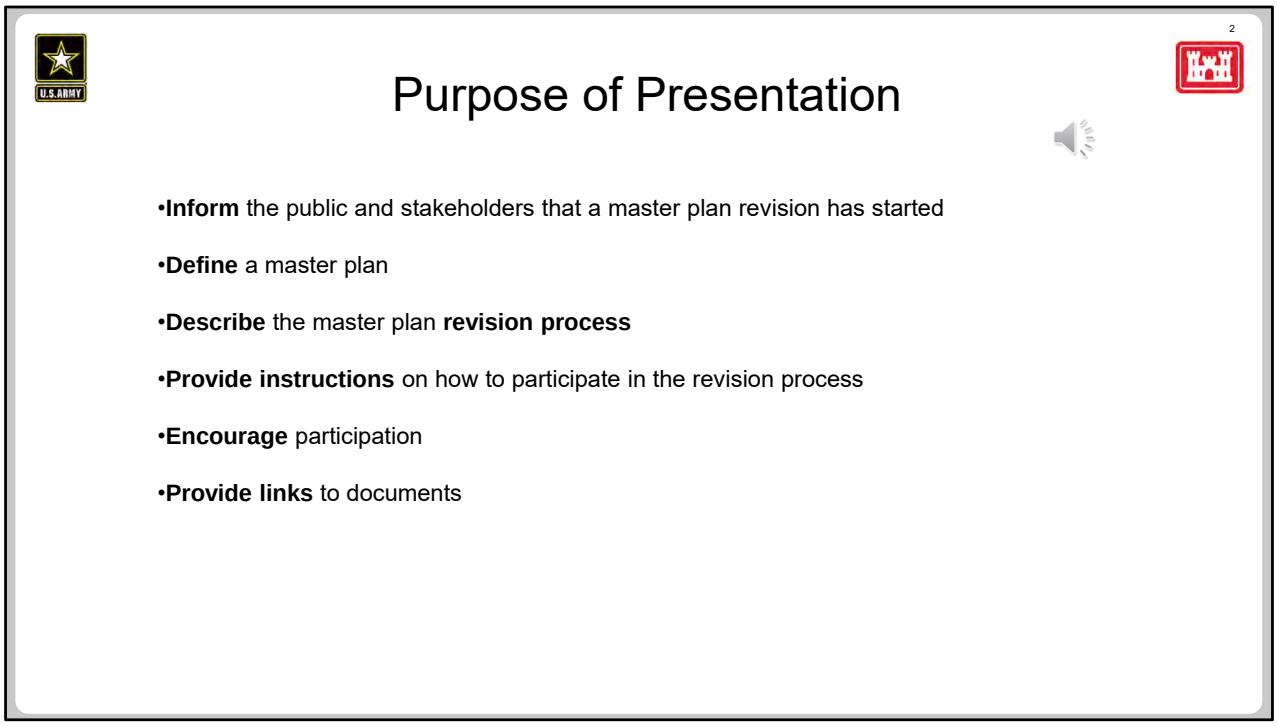
SOMERVILLE LAKE
MASTER PLAN REVISION:
PUBLIC INVOLVEMENT PRESENTATION

U.S. Army Corps of Engineers
Fort Worth District
Somerville Lake, Texas

24 February 2021

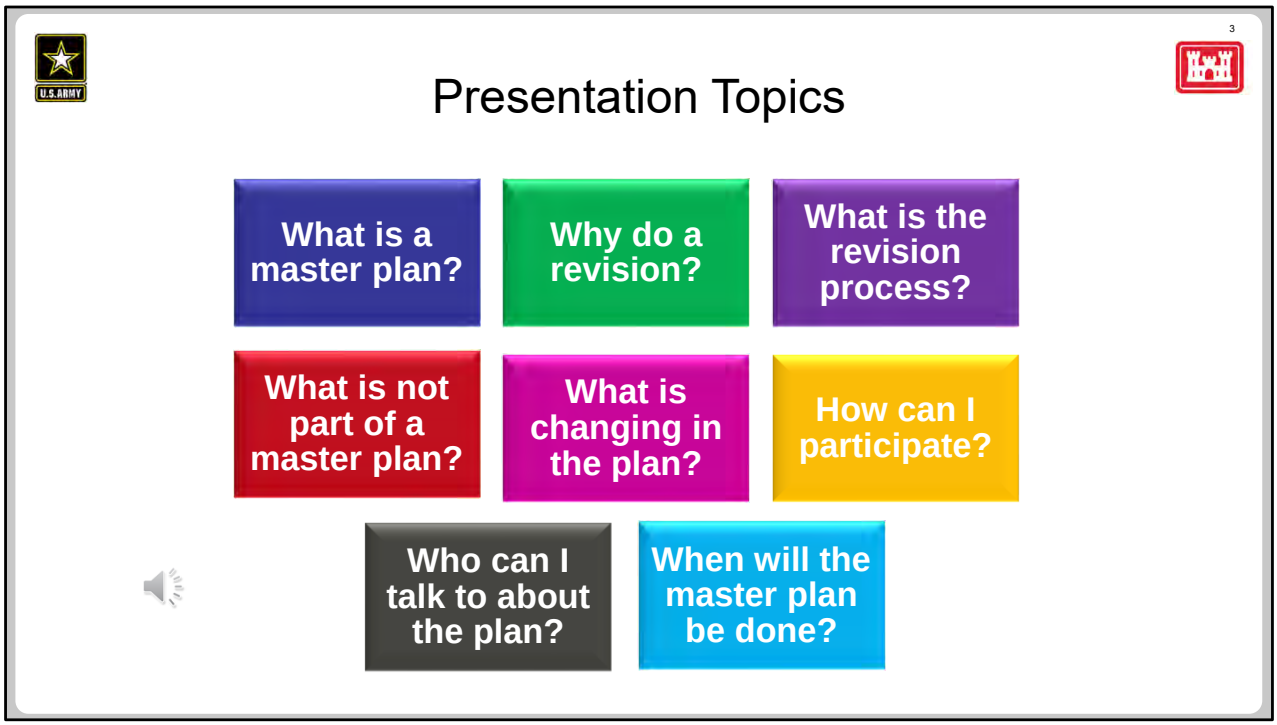
US Army Corps of Engineers

Welcome to the Public Involvement Presentation for the master plan revision at **Somerville Lake.** ***Public and stakeholder involvement is critical to the success of the master plan revision***. As the country is responding to the COVID-19 outbreak, public meetings and workshops which accompany a master plan revision are all cancelled. The presentation you are viewing is the alternative to the Corps hosting face-to-face public meetings or workshops. Thank you for taking the time to participate.



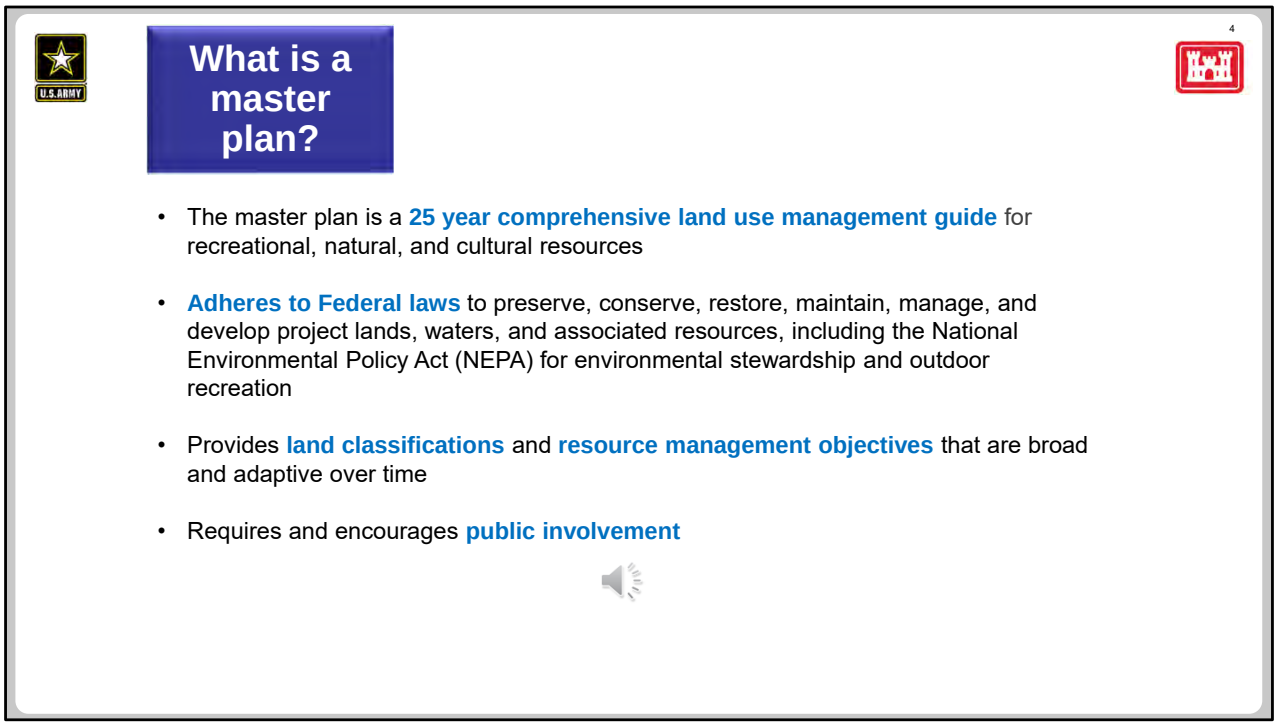
The purpose of this presentation is to inform the public and stakeholders that a master plan revision has started at Somerville Lake. This presentation will define a master plan, describe the master plan revision process, provide instructions on how to participate in the process, and encourage participation. It will also provide links to documents and details about how to contact the Corps to ask questions.

The information provided through public and stakeholder comments is essential to the decision making process of how project lands will be classified and managed. The Corps wants your ideas and comments. After watching this presentation, review the other material on the project website and send in comments and participate in planning the future of Somerville Lake.



Topics to be covered in this presentation are summed up under these 8 questions that are often asked in a public meeting or workshop:
What is a master plan?
Why do a revision?
What is the revision process?
What is not part of a master plan?
What is changing in the Plan?
How can I participate?
Who can I talk to about the plan?
When will the master plan be done?

Under each of these 8 topics, this presentation will provide details to help you better understand the master plan project and your role in the process.

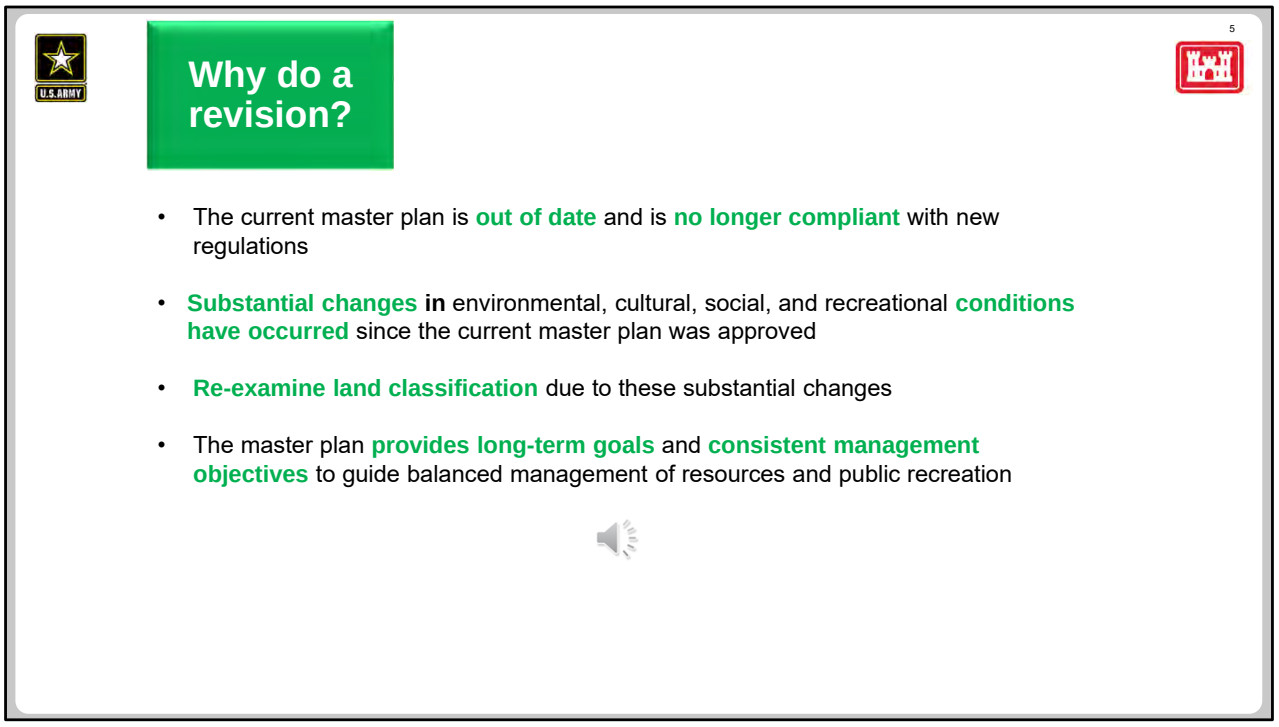


You might be wondering, what is a master plan?

The master plan is the document that will guide the land use and management of the project for the next 25 years, while adhering to all applicable Federal laws including the National Environmental Policy Act, or NEPA. The focus of the plan is the designation of land classifications with corresponding management plans, as well as establishing resource management objectives.

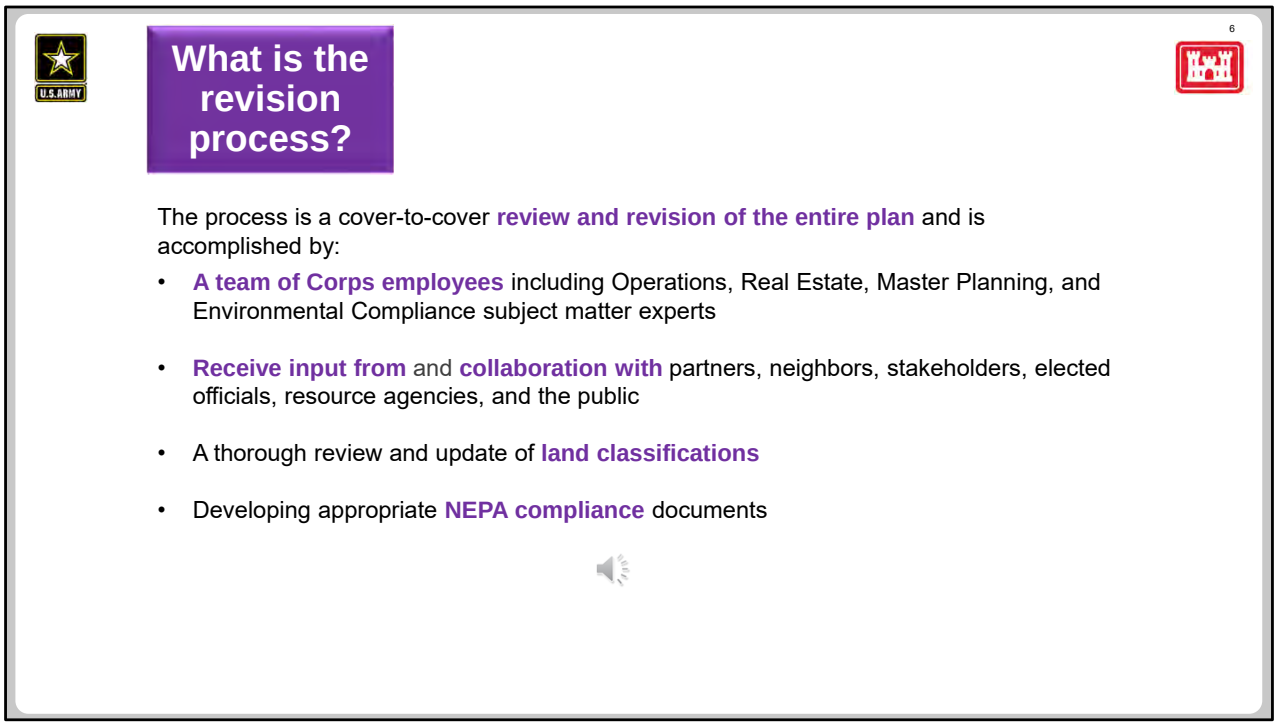
The key to a successful master plan is public involvement.

Participation, in the form of providing written comments, is how you can help.

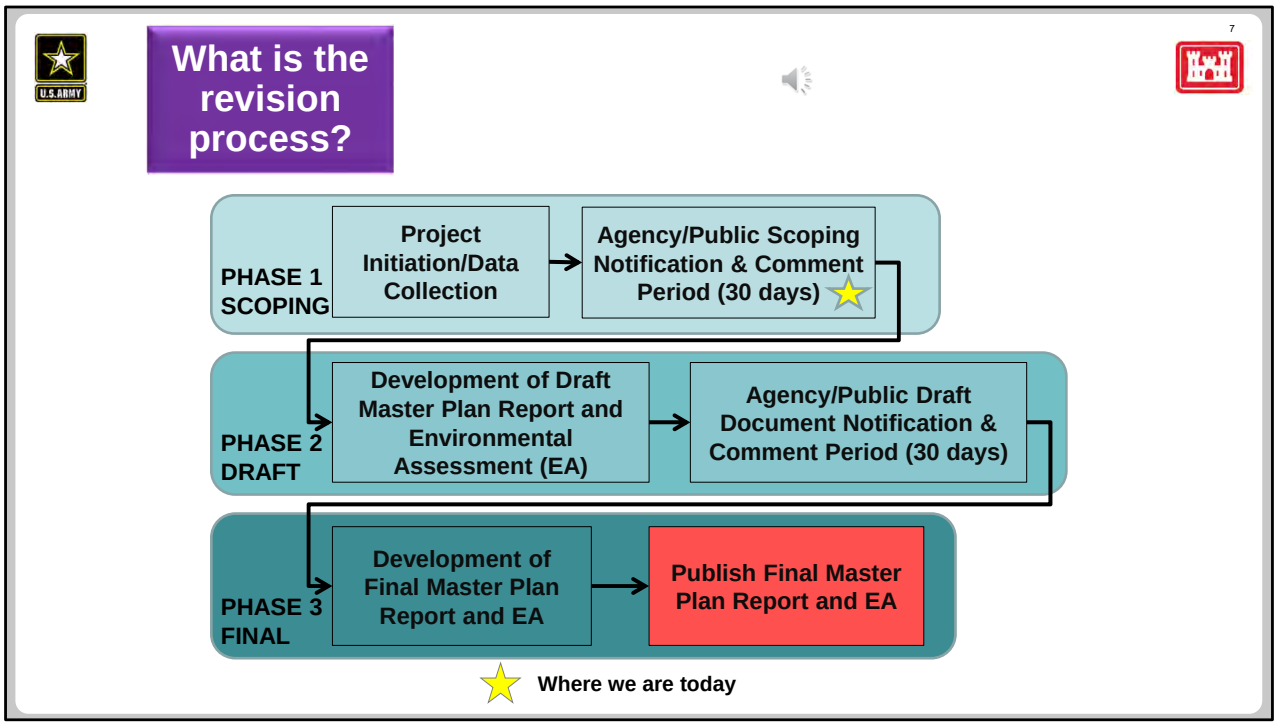


Why is the Corps doing a revision to the master plan at this time?

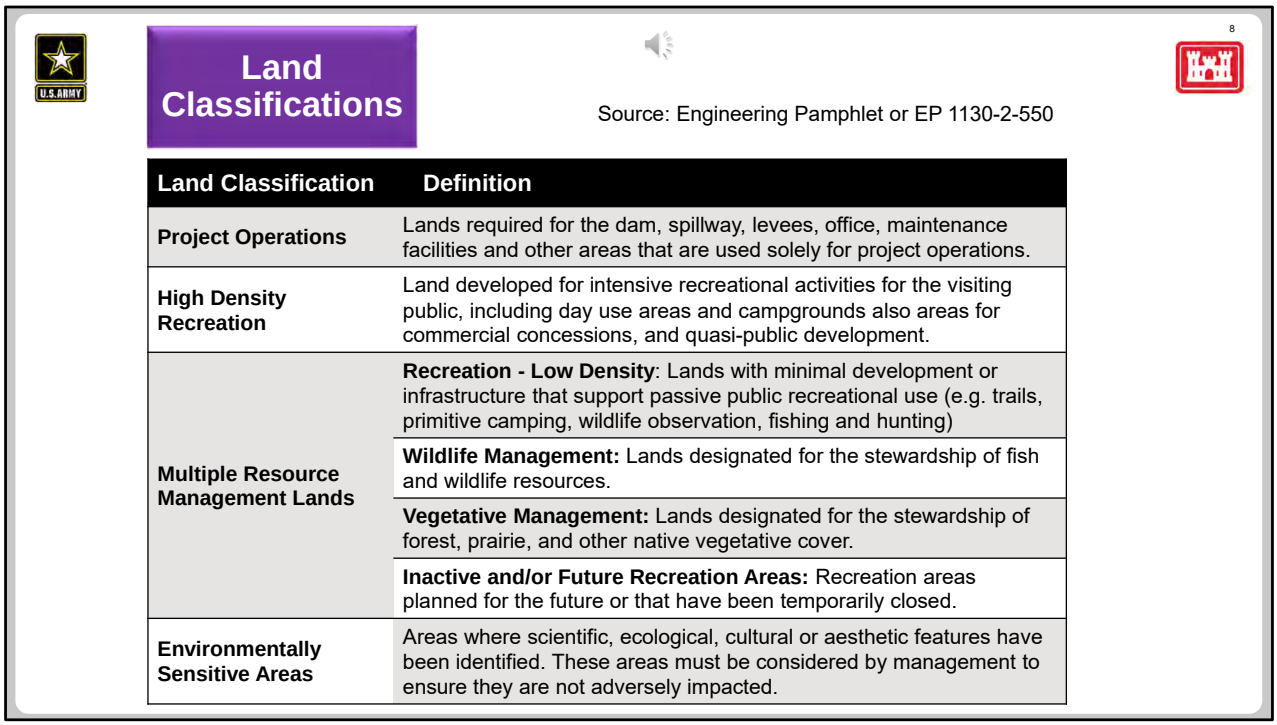
The Corps is undergoing master plan revisions at many of their projects nationwide as existing plans are no longer compliant with current regulations. Many projects have also been influenced by changes in the surrounding environment, either by increased urbanization and growth, or changes in rural patterns of land use. As change is ever constant, an update to the plan is needed to capture how the project land classifications meet the current and future projected uses. Not only does land use change, but also management resources in terms of personnel over time. The master plan provides stability, with long-term goals, and a consistent management strategy, for project resources.



The revision process includes a cover-to-cover review and update of the entire plan. The revision involves input from the public and stakeholders, but is compiled and completed by a team of Corps employees from a wide array of disciplines. Operations, Real Estate, Master Planning and Environmental Compliance are a few of the subjects where expertise is needed. The revision process will review all of the land classifications and recommend changes as appropriate. The revision process is a federal action that requires compliance with NEPA, and the appropriate documentation will be a part of the plan.



The revision process includes 3 phases: (scoping, draft and final)
The scoping phase is when the federal agency asks for initial input from other agencies, citizens and organizations regarding project area, resources and uses. This is the phase we are currently in, as noted by the yellow star on the chart.
The draft phase is when the Corps asks for public comments on the proposed recommendations in the draft master plan document.
The final phase is when the Corps incorporates public comments from the draft review into a final master plan document.
The plan is published after formal approval by the District Commander.



Land Classification	Definition
Project Operations	Lands required for the dam, spillway, levees, office, maintenance facilities and other areas that are used solely for project operations.
High Density Recreation	Land developed for intensive recreational activities for the visiting public, including day use areas and campgrounds also areas for commercial concessions, and quasi-public development.
Multiple Resource Management Lands	**Recreation - Low Density**: Lands with minimal development or infrastructure that support passive public recreational use (e.g. trails, primitive camping, wildlife observation, fishing and hunting)
	Wildlife Management: Lands designated for the stewardship of fish and wildlife resources.
	Vegetative Management: Lands designated for the stewardship of forest, prairie, and other native vegetative cover.
	Inactive and/or Future Recreation Areas: Recreation areas planned for the future or that have been temporarily closed.
Environmentally Sensitive Areas	Areas where scientific, ecological, cultural or aesthetic features have been identified. These areas must be considered by management to ensure they are not adversely impacted.

The Corps defines land classification as the primary use for which project lands are managed. All Federally owned lands are zoned for development and resource management consistent with project purposes.

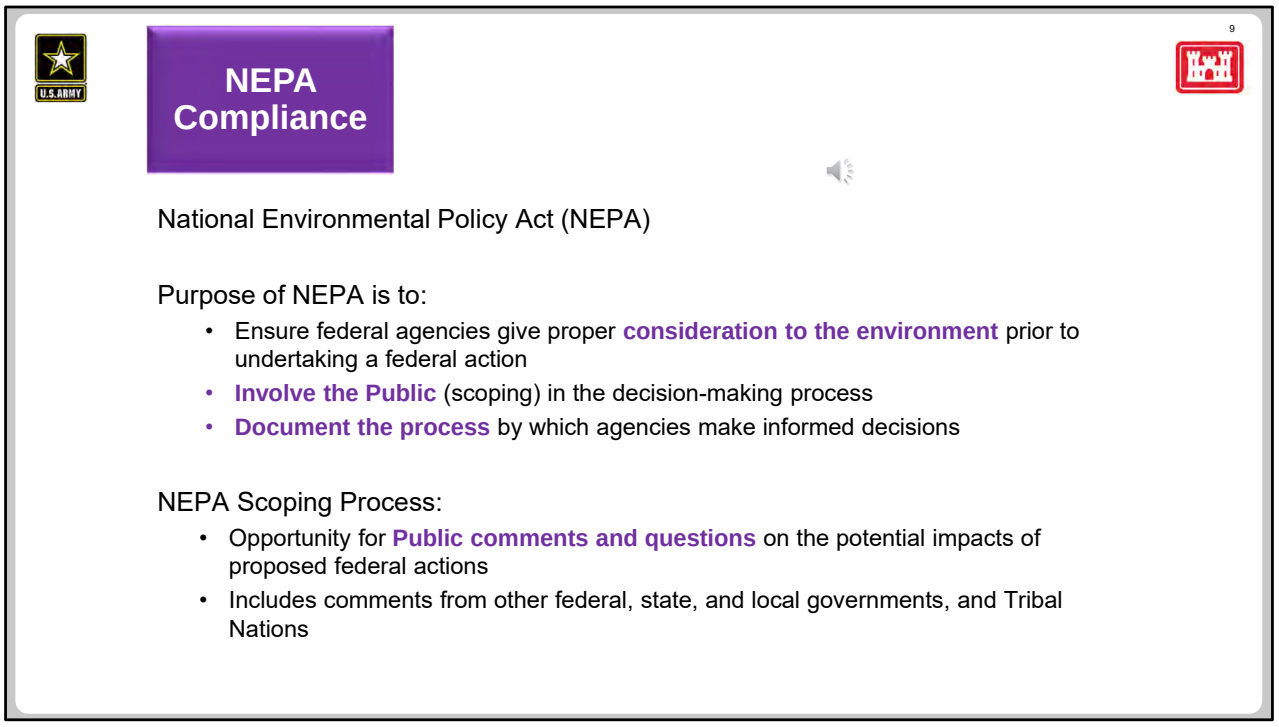
Utilizing the current Federal guidance, the land classifications are defined as shown in this table.

The Project Operations classification is used solely for lands dedicated for the operation of the project, including the dam, spillway, levees, project office, and other operational features.

The classification High Density Recreation is assigned to lands that are being used for intensive recreational activities, including day use and campground areas.

The Multiple Resource Management Lands allows for the designation of a predominate use and are subdivided into 4 classifications. All 4 classifications essentially allow for similar activities to occur, but are managed with a particular emphasis, including low density recreation, wildlife management, vegetative management, and inactive or future recreation areas.

The protection of Environmentally Sensitive Areas is given priority, and are for lands with unique scientific, ecological, cultural, or aesthetic features. Examples include endangered species habitat, scenic shorelines, and rare and unique plant communities to mention a few.

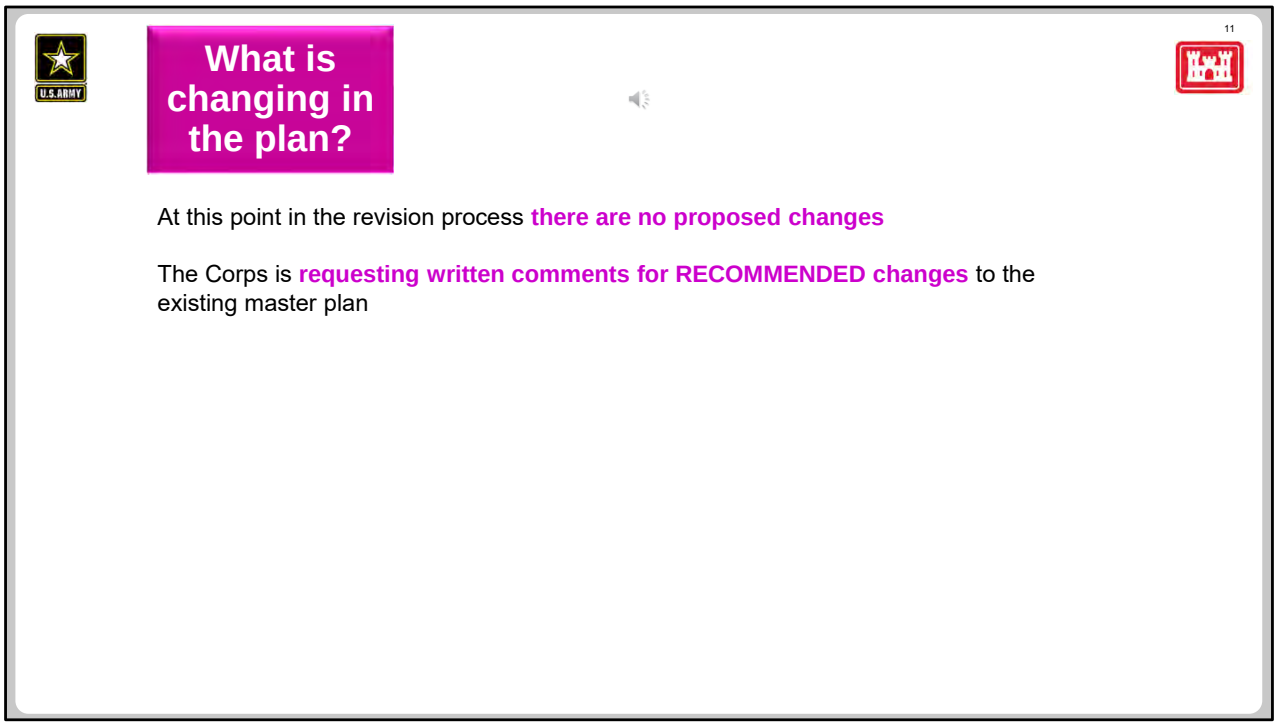


NEPA is the National Environmental Policy Act.

Compliance with NEPA is required during the master plan revision process. NEPA is required so that federal agencies give proper consideration to the environment prior to undertaking a federal action. Scoping during NEPA involves the public in the decision-making process, while documenting the process by which federal agencies make informed decision.

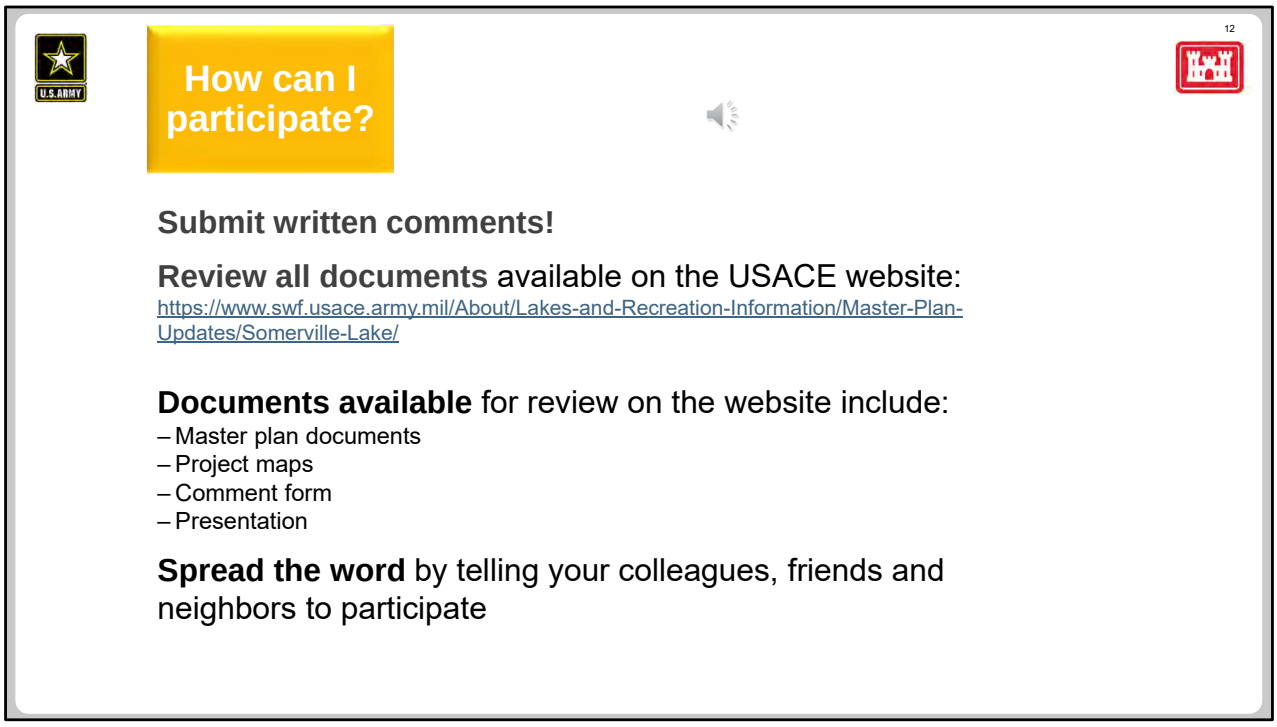
The NEPA process provides the public with the opportunity to ask questions and comment on the potential impacts of proposed federal actions. It also includes comments from other federal, state and local governments, and Tribal Nations.

There are topics of public interest that will not be part of the master plan. The master plan does not include facility designs, daily project administration details, or any technical discussion regarding flood risk management, water quality, water supply, shoreline management, water level management, hydropower, or navigation.



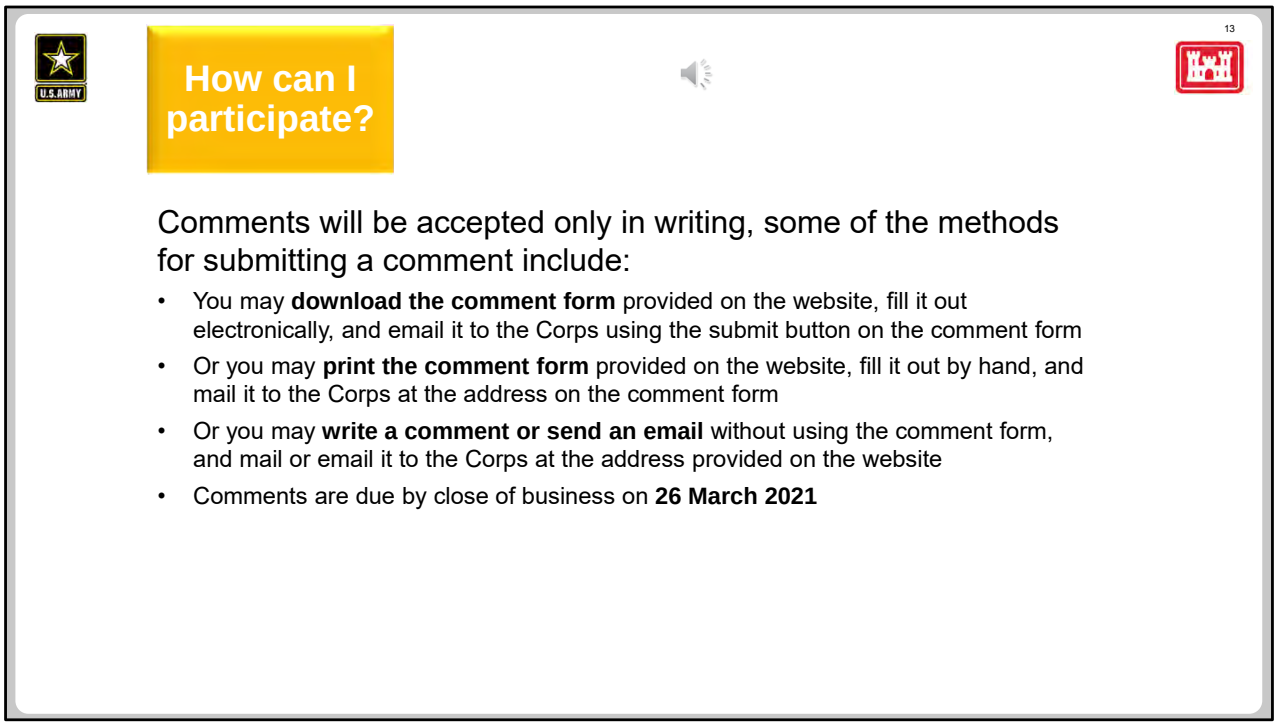
This master plan will be changing from the current master plan.

However, at this point in the Scoping Phase of the process, nothing has been proposed to change. Scoping is where the federal agency asks for initial input from other agencies, citizens, and organizations regarding project area, resources and uses. The purpose of this public involvement presentation is to inform the Public that the master plan revision has started and to collect suggestions and written comments for possible changes to the master plan.



You can participate in the process by reviewing the documents available on the website and submit written comments. The Corps will only accept comments in written format. The project website is hosting all the documents relevant to the master plan revision, including the current master plan documents, project maps, comment forms with instructions on how to submit a comment, and copies of this presentation for your review. As the project progresses, and new information is developed, it will be posted to this project website, so you may want to bookmark the site for future reference.

We are asking for your help to spread the word to others, letting them know the master plan revision has been initiated, and this is the opportunity to participate in the process.



The Corps can accept any form of written comments and we have provided a few methods that may make it easier to submit.

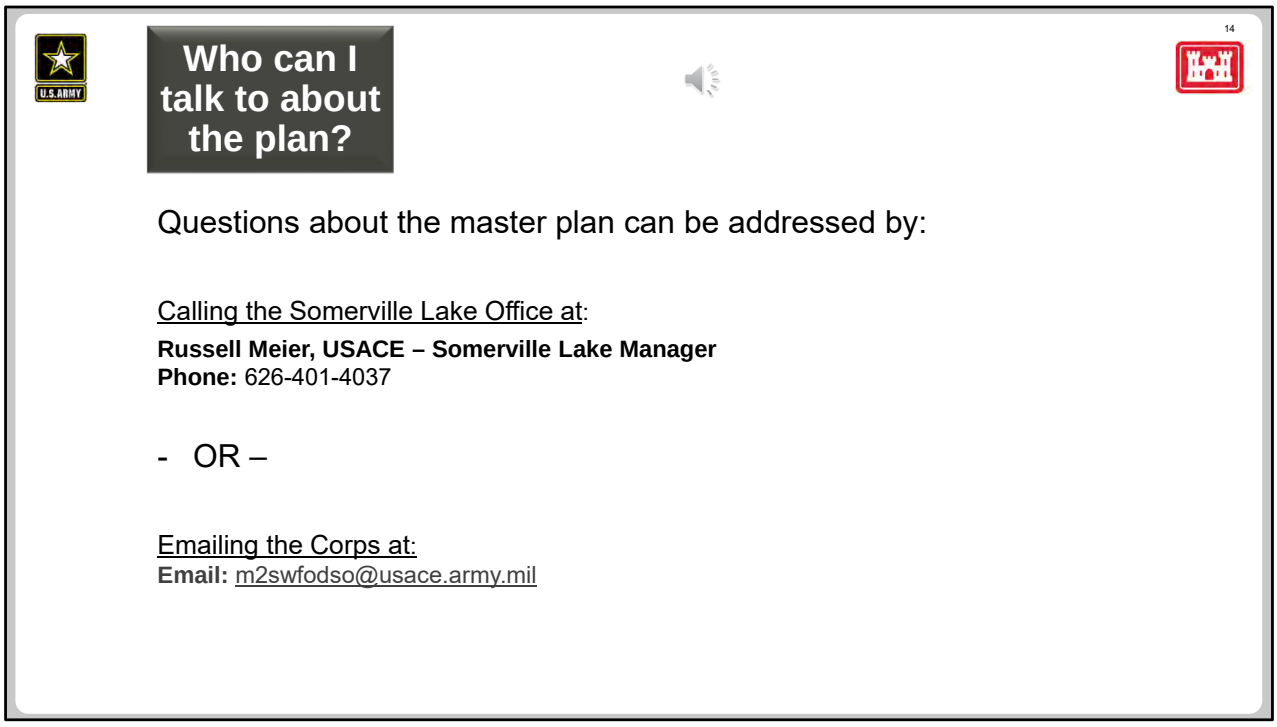
A comment form has been prepared and is available on the website which you can download and fill out electronically. Hit the submit button on the form, and it will autofill the email address, and you can send it in.

Another method is to print the comment form provided on the website and fill it out by hand, or electronically, and mail it in to the Corps.

Or you can write a comment in a letter, or email, and send it in. You don't have to use the comment form.

We will except all of these methods, and any other, as long as it's a written comment.

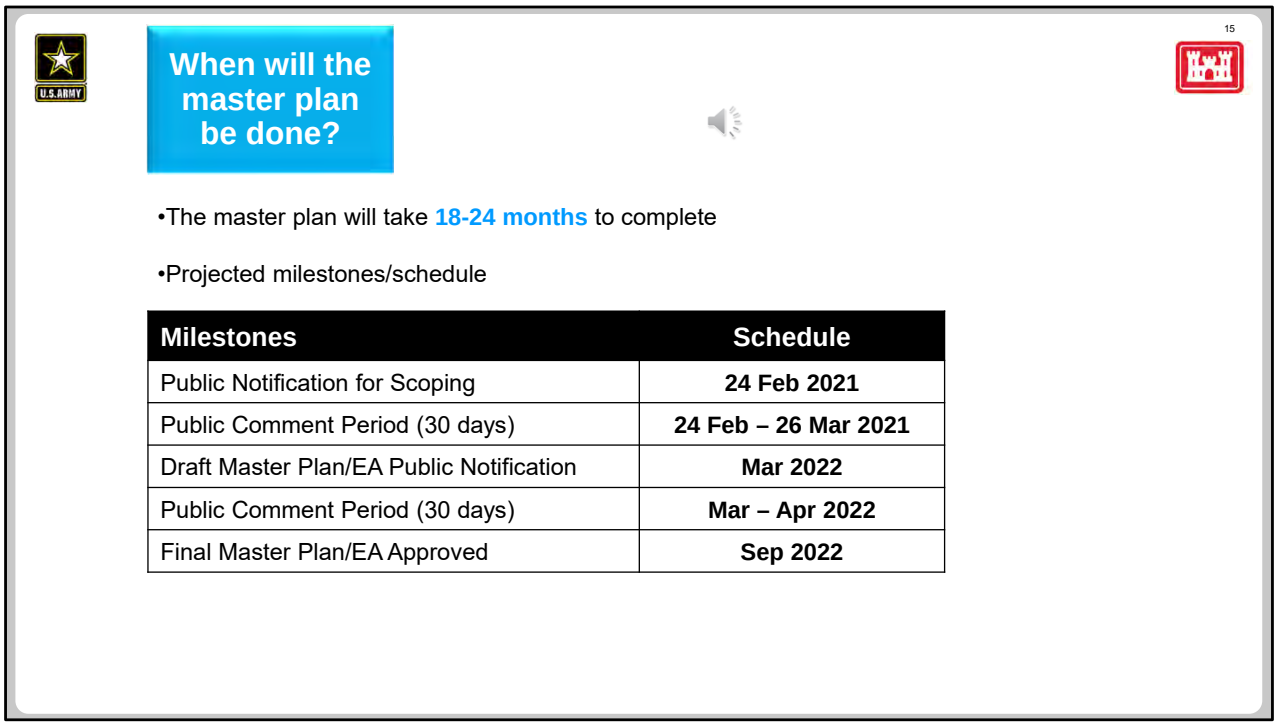
The comment period is open for 30 calendar days from the initial announcement.



If you have questions regarding the master plan, please call or email the following Corps project office or district staff.

You can also send questions to the Email address setup for this project as listed on this slide.

If you need to review a printed copy of the information, please contact the lake office to make your request.

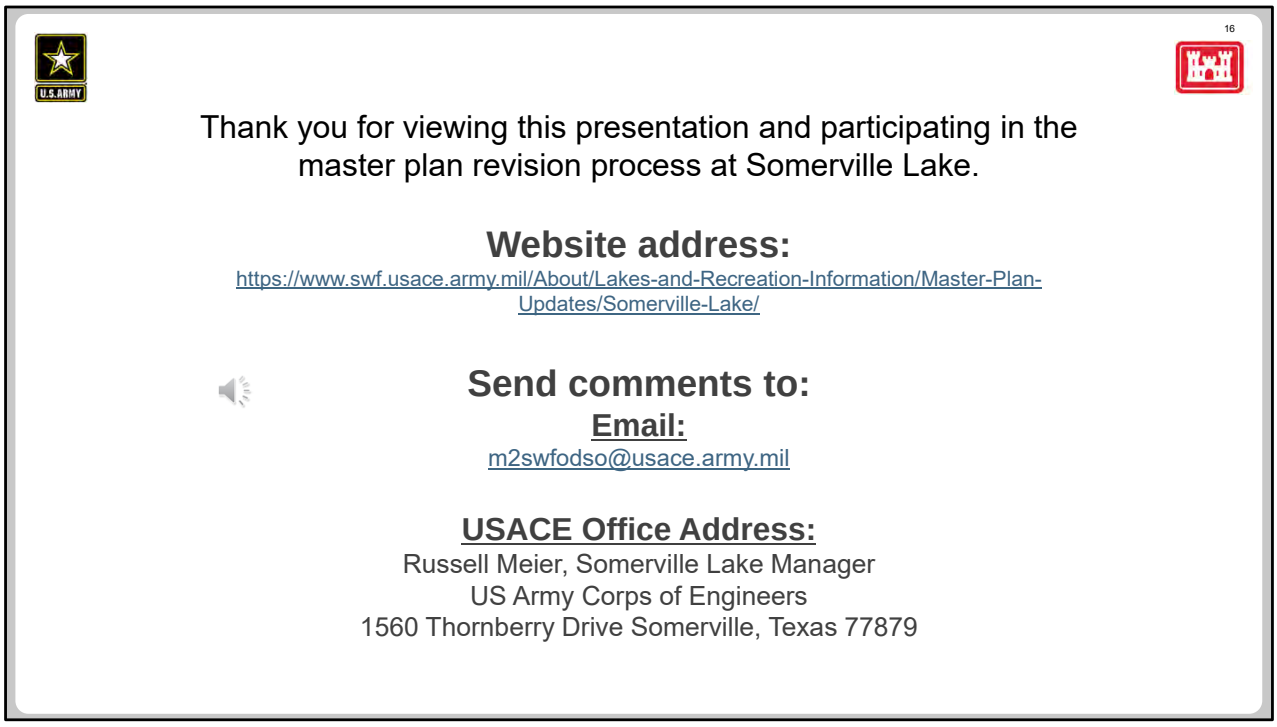


The master plan will take 18-24 months to complete.

Public notification for scoping initiated on February 24th. The 30-day comment period when written comments are accepted will remain open until March 26th.

The draft document is scheduled to be available for public review by March 2022 followed by a public comment period.

The final approved master plan and EA is scheduled for **September 2022**.



Thank you for viewing this presentation and participating in the master plan revision process at Somerville Lake

Project documents are available at this website.

Please send your comments to the Email address, or USACE Office Address listed here.

Thank you.

APPENDIX C- WILDLIFE DOCUMENTS

Items Included in Appendix C:

IPAC Report-USFWS

SGCN List-TPWD

Rare Species Listing-TPWD

WHAP Report-USACE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Austin Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, TX 78758-4460
Phone: (512) 490-0057 Fax: (512) 490-0974
http://www.fws.gov/southwest/es/AustinTexas/
http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

In Reply Refer To:
Project Code: 2022-0000816
Project Name: Somerville MP

April 25, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Austin Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, TX 78758-4460
(512) 490-0057

Project Summary

Project Code: 2022-0000816
Event Code: None
Project Name: Somerville MP
Project Type: Land Management Plans - NWR
Project Description: The Somerville Lake Master Plan (Burleson, Lee, and Washington Counties, Texas) is the long-term strategic land use management document that guides the comprehensive management and development of all the project's recreational, natural, and cultural resources within the federal fee boundary. Under the guidance of ER-1130-2-550 Change 7, the Plan guides the efficient and cost-effective development, management, and use of project lands. It is a dynamic tool that provides for the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations. The Plan works in tandem with the Operational Management Plan (OMP), which is the implementation tool for the resource objectives and development needs identified in the Master Plan. The Master Plan guides and articulates the USACE responsibilities pursuant to federal laws. Efforts are under way to revise the current Lake Master Plan. The Master Plan revision will update land classifications, plan for the modernization of existing parks, and inform the management of wildlife and other resource lands within USACE managed property at Somerville Lake for the next 25 years.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@30.310995499999997,-96.57271038192968,14z

Counties: Burleson, Lee, and Washington counties, Texas

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Amphibians

NAME	STATUS
Houston Toad *Bufo houstonensis*	Endangered

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/2206

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Flowering Plants

NAME	STATUS
Navasota Ladies-tresses *Spiranthes parksii*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1570

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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TEXAS BLACKLAND PRAIRIES SPECIES OF GREATEST CONSERVATION NEED

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
MAMMALS						W.B. Davis and D.J. Schmidly. 1997 and 1994. Mammals of Texas (online and in print). Texas Tech University (1997) and Texas Parks and Wildlife Department (1994). http://www.nsrl.ttu.edu/tmot1/Default.htm (accessed 2011)		
Blarina hylophaga plumblea	Elliot's short-tailed shrew			G5T1Q	S1	Savanna/Open Woodland		N
Geomys attwateri	Attwater's pocket gopher			G4	S4	Shrubland		Y
Lutra canadensis	River otter			G5	S4	Riparian	Appendix II, CITES	N
Mustela frenata	Long-tailed weasel			G5	S5	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland	Statewide	N
Myotis austroriparius	Southeastern myotis			G3G4	S3	Caves/Karst, Forest, Riparian		N
Myotis velifer	Cave myotis			G5	S4	Caves/Karst,		N
Puma concolor	Mountain lion			G5	S2	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian	Statewide	N
Spilogale putorius	Eastern spotted skunk			G4T	S4	Savanna/Open Woodland, Grassland		N
Sylvilagus aquaticus	Swamp rabbit			G5	S5	Riparian, Freshwater Wetland		N
Tadarida brasiliensis	Brazilian free-tailed bat			G5	S5	Cave/Karst, Artificial Refugia	Statewide	N
Taxidea taxus	American badger			G5	S5	Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest		N
Ursus americanus	Black bear	SAT	T	G5	S3	Forest, Woodland, Savanna/Open Woodland, Desert Scrub, Shrubland	see also Louisiana black bear; may overlap with Louisiana black bear in TBPR, ECPL	N
BIRDS						The Birds of North America Online (A. Poole, Ed.). 2005 (with current updates by species). Retrieved from The Birds of North America Online database: http://bna.birds.cornell.edu/BNA/ (accessed 2011). Supported by information from the Cornell Lab of Ornithology and the American Ornithologists' Union (http://www.aou.org/).		BIRDS ONLY: instead of endemism these numbers are for taxonomic sorting
Anas acuta	Northern Pintail			G5	S3B,S5N	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine	Winter	2
Colinus virginianus	Northern Bobwhite			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	deleted for CHIH	4
Tympanuchus cupido	Greater Prairie-Chicken (Interior)			G4	S1B	Grassland	Year-round	6
Meleagris gallopavo	Wild Turkey			G5	S5B	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural	Year-round, added *merriami* for CHIH	8
Ixobrychus exilis	Least Bittern			G5	S4B	Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary	Breeding	11
Egretta thula	Snowy Egret			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	12
Egretta caerulea	Little Blue Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	13
Butorides virescens	Green Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic	Breeding	16
Mycteria americana	Wood Stork		T	G4	SHB,S2N	Riverine, Freshwater wetland	Migrant	18
Ictinia mississippiensis	Mississippi Kite			G5	S4B	Woodland, Forest, Riparian, Developed:Urban/Suburban/Rural	Breeding	20
Haliaeetus leucocephalus	Bald Eagle			G5	S3B,S3N	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland	Year-round, added CRTB	22
Circus cyaneus	Northern Harrier			G5	S2B,S3N	Grassland, Shrubland	Year-round	23
Buteo lineatus	Red-shouldered Hawk			G5	S4B	Woodland, Forest, Riparian, Freshwater Wetland	Year-round	26
Pluvialis dominica	American Golden-Plover			G5	S3	Grassland, Freshwater Wetland, Agricultural	Migrant	39
Charadrius montanus	Mountain Plover	PT		G3	S2	Agricultural, Grassland	Winter	43
Scolopax minor	American Woodcock			G5	S2B,S3N	Woodland, Forest, Riparian	Winter (some breeding during that time)	51
Sternula antillarum	Least Tern	LE*	E*	G4	S3B	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Marine, Developed: Industrial	Year-round; subspecies *athalassos*	54
Asio flammeus	Short-eared Owl			G5	S4N	Grassland, Shrubland, Agricultural	Winter	65
Caprimulgus carolinensis	Chuck-will's-widow			G5	S3S4B	Woodland, Forest, Riparian	Breeding	66
Melanerpes erythrocephalus	Red-headed Woodpecker			G5	S3B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	67
Dryocopus pileatus	Pileated Woodpecker			G5	S4B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	69
Tyrannus forficatus	Scissor-tailed Flycatcher			G5	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Breeding	71
Lanius ludovicianus	Loggerhead Shrike			G4	S4B	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed	Year-round	73
Vireo bellii	Bell's Vireo			G5	S3B	Desert scrub, Shrubland, Riparian	Breeding	74
Poecile carolinensis	Carolina Chickadee			G5	S5B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	76
Thryomanes bewickii (bewickii)	Bewick's Wren			G5	S5B	Shrubland, Savanna/Open Woodland, Woodland, Developed: Urban/Suburban/Rural	Year-round, red-backed form only	77
Cistothorus platensis	Sedge Wren			G5	S4	Grassland, Freshwater Wetland	Winter	78
Hylocichla mustelina	Wood Thrush			G5	S4B	Woodland, Forest, Riparian	Breeding	79
Anthus spragueii	Sprague's Pipit	C		G4	S3N	Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural	Winter	80
Dendroica dominica	Yellow-throated Warbler			G5	S4B	Woodland, Forest, Riparian	Breeding	84
Protonotaria citrea	Prothonotary Warbler			G5	S3B	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Breeding	86
Limnothlypis swainsonii	Swainson's Warbler			G4	S3B	Woodland, Forest, Riparian	Breeding	88
Seiurus motacilla	Louisiana Waterthrush			G5	S3B	Woodland, Forest, Riparian	Breeding	89
Oporornis formosus	Kentucky Warbler			G5	S3B	Woodland, Forest	Breeding	90
Spizella pusilla	Field Sparrow			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	96
Ammodramus savannarum	Grasshopper Sparrow			G5	S3B	Grassland, Agricultural	Year-round	97
Chondestes grammacus	Lark Sparrow			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	98
Ammodramus henslowii	Henslow's Sparrow			G4	S2S3N,SXB	Grassland, Savanna/Open Woodland	Winter	100
Ammodramus leconteii	Le Conte's Sparrow					Grassland	Winter	101
Zonotrichia querula	Harris's Sparrow			G5	S4	Shrubland, Agricultural	Winter	103
Calcarius mccownii	McCown's Longspur			G4	S4	Grassland, Agricultural	Winter, TBPR (northern), ECPL (northern)	104

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
Calcarius pictus	Smith's Longspur					Grassland, Agricultural	Winter	105
Piranga rubra	Summer Tanager			G5	S5B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Breeding	106
Passerina ciris	Painted Bunting			G5	S4B	Shrubland, Agricultural	Breeding	107
Spiza americana	Dickcissel			G5	S4B	Grassland, Agricultural	Breeding	108
Sturnella magna	Eastern Meadowlark			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round; subspecies *lilliana* added for CHIH	109
Euphagus carolinus	Rusty Blackbird			G4	S3	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Winter	110
Icterus spurius	Orchard Oriole			G5	S4B	Shrubland, Savanna/Open Woodland, Woodland, Riparian	Breeding	111
REPTILES AND AMPHIBIANS						J.E. Werler and J.R. Dixon. 2000. Texas Snakes: Identification, Distribution, and Natural History. University of Texas Press, Austin. 519 pgs. J.R. Dixon. 1987. Amphibians and Reptiles of Texas. Texas A&M University Press, College Station. 434 pp.		
Anaxyrus (Bufo) woodhousii	Woodhouse's toad			G5	SU	woodland, forest, freshwater wetland		N
Apalone mutica	smooth softshell turtle					riparian, riverine, lacustrine, freshwater wetland	added	N
Apalone spinifera	spiny softshell turtle					riparian, riverine, lacustrine, freshwater wetland	added, not AZNM	N
Cheylydra serpentina	Common snapping turtle					riparina, riverine	added	N
Crotalus atrox	Western diamondback rattlesnake				S4	barren/sparse vegetation, desert scrub, grassland, shrubland, savanna, woodland, caves/karst		N
Crotalus horridus	Timber (Canebrake) Rattlesnake		T	G4	S4	woodland, forest, riparian		N
Graptemys caglei	Cagle's map turtle		T	G3	S1	riparian, riverine		Y
Graptemys versa	Texas map turtle			G4	SU	riparian, riverine		Y
Heterodon nasicus	Western hognosed snake					desert scrub, grassland, shrubland	added	N
Macrochelys temminckii	alligator snapping turtle		T	G3G4	S3	riparian, riverine, cultural aquatic	added	N
Ophisaurus attenuatus	western slender glass lizard					grassland, savanna	added	N
Phrynosoma cornutum	Texas horned lizard		T	G4G5	S4	desert scrub, grassland, savanna		N
Pseudacris streckeri	Strecker's Chorus Frog			G5	S3	grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland		N
Sistrurus catenatus	massasauga					grassland, barren/sparse vegetation, shrubland, coastal,	added	N
Terrapene carolina	Eastern box turtle			G5	S3	grasslands, savanna, woodland		N
Terrapene ornata	Ornate box turtle			G5	S3	grassland, barren/sparse vegetation, deset scrub, savanna, woodland		N
Thamnophis sirtalis annectans	Texas Garter Snake (Eastern/Texas/ New Mexico)			G5	S2	riparian, around lacustrine and cultural aquatic sites		Y
Trachemys scripta	Red-eared slider					riparian, riverine, lacustrine, freshwater wetland, cultural aquatic	added	N
FRESHWATER FISHES						C. Thomas, T.H. Bonner and B.G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. Sponsored by The River Systems Institute at Texas State University, published by Texas A&M University Press. *Editor's Note: All freshwater fishes life history information in this table was sourced directly from the online version; citations are embedded in the online version at http://www.bio.txstate.edu/~tbonner/txfishes/*	Range in Texas, as known	
Anguilla rostrata	American eel			G4	S5	streams and reservoirs in drainages connected to marine environments	mouth upstream to and including the Kiamichi River), Sabine Lake (including minor	N
Atractosteus spatula	alligator gar					channel snag, pool-snag complex, pool-edge, and pool-vegetation habitat	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Cycleptus elongatus	Blue sucker		T	G3G4	S3	large, deep rivers, and deeper zones of lakes	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Etheostoma fonticola	Fountain darter	LE	E	G1	S1	usually in dense beds of *Vallisneria, Elodia, Ludwigia* and other aquatic plants; substrate normally mucky	Note: original population in the Comal River extirpated in mid-1950's when Comal Springs	Y
Macryhbopsis storeriana	Silver chub					common over silt or mud, turbid water with very soft sand/silt substrate	other populations of this species, which range through the Mississippi River Basin to	N
Micropterus treculii	Guadalupe bass			G3	S3	small lentic environments; commonly taken in flowing water	of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside of	Y
Notropis atrocaudalis	Blackspot shiner					backwater and swiftest currents	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Notropis bairdi	Red River shiner					streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation,	Red River, from the mouth upstream to and including the Kiamichi River	N
Notropis buccula	Small eye shiner	C		G2Q	S2	broad condition tolerances (turbidity, salinity, oxygen).	Brazos River; historically as far south as Hempstead (Waller County)	Y
Notropis chalybaeus	Ironcolor shiner					Plain streams and rivers of low to moderate gradient; often at the upstream ends of pools, with a moderate to	(including minor coastal drainages west to Galveston Bay), San Antonio Bay (including	N
Notropis oxyrhynchus	Sharpnose shiner	C		G3	S3	Moderate current velocities and depths, sand bottom	captured into the Red River drainage; introduced in Colorado River drainage	Y
Notropis potteri	Chub shiner		T	G4	S3	turbid, flowing water with silt or sand substrate; tolerant of high salinities	Brazos River, Colorado River, San Jacinto River, Trinity Rivers, and Galveston Bay	N
Notropis shumardi	Silverband shiner					channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Percina apristis	Guadalupe darter					collections from the clearest waters tributary to the Guadalupe, namely spring heads and the main river west	from the headwaters of the Blanco and the entirety of the San Antonio River	Y
Polyodon spathula	Paddlefish		T	G4	S3	sized rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if	eastward; currently only Red River, from the mouth upstream to and including the	N
Satan eurystomus	Widemouth blindcat		T	G1	S1	Karst: Subterranean waters	(Edwards Limestone, Lower Cretaceous) in the vicinity of San Antonio (Bexar County)	Y
Trogloglanis pattersoni	Toothless blindcat		T	G1	S1	Karst: Subterranean waters	(Edwards Limestone, Lower Cretaceous) in the vicinity of San Antonio (Bexar County)	Y
INVERTEBRATES						www.bugguide.net – good tool for identification and taxonomic information. www.texasento.net – compilation of information on insects in Texas www.odonatacentral.org – resource for identification and distribution of damselflies and dragonflies www.butterfliesandmoths.org – resource for identification and distribution of Lepidoptera www.texasmussels.wordpress.com – resource for information on freshwater mussels in Texas Howells, R. G., R. W. Neck and H. D. Murray. 1996. Freshwater Mussels of Texas. Texas Parks and Wildlife Press, Austin		
Bombus pensylvanicus	American bumblebee			GU	SU*	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Bee/Wasp/Ant	
Chimarra holzenthali	Holzenthal's Philopotamid caddisfly			G1G2	S1	Riparian, Riverine	Aquatic - Insects - Caddisflies; added TBPR, ECPL	
Cotinis boylei	A scarab beetle			G2*	S2*	Grassland, Shrubland, Woodland	Terrestrial - Insect - Beetles	
Nicrophorus americanus	American Burying Beetle	LE		G1	S1	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Beetles	
Potamilus amphichaenus	Texas heelsplitter		T	G1G2	S1	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Procambarus regalis	Regal burrowing crayfish			G2G3	S2?*	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish	

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
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Procambarus steigmani	Parkhill prairie crayfish			G1G2	S1S2*	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish	
Pseudocentroptiloides morihari	A mayfly			G2G3	S2?*	Riverine, Riparian	Aquatic - Insects - Mayflies	
Sphinx eremitoides	Sage sphinx			G1G2	S1?*	Grassland	Terrestrial - Insect - Butterflies/Moths	
Susperatus tonkawa	A mayfly			G1	S1*	Riparian, Riverine	Aquatic - Insects - Mayflies	
PLANTS						J.M. Poole, W.R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station. D.S. Correll and M.C Johnston. 1979. Manual of the Vascular Plants of Texas. The University of Texas at Dallas, Richardson. M.C. Johnston. 1990. The Vascular Plants of Texas: A List Up-dating the Manual of the Vascular Plants of Texas, 2nd Edition. Marshall C. Johnston, Austin. F.W. Gould. 1975. The Grasses of Texas. Texas A & M University Press, College Station. S.D. Jones, J.K. Wipff, and P.M. Montgomery. 1997. Vascular Plants of Texas: A Comprehensive Checklist including Synonymy; Bibliography, and Index. University of Texas Press, Austin. R.A. Vines. 2004. Trees, Shrubs and Woody Vines of the Southwest. Blackburn Press.		
Agalinis densiflora	Osage Plains false foxglove			G3	S2	Savanna/Open Woodland - Outcrops	Terrestrial	N
Astragalus reflexus	Texas milk vetch			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Calopogon oklahomensis	Oklahoma grass pink			G3	S1S2	Savanna/Open Woodland; Grassland; Freshwater Wetland	Terrestrial	N
Carex edwardsiana	canyon sedge			G3G4S3S4	S3S4	Woodland (slopes above Riparian)	Wetland	Y
Carex shinnersii	Shinner's sedge			G3?	S2	Grassland	Wetland	N
Crataegus dallasiana	Dallas hawthorn			G3Q	S3	Riparian (creeks in the Blackland Prairie)	Terrestrial	Y
Cuscuta exaltata	tree dodder			G3	S3	Woodland	Terrestrial	N
Dalea hallii	Hall's prairie-clover			G3	S3	Savanna/Open Woodland; Grassland	Terrestrial	Y
Echinacea atrorubens	Topeka purple-coneflower			G3	S3	Savanna/Open Woodland	Terrestrial	N
Hexalectris nitida	Glass Mountains coral-root			G3	S3	Woodland	Terrestrial	N
Hexalectris warnockii	Warnock's coral-root			G2G3	S2	Woodland	Terrestrial	N
Hymenoxys pygmea	Pygmy prairie dawn			G1	S1	Barren/Sparse Vegetation with Grassland matrix (saline prairie)	currently being described	Y
Liatris glandulosa	glandular gay-feather			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Paronychia setacea	bristle nailwort			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Phlox oklahomensis	Oklahoma phlox			G3	SH	Savanna/Open Woodland	Terrestrial	N
Physaria engelmannii	Engelmann's bladderpod			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Polygonella parksii	Parks' jointweed			G2	S2	Savanna/Open Woodland (sandhills); Grassland	Terrestrial	Y
Prunus texana	Texas peachbush			G3G4	S3S4	Savanna/Open Woodland; Grassland	Terrestrial	Y
Thalictrum texanum	Texas meadow-rue			G2	S2	Savanna/Open Woodland; Riparian (bottomland forest)	Terrestrial	Y
Zizania texana	Texas wild rice	LE	E	G1	S1	Riverine (spring-fed, clear, thermally constant, moderate current, sand to gravel substrate)	Aquatic	Y

Last Update: 8/25/2020

BURLESON COUNTY

AMPHIBIANS

Houston toad *Anaxyrus houstonensis*

Terrestrial and aquatic: Primary terrestrial habitat is forests with deep sandy soils. Juveniles and adults are presumed to move through areas of less suitable soils using riparian corridors. Aquatic habitats can include any water body from a tire rut to a large lake.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

southern crawfish frog *Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

BURLESON COUNTY

BIRDS

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

Rufa Red Knot *Calidris canutus rufa*

Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot’s prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (Donax spp.) on beaches and dwarf surf clam (Mulinia lateralis) in bays, at least in the Laguna Madre. Wintering Range includes- Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

BURLESON COUNTY

BIRDS

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2B

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1N

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

FISH

blackspot shiner *Notropis atrocaudalis*

Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

BURLESON COUNTY

FISH

chub shiner *Notropis potteri*

Brazos, Colorado, San Jacinto, and Trinity river basins. Flowing water with silt or sand substrate

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

sharpnose shiner *Notropis oxyrhynchus*

Range is now restricted to upper Brazos River upstream of Possum Kingdom Lake. May be native to Red River and Colorado River basins. Typically found in turbid water over mostly silt and shifting sand substrates.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S1S2

silver chub *Macrhybopsis storeriana*

Red River and Brazos River basins. Mainly restricted to large, often silty rivers. Ranges over gravel to silt substrates but found more commonly over silt or mud bottom.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

silverband shiner *Notropis shumardi*

In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water over silt, sand, and gravel.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

smalleye shiner *Notropis buccula*

Endemic to the Brazos River drainage; presumed to have been introduced into the Colorado River. Historically found in lower Brazos River as far south as Hempstead, Texas but appears to now be restricted to upper Brazos River system upstream of Possum Kingdom Lake. Typically found in turbid waters of broad, sandy channels of main stream, over substrate consisting mostly of shifting sand.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S1S2

INSECTS

a grasshopper *Melanoplus alexanderi*

Primarily in open oak or pine/oak savannah type habitats with fine grain loamy sand to sandy loam soils.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S2?

BURLESON COUNTY

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

No accepted common name *Bombus variabilis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G1G2	State Rank: SNR

MAMMALS

American badger *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S3

black-tailed prairie dog *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

cave myotis bat *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S4

BURLESON COUNTY

MAMMALS

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

BURLESON COUNTY

MAMMALS

plains spotted skunk *Spilogale putorius interrupta*

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S1S3

southern short-tailed shrew *Blarina carolinensis*

Found in East Texas pine forests and agricultural land. May favor areas with abundant leaf litter and fallen logs (Baumgardner et al. 1992). Nest sites are probably under logs, stumps and other debris.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

thirteen-lined ground squirrel *Ictidomys tridecemlineatus*

Prefers short grass prairies with deep soils for burrowing. Frequently found in grazed ranchland, mowed pastures, and golf courses.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

MOLLUSKS

Brazos Heelsplitter *Potamilus streckersoni*

Habitat description is not available at this time.

Federal Status:	State Status: T	SGCN: N
Endemic: Y	Global Rank: GNR	State Rank: SNR

BURLESON COUNTY

MOLLUSKS

Texas Fawnsfoot *Truncilla macrodon*

Occurs in large rivers but may also be found in medium-sized streams. Is found in protected near shore areas such as banks and backwaters but also riffles and point bar habitats with low to moderate water velocities. Typically occurs in substrates of mud, sandy mud, gravel and cobble. Considered intolerant of reservoirs (Randklev et al. 2010; Howells 2010o; Randklev et al. 2014b,c; Randklev et al. 2017a,b). [Mussels of Texas 2019]

Federal Status: C | State Status: T | SGCN: Y
Endemic: Y | Global Rank: G1 | State Rank: S2

REPTILES

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

keeled earless lizard *Holbrookia propinqua*

Terrestrial: Habitats include coastal dunes, barrier islands, and other sandy areas (Axtell 1983). Although it occurs well inland, this species is most abundant on coastal dunes, were it seeks shelter in the burrows of small mammals or crabs (Bartlett and Bartlett 1999).

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G4 | State Rank: S3

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

smooth softshell *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status: | State Status: T | SGCN: Y
Endemic: N | Global Rank: G4G5 | State Rank: S3

BURLESON COUNTY

REPTILES

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

branched gay-feather *Liatris cymosa*

Somewhat barren grassland openings in post oak woodlands on tight clayey, chalky, or gravelly soils, often over Catahoula Formation; flowering July-October

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

bristle nailwort *Paronychia setacea*

Flowering vascular plant endemic to eastern southcentral Texas, occurring in sandy soils

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S2

Florida pinkroot *Spigelia texana*

Woodlands on loamy soils; Perennial; Flowering March-Nov; Fruiting April-Nov

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Mohlenbrock's sedge *Cyperus grayioides*

Deep sand and sandy loam in dry, almost barren openings in upland longleaf pine savannas, mixed pine-oak forests, and post oak woodlands; Occurs primarily in deep, periodically disturbed sandy soils in open areas maintained by factors such as wind, erosion, or fire. This species does not occur in shaded areas or in areas of high competition with other herbaceous species. Habitats include remnant sand prairies, sandy fields, sand blow outs, sandhill woodlands, pine barrens, and open barrens in which the slope is sufficient to produce sand erosion. May also occur in areas where the soils have been disturbed by logging or road construction; Perennial

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3S4

BURLESON COUNTY

PLANTS

Navasota ladies'-tresses *Spiranthes parksii*

Openings in post oak woodlands in sandy loams along upland drainages or intermittent streams, often in areas with suitable hydrologic factors, such as a perched water table associated with the underlying claypan; flowering populations fluctuate widely from year to year, an individual plant does not flower every year; flowering late October-early November (-early December)

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Parks' jointweed *Polygonella parksii*

Mostly found on deep, loose, whitish sand blowouts (unstable, deep, xeric, sandhill barrens) in Post Oak Savanna landscapes over the Carrizo and Sparta formations; also occurs in early successional grasslands, along right-of-ways, and on mechanically disturbed areas; flowering June-late October or September-November

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

Sayersville blue eyes *Nemophila sayersensis*

Open fields and woodland margins on deep loose nutrient-poor sand (Simpson, Helfgott and Neff 2001). Mar-May.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

Texas cornsalad *Valerianella florifera*

Grasslands and early-successional openings in the post oak belt of east-central and northeast Texas; Sandy soils; Annual; Flowering March-April

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Texas sandmint *Rhododon ciliatus*

Open sandy areas in the Post Oak Belt of east-central Texas; Annual; Flowering April-Aug; Fruiting May-Aug

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Texas sunnybell *Schoenolirion wrightii*

Rocky barrens in the Post Oak region near College Station, with a few disjunct populations on the Catahoula Formation of southeast Texas; Perennial; Flowering March-April; Fruiting March

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

BURLESON COUNTY

PLANTS

tree dodder *Cuscuta exaltata*

Parasitic on various Quercus, Juglans, Rhus, Vitis, Ulmus, and Diospyros species as well as Acacia berlandieri and other woody plants; Annual; Flowering May-Oct; Fruiting July-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Last Update: 8/25/2020

LEE COUNTY

AMPHIBIANS

Houston toad *Anaxyrus houstonensis*

Terrestrial and aquatic: Primary terrestrial habitat is forests with deep sandy soils. Juveniles and adults are presumed to move through areas of less suitable soils using riparian corridors. Aquatic habitats can include any water body from a tire rut to a large lake.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

southern crawfish frog *Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

LEE COUNTY

BIRDS

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

Rufa Red Knot *Calidris canutus rufa*

Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot’s prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (Donax spp.) on beaches and dwarf surf clam (Mulinia lateralis) in bays, at least in the Laguna Madre. Wintering Range includes- Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.

Federal Status: LT	State Status: T	SGCN: Y

LEE COUNTY

BIRDS

Endemic: N | Global Rank: G4T2 | State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S2B

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status: | State Status: | SGCN: Y

Endemic: N | Global Rank: G4T4 | State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G5 | State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE | State Status: E | SGCN: Y

Endemic: N | Global Rank: G1 | State Rank: S1N

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: | State Status: T | SGCN: Y

Endemic: N | Global Rank: G4 | State Rank: SHB,S2N

INSECTS

a grasshopper *Melanoplus alexanderi*

Primarily in open oak or pine/oak savannah type habitats with fine grain loamy sand to sandy loam soils.

Federal Status: | State Status: | SGCN: Y

Endemic: Y | Global Rank: G1G2 | State Rank: S2?

LEE COUNTY

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

Comanche harvester ant *Pogonomyrmex comanche*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2

No accepted common name *Bombus variabilis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G1G2	State Rank: SNR

No accepted common name *Eucera birkmanniella*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

MAMMALS

American badger *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Aransas short-tailed shrew *Blarina hylophaga plumbea*

Excavates burrows in sandy soils underlying mottes of live oak trees or in areas with little to no ground cover.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T1Q	State Rank: S1

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

LEE COUNTY

MAMMALS

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S3

cave myotis bat *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S4

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

LEE COUNTY

MAMMALS

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

plains spotted skunk *Spilogale putorius interrupta*

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S1S3

southern short-tailed shrew *Blarina carolinensis*

Found in East Texas pine forests and agricultural land. May favor areas with abundant leaf litter and fallen logs (Baumgardner et al. 1992). Nest sites are probably under logs, stumps and other debris.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

thirteen-lined ground squirrel *Ictidomys tridecemlineatus*

Prefers short grass prairies with deep soils for burrowing. Frequently found in grazed ranchland, mowed pastures, and golf courses.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

LEE COUNTY

MAMMALS

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

MOLLUSKS

Brazos Heelsplitter *Potamilus streckersoni*

Habitat description is not available at this time.

Federal Status:	State Status: T	SGCN: N
Endemic: Y	Global Rank: GNR	State Rank: SNR

Texas Pimpleback *Cyclonaias petrina*

Occurs in medium-size streams to large rivers primarily in riffles and runs. Often found in substrates composed of sand, gravel, and cobble, including mud-silt or gravel-filled cracks in bedrock slabs. Considered intolerant of reservoirs (Howells 2010m; Randklev et al. 2017b). [Mussels of Texas 2019]

Federal Status: C	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

REPTILES

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

LEE COUNTY

REPTILES

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

branched gay-feather *Liatris cymosa*

Somewhat barren grassland openings in post oak woodlands on tight clayey, chalky, or gravelly soils, often over Catahoula Formation; flowering July-October

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

bristle nailwort *Paronychia setacea*

Flowering vascular plant endemic to eastern southcentral Texas, occurring in sandy soils

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S2

Florida pinkroot *Spigelia texana*

Woodlands on loamy soils; Perennial; Flowering March-Nov; Fruiting April-Nov

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Sayersville blue eyes *Nemophila sayersensis*

Open fields and woodland margins on deep loose nutrient-poor sand (Simpson, Helfgott and Neff 2001). Mar-May.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

Shinner's sunflower *Helianthus occidentalis ssp. plantagineus*

Mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T2T3	State Rank: S4

LEE COUNTY

PLANTS

Texas beebalm *Monarda viridissima*

Endemic perennial herb of the Carrizo Sands; deep, well-drained sandy soils in openings of post oak woodlands; flowers white.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Texas cornsalad *Valerianella florifera*

Grasslands and early-successional openings in the post oak belt of east-central and northeast Texas; Sandy soils; Annual; Flowering March-April

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Texas sandmint *Rhododon ciliatus*

Open sandy areas in the Post Oak Belt of east-central Texas; Annual; Flowering April-Aug; Fruiting May-Aug

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Last Update: 8/25/2020

WASHINGTON COUNTY

AMPHIBIANS

Houston toad *Anaxyrus houstonensis*

Terrestrial and aquatic: Primary terrestrial habitat is forests with deep sandy soils. Juveniles and adults are presumed to move through areas of less suitable soils using riparian corridors. Aquatic habitats can include any water body from a tire rut to a large lake.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

southern crawfish frog *Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

WASHINGTON COUNTY

BIRDS

Eskimo curlew *Numenius borealis*

Historically, shortgrass plains and prairies, but more recently (1960s) in old fields, closely grazed pastures, burned prairies, and marshes; beaches and sand flats. Nonbreeding: grasslands, pastures, plowed fields, and less frequently, marshes and mudflats

Federal Status: LE	State Status: E	SGCN: N
Endemic: N	Global Rank: GH	State Rank: SHN

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

reddish egret *Egretta rufescens*

Resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2B

Rufa Red Knot *Calidris canutus rufa*

WASHINGTON COUNTY

BIRDS

Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot's prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (Donax spp.) on beaches and dwarf surf clam (Mulinia lateralis) in bays, at least in the Laguna Madre. Wintering Range includes- Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2B

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1N

WASHINGTON COUNTY

BIRDS

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

FISH

american eel *Anguilla rostrata*

Originally found in all river systems from the Red River to the Rio Grande. Aquatic habtiats include large rivers, streams, tributaries, coastal watersheds, estuaries, bays, and oceans. Spawns in Sargasso Sea, larva move to coastal waters, metamorphose, and begin upstream movements. Females tend to move further upstream than males (who are often found in brackish estuaries). American Eel are habitat generalists and may be found in a broad range of habitat conditions including slow- and fast-flowing waters over many substrate types. Extirpation in upstream drainages attributed to reservoirs that impede upstream migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

chub shiner *Notropis potteri*

Brazos, Colorado, San Jacinto, and Trinity river basins. Flowing water with silt or sand substrate

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

sharpnose shiner *Notropis oxyrhynchus*

Range is now restricted to upper Brazos River upstream of Possum Kingdom Lake. May be native to Red River and Colorado River basins. Typically found in turbid water over mostly silt and shifting sand substrates.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S1S2

silver chub *Macrhybopsis storeriana*

Red River and Brazos River basins. Mainly restricted to large, often silty rivers. Ranges over gravel to silt substrates but found more commonly over silt or mud bottom.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

silverband shiner *Notropis shumardi*

In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associatec with turbid water over silt, sand, and gravel.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

WASHINGTON COUNTY

FISH

smalleye shiner *Notropis buccula*

Endemic to the Brazos River drainage; presumed to have been introduced into the Colorado River. Historically found in lower Brazos River as far south as Hempstead, Texas but appears to now be restricted to upper Brazos River system upstream of Possum Kingdom Lake. Typically found in turbid waters of broad, sandy channels of main stream, over substrate consisting mostly of shifting sand.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S1S2

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

MAMMALS

American badger *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S3

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S4

WASHINGTON COUNTY

MAMMALS

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S1S3

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status: State Status: SGCN: N
Endemic: N Global Rank: G3G4 State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S2S3

plains spotted skunk *Spilogale putorius interrupta*

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status: State Status: SGCN: N
Endemic: N Global Rank: G4T4 State Rank: S1S3

WASHINGTON COUNTY

MAMMALS

southern short-tailed shrew *Blarina carolinensis*

Found in East Texas pine forests and agricultural land. May favor areas with abundant leaf litter and fallen logs (Baumgardner et al. 1992). Nest sites are probably under logs, stumps and other debris.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

thirteen-lined ground squirrel *Ictidomys tridecemlineatus*

Prefers short grass prairies with deep soils for burrowing. Frequently found in grazed ranchland, mowed pastures, and golf courses.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

MOLLUSKS

Brazos Heelsplitter *Potamilus streckersoni*

Habitat description is not available at this time.

Federal Status:	State Status: T	SGCN: N
Endemic: Y	Global Rank: GNR	State Rank: SNR

Texas Fawnsfoot *Truncilla macrodon*

Occurs in large rivers but may also be found in medium-sized streams. Is found in protected near shore areas such as banks and backwaters but also riffles and point bar habitats with low to moderate water velocities. Typically occurs in substrates of mud, sandy mud, gravel and cobble. Considered intolerant of reservoirs (Randklev et al. 2010; Howells 2010o; Randklev et al. 2014b,c; Randklev et al. 2017a,b). [Mussels of Texas 2019]

Federal Status: C	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S2

WASHINGTON COUNTY

REPTILES

common garter snake *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

smooth softshell *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

WASHINGTON COUNTY

REPTILES

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

branched gay-feather *Liatris cymosa*

Somewhat barren grassland openings in post oak woodlands on tight clayey, chalky, or gravelly soils, often over Catahoula Formation; flowering July-October

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

Florida pinkroot *Spigelia texana*

Woodlands on loamy soils; Perennial; Flowering March-Nov; Fruiting April-Nov

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Navasota ladies'-tresses *Spiranthes parksii*

Openings in post oak woodlands in sandy loams along upland drainages or intermittent streams, often in areas with suitable hydrologic factors, such as a perched water table associated with the underlying claypan; flowering populations fluctuate widely from year to year, an individual plant does not flower every year; flowering late October-early November (-early December)

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Sayersville blue eyes *Nemophila sayersensis*

Open fields and woodland margins on deep loose nutrient-poor sand (Simpson, Helfgott and Neff 2001). Mar-May.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

Shinner's sunflower *Helianthus occidentalis ssp. plantagineus*

Mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T2T3	State Rank: S4

WASHINGTON COUNTY

PLANTS

Texas beebalm *Monarda viridissima*

Endemic perennial herb of the Carrizo Sands; deep, well-drained sandy soils in openings of post oak woodlands; flowers white.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Texas meadow-rue *Thalictrum texanum*

Mostly found in woodlands and woodland margins on soils with a surface layer of sandy loam, but it also occurs on prairie pimple mounds; both on uplands and creek terraces, but perhaps most common on claypan savannas; soils are very moist during its active growing season; flowering/fruiting (January-)February-May, withering by midsummer, foliage reappears in late fall(November) and may persist through the winter

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2Q	State Rank: S2

Texas tauschia *Tauschia texana*

Occurs in loamy soils in deciduous forests or woodlands on river and stream terraces; Perennial; Flowering/Fruiting Feb-April

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Topeka purple-coneflower *Echinacea atrorubens*

Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Jan-June; Fruiting Jan-May

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

ECPL RARE COMMUNITIES

Common Name	Scientific Name	G RANK	S RANK (Provisional)	ECOLOGICAL SYSTEM *added where relationship can be made at this scale*	ECOREGIONS (Note: other ecoregions are included for cross reference and conservation action coordination if needed)												Known COUNTIES	Endemic	Known PROTECTED AREAS	TERR	WETL	AQU	Comments
					ECPL	TBPR	WGCP	CRTB	GCPM*	EDPT	AZNM	CHIH	HIPL	SWTB	CGPL	STPL							
Bur Oak - Shumard Oak Mixed Bottomland Forest	Quercus macrocarpa - Quercus shumardii - Chasmanthium latifolium Forest	G3?	S3?	South-Central Interior Large Floodplain CES202.705	ECPL	TBPR		CRTB									Anderson, Navarro, Red River and Tarrant	N		X			Newly described association (not in NatureServe). Probably in other North Texas counties.
Central Texas Post Oak Ecoregion Hillside Seepage Slope	Rhynchospora macra - Sarracenia alata - Eleocharis equisetoides - Xyris scabrifolia - Xyris chapmanii Herbaceous Vegetation	G1	S1	West Gulf Coastal Plain Herbaceous Seep and Bog CES203.194	ECPL												Freestone and Leon	Y	No documented protected areas		X		Newly described by Singhurst and Bridges
Central Texas Post Oak Ecoregion Stream Valley Seepage Bog	Centella erecta - Rhexia mariana - Sarracenia alata - Rhynchospora chalarocephala - Polygala cruciata - Juncus trigonocarpus - Andropogon capillipes Herbaceous Vegetation	G1G2	S1S2		ECPL												Freestone, Houston, Leon and Robertson	Y	No documented protected areas		X		Newly described by Singhurst and Bridges
Curly Threeawn - Pickering's Dawnflower - Silver Croton - Little Bluestem Blowout Sandhill Vegetation	Aristida desmantha-Stylisma pickeringii ssp. patersonii-Croton argyranthemus-Schizachrium scoparium Herbaceous Vegetation	G2	S2	East-Central Texas Plains Xeric Sandyland CES205.897	ECPL												Anderson, Bastrop, Burleson, Freestone, Henderson, Lee, Leon, Milam, Robertson, Smith, Van Zandt and Wood	Y	Bastrop SP (TPWD), Yegua Knobs Preserve (Pines and Prairies Land Trust)	X			
Eastern Gammagrass - (Switchgrass) Floodplain Herbaceous Vegetation	Tripsacum dactyloides - (Panicum virgatum) Herbaceous Vegetation	G1	S1	Texas Blackland Tallgrass Prairie CES205.684	ECPL	TBPR	WGCP										Austin, Delta, Franklin, Hopkins, Hunt, Smith, Titus and Tyler	Y?	Cowleech Prairie (TNC)		X		Newly defined association including prairies dominated by lowland gammagrass in frequently flooded bottomlands of E Tx. In examples in the upper Sabine watershed, P. virgatum is unimportant or absent. Though widely distributed, examples are rare and small in spatial extent. This community is unrelated to the Tripsacum dactyloides - Panicum virgatum - Sorghastrum nutans - Helianthus maximiliani Herbaceous Assn. and the gammagrass may be genetically distinct.
Little Bluestem - Indiangrass - Prairie Bishop Alfisol Herbaceous Vegetation	Schizachyrium scoparium - Sorghastrum nutans - Bifora americana Alfisol Herbaceous Vegetation	G1G2	S1S2	Texas Blackland Tallgrass Prairie CES205.684	ECPL												Austin, Brazos, Burleson, Colorado, Fayette, Freestone, Grimes, Lavaca, Lee, Leon, Limestone, Madison, Robertson and Washington	Y	Fort Parker SP (TPWD)	X			
Little Bluestem - Narrowleaf Pinweed - Round Copperleaf Herbaceous Vegetation	Schizachyrium scoparium - Lechea tenuifolia - Acalypha radians Herbaceous Vegetation	G2G3	S2S3	East-Central Texas Plains Xeric Sandyland CES205.897	ECPL												Atascosa, Bastrop, Bexar, Caldwell, Guadalupe, Gonzales, Lee, Medina and Wilson	Y	Bastrop and Buescher State Park (TPWD)	X			
Live Oak - Post Oak Woodland	Quercus virginiana - Quercus stellata / Schizachyrium scoparium - Paspalum plicatulum Woodland	G3	S3	East-Central Texas Plains Post Oak Savanna and Woodland CES205.679	ECPL				GCPM								Austin, Burleson, Colorado, Gonzales, Lavaca, Lee, Waller and Washington	Y	No documented protected areas	X			This assn. may warrant more precise definition - nominal spps. are widespread. Includes a number of endemic plant spps.
Northern Texas Post Oak Stream Valley Pitcher Plant Bog	(Acer rubrum var. trilobum - Alnus serrulata) / Apios americana - Sarracenia alata - Symphyotrichum puniceum var. scabricaule - Rhynchospora chalarocephala - Juncus trigonocarpus Herbaceous Vegetation	G1G2	S1S2	West Gulf Coastal Plain Herbaceous Seep and Bog CES203.194	ECPL												Anderson, Henderson, Smith, Van Zandt and Wood	Y	Gus Engeling WMA (TPWD)		X		Newly described by Singhurst and Bridges
Oklahoma Acidic Hillside Seep	Dichanthelium scoparium - Boehmeria cylindrica / Sphagnum spp. - Polytrichum commune Herbaceous Vegetation	G2	S1	West Gulf Coastal Plain Herbaceous Seep and Bog CES203.194	ECPL												Lamar	N	Camp Maxey (DoD)		X		
Southern Texas Post Oak Ecoregion Seepage Slopes and Swales	Morella cerifera / Eleocharis tortilis - Helianthus angustifolius - Rhexia mariana - Triadenum virginicum - Eleocharis flavescens - Juncus validus Herbaceous Vegetation	G2	S2	West Gulf Coastal Plain Herbaceous Seep and Bog CES203.194	ECPL												Austin, Bastrop, Burleson, Colorado, Gonzales, Guadalupe, Grimes, Lee, Limestone, Milam, Robertson, Washington and Wilson	Y	Bastrop SP (TPWD), Yegua Knobs Preserve (Pines and Prairies Land Trust)		X		Newly described by Singhurst and Bridges
Southern Texas Post Oak Ecoregion Stream Terrace Escarpment Seepage Bog	Cyperus haspan - Fuirena squarrosa - Cirsium muticum - Cicuta maculata - Leersia virginica Herbaceous Vegetation	G1	S1	West Gulf Coastal Plain Herbaceous Seep and Bog CES203.194	ECPL												Gonzales and Guadalupe	Y	No documented protected areas		X		Newly described by Singhurst and Bridges
Texas Oakville Sandstone Savanna	Quercus stellata-Quercus fusiformis-Schizachyrium scoparium-Nolina lindheimeriana Savanna Vegetation	G1	S1		ECPL												Fayette	Y	Monument Hill SHP (TPWD)	X			Newly described by Singhurst
Texas Post Oak Savanna Oakville Sandstone Outcrop	Bouteloua spp. - Muhlenbergia capillaris - Physaria densiflora - Coryphantha missouriensis - Lygodesmia texana Herbaceous Vegetation	G1	S1		ECPL												Grimes	Y	No documented protected areas	X			
Texas Post Oak Savanna Quaking Muck Bog	Carex lurida - Andropogon glomeratus - Sarracenia alata - Symphyotrichum puniceum var. scabricaule - Doellingeria sericocarpoides Herbaceous Vegetation	G1G2	S1S2	West Gulf Coastal Plain Herbaceous Seep and Bog CES203.194	ECPL												Anderson, Freestone, Henderson, Robertson (possibly extirpated?), Van Zandt and Wood	Y	Gus Engeling WMA (TPWD)		X		Newly described by Singhurst and Bridges
Texas Southern Post Oak Sandhills	Quercus stellata-Dichanthelium (oligosanthes, nodatum)-Acalypha radians-Eriogonum multiflorum	G1G2	S1S2	East-Central Texas Plains Xeric Sandyland CES205.897	ECPL												Atascosa, Bastrop, Bexar, Caldwell, Gonzales, Guadalupe, Medina, and Wilson	Y	Neasloney WMA (TPWD)	X			

WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP) SUMMARY REPORT

SOMERVILLE LAKE MASTER PLAN

BURLESON, LEE, and WASHINGTON COUNTIES, TEXAS

US Army Corp of Engineers®
Fort Worth District

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Introduction

Habitat assessments were conducted at Somerville Lake on April 12th -16th, 2021 using Texas Parks and Wildlife Department's (TPWD) Wildlife Habitat Appraisal Procedure ([WHAP] TPWD 1995). WHAP survey point locations were preselected based on aerial imagery from existing Geographical Information Systems (GIS) data and recommendations from the Lake Staff. A total of 72 WHAP points were surveyed, all within U.S. Army Corps of Engineers (USACE) fee boundary (Figure 1).

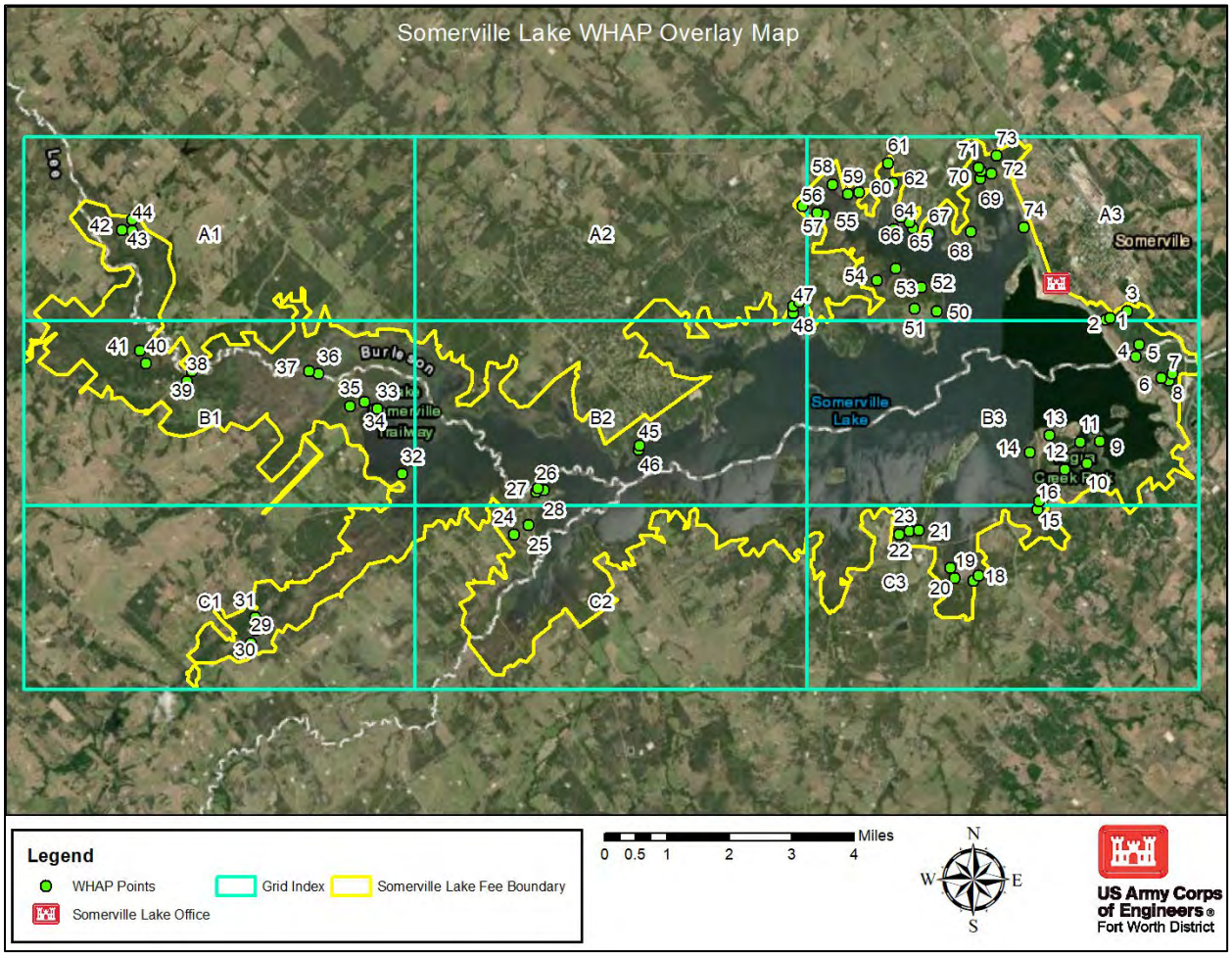


Figure 1 - Somerville Lake Planned WHAP Points

The purpose of this report is to describe wildlife habitat quality within the USACE Somerville Lake fee-owned property in Burleson, Lee, and Washington Counties, Texas. This report is being prepared by the USACE Regional Planning and Environmental Center (RPEC) to provide habitat quality information and inform land classifications as part of the Somerville Lake Master Plan revision process.

The USACE fee owned property at Somerville Lake is approximately 40,305 acres.

Somerville Lake is located about 10 miles northwest of Brenham, Texas and is adjacent to the town of Somerville, Texas. Somerville Lake is located approximately 20 miles upstream from Yegua Creek's confluence with the Brazos River and is a part of the Brazos River drainage basin. The primary inflow into Somerville Lake is Yegua Creek, but it is also supplied by many other smaller creaks and streams. The area above the Somerville Lake dam drains approximately 1,006 square miles.

At the conservation storage elevation of 238 feet above mean sea level, the lake has a capacity of 160,100 acre-feet and a surface area of 11,160 acres. At the Lake's peak flood control elevation of 258 feet the reservoir has a capacity of 500,00 acre-feet of water and covers an area of approximately 24,400 acres. The Somerville Lake dam provided flood protection for 9,000 acres of land along Yegua Creek and helps protect 887,000 acres of agricultural area along the Brazos river.

Somerville Lake is also an important recreational area in south-central Texas, attracting many fisherman, campers, and boaters. The Lake has multiple parks, trails, and camping facilities that attract several hundred thousand visitors annually.

Methodology

Teams of USACE RPEC biologists and USACE park rangers conducted the habitat surveys on April 12th-16th, 2021 TPWD's WHAP protocol was used to analyze and describe existing habitats.

The survey points were selected haphazardly in order to get a representative sample of the habitat occurring on Somerville Lake. Part of the selection process involves working with the local Lake Office to identify any known unique or high quality habitat, but also areas that are more representative of average habitat, areas that were previously impacted by anthropogenic factors, and areas that the Lake Office may be missing information on. Using this information, along with available Geographic Information Systems (GIS) layers and information, points are selected via GIS and approved by the Lake staff. These points are also subject to be surveyed within the time limitations and the funding constraints of the survey.

The WHAP requires evaluating representative sites of each cover type present within an area ofinterest. For this project, a search area of 0.1 acre (circle with radius of 37.2 feet) was used at each WHAP site to compile a list of plant species occurring at each site and to complete the Biological Components Field Evaluation Form (https://tpwd.texas.gov/publications/pwdpubs/media/pwd_rp_w7000_0145.pdf). Fielddata collected on the form at each WHAP site included the following components:

1. Site Potential
2. Temporal Development of Existing Successional Stage
3. Uniqueness and Relative Abundance
4. Vegetation Species Diversity
5. Vertical Vegetation Stratification
6. Additional Structural Diversity
7. Condition of Existing Vegetation

At each site, a 1/10th acre plot was evaluated, and points were assigned to all applicable components based on field conditions. A habitat quality score, where values range from 0.0 (low quality) to 1.0 (high quality), was then calculated for each site by adding together all score components and dividing the total by 100. Habitat quality was then determined for all sites within the same habitat type. Photographs were taken at each site and are included as Attachment B.

The TPWD developed the WHAP to allow a qualitative, holistic evaluation of wildlife habitat for tracts of land statewide without imposing significant time requirements in regard to field work and compilation of data (TPWD 1995). The WHAP was not designed to evaluate habitat quality in relation to specific wildlife species.

The WHAP is based on the following assumptions:

1. Vegetation structure including species composition and physiognomy is itself sufficientto define the habitat suitability for wildlife;
2. A positive relationship exists between vegetation diversity and wildlife species diversity;
3. Vegetation composition and primary productivity directly influence population densitiesof wildlife species.

As designed, the WHAP is intended to be used for the following applications:

1. Evaluating impacts upon wildlife populations from specific development project alternatives.
2. Establishing baseline data prior to anticipated or proposed changes in habitat conditionsfor specific areas.
3. Comparing tracts of land that are candidates for land acquisition or mitigation.
4. Evaluating general habitat quality and wildlife management potential for tracts of land over large geographical areas, including wildlife planning units.

The WHAP protocol can be used to assess a wide range of habitats; however it was originally developed to assess and develop mitigation requirements for loss of bottomland hardwoods andother aquatic habitats. Scores can screw higher for these habitats based on how the scoring is allotted to each WHAP habitat component. Upland forest and grassland habitat types cannot reach a score indicative of high quality habitat although they may exhibit high quality features. Subsequently, high quality upland habitat may not be identified or can be overlooked.

Grasslands, in particular, fall into this category. Consider the Site Potential component with a maximum score of 0.25 points, it allocates more points based on higher hydrologic connectivity. In order to receive the highest score for this component, the area must exhibit at least one of thefollowing: at least periodically support predominately hydrophytic vegetation, is predominately undrained hydric soil and supports or is capable of supporting hydrophytic vegetation, and/or is saturated with water or covered by shallow water during 1-2 months during the growing season of each year. In a grassland setting, when conditions become conducive to hydrophytic plant growth, a successional shift from a grassland to herbaceous wetlands, swamps, or riparian forest is likely to occur. Therefore, grasslands would almost always be limited to a maximum score of 0.12 points (uplands with thick surface layer).

Similarly, grasslands would be limited to a maximum of 0.12 points for the Temporal Development of Existing Successional Stage component, whereas other forested habitats couldreceive the full 0.25 points.

These two components alone regularly exclude grassland habitat from receiving 0.26 points on the WHAP scale. In order to identify the maximum score each habitat type can receive, USACE environmental staff scored each criteria given ideal conditions for riparian/bottomland hardwoodforest (BHF), upland forest (includes all non-riparian/BHF forests), grassland, swamp, and marsh habitats. The maximum values scores, shown in Table 1, were then used to normalize scores for habitats that are prevented from reaching the maximum WHAP score primarily due toarbitrary low scores in the two WHAP components described above. Normalizing habitat scoreswill identify high quality habitat that would otherwise not be detected.

Table 1 - Maximum Score Per Habitat Type

Cover Type	Component Number								Maximum Total Score
	1	2	3	4	5	6	7	7B	
Swamp	20	20	20	20	5	5	5	5	1.00
Marsh	25	20	20	20	NA	5	10	NA	1.00
Riparian/BHF	25	20	20	15	5	5	5	5	1.00
Upland Forest	12	20	20	15	5	5	5	5	0.87
Grassland	12	12	20	6	3	5	5	5	0.68

Swamp, marsh, and riparian/BHF habitats can all achieve the maximum score, therefore, nonormalization of scores were made for these habitat types. Upland forests and grasslands, however, can only reach within 0.13 and 0.32 points of the maximum WHAP score, even in ideal conditions.

To evaluate all habitat types on an even scoring basis, upland forest and grassland scores werenormalized by dividing their original scores by the maximum possible score for their respective habitat types. For example, if a grassland site received an initial score of 0.42, it would be divided by the maximum total points a grassland site can receive, 0.68. The normalized total score used for further analysis for the grassland site would be 0.61.

This adjustment allows habitat type scores to be analyzed and compared to their correspondinghabitat type maximum total score. Rather than, for instance, a grassland being evaluated on a bottomland hardwood scoring scale.

All WHAP scores analyzed and discussed from here forward reflect the normalized total scores.As mentioned above, swamp, marsh, and riparian/BHF habitats were not normalized as they can already achieve maximum scores. Grassland scores were normalized by dividing initial scores by 0.68, while all upland forest scores were normalized by dividing the initial score by 0.87.

Habitat

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources, and provide a broad overview of the study area. The Environmental Protection Agency (EPA) has developed a series of maps that categorizes these regions across the United States. Levels I and II divide the North American continent into 15 and 52 regions, respectively, while Level III ecoregions represent a subdivision of those into 104

unique regions and Level IV a finer sub-classification of those. Somerville Lake and its watersheds are located in the Level III East Central Texas Plains ecoregion as seen in Figure 2, and specifically in the Southern Post Oak Savannah IV ecoregion subdivision (Figure 3). Table 2 shows the number of points surveyed within each habitat type.

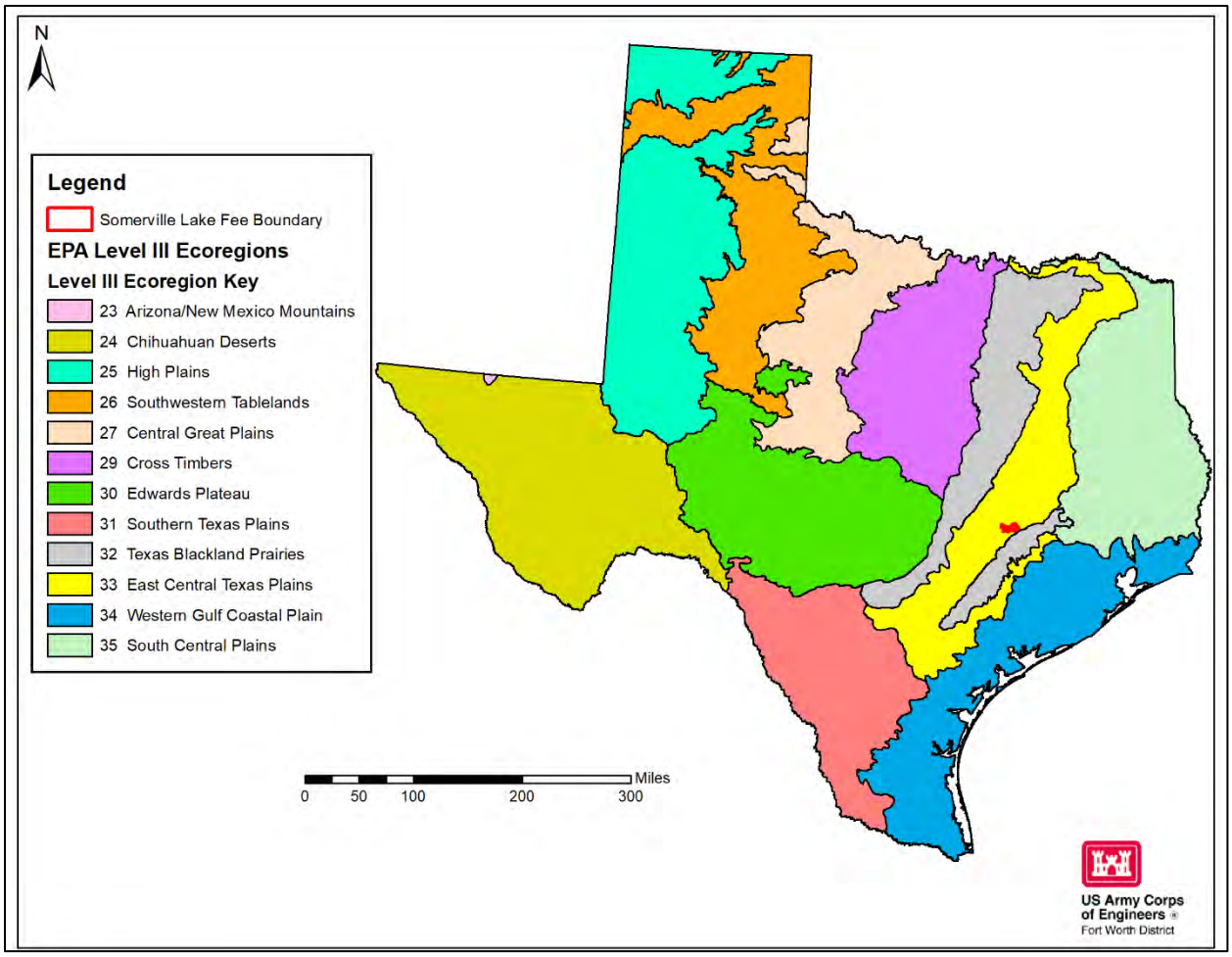


Figure 2 - EPA Level III Ecoregions of Texas

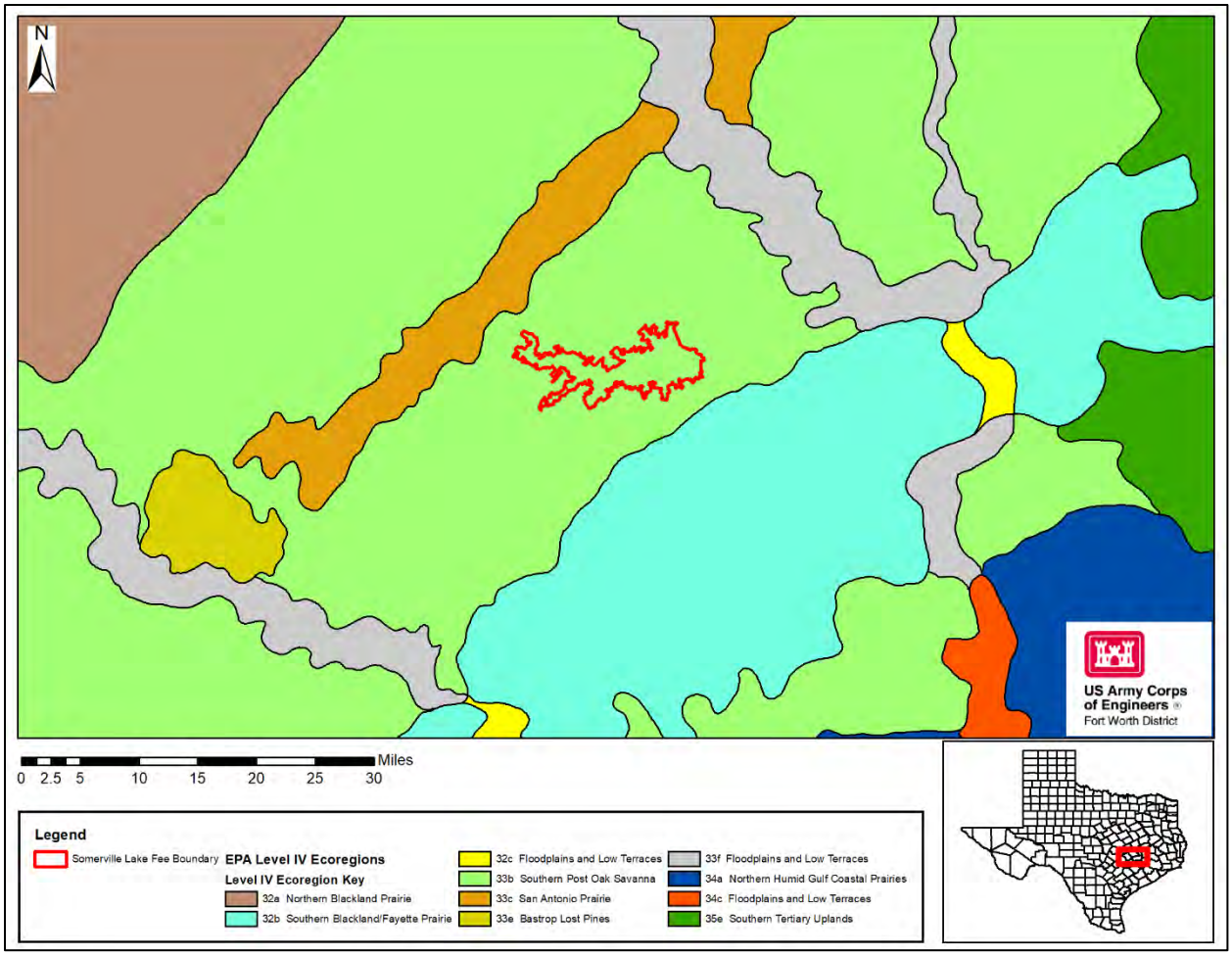


Figure 3 – EPA Level IV Ecoregions of Texas Near Somerville Lake

Table 2 - WHAP Points Per Habitat Type

Habitat Type:	Number of Points Surveyed	% of Points Surveyed
Marsh	2	2.8%
Grassland	10	13.9%
Riparian/BHF	13	18.1%
Upland Forest	47	65.3%
Grand Total	72	100%

The East Central Texas Plains ecoregion is characterized by irregular plains containing sandy to sandy loam soils with a clay subsurface. The ecoregion represents a transition from the woodlands and forests of East Texas to the prairies of the West. Savannas and woodlands in this ecoregion are typically dominated by Post Oak (*Quercus stellata*), Blackjack Oak (*Quercus marilandica*), and Black Hickory (*Carya texana*). The most prominent grasses found in the ecoregion include Little Bluestem (*Schizachyrium scoparium*), Indiangrass (*Sorghastrum*

nutans), and Switchgrass (*Panicum virgatum*). Common forbs for the ecoregion include Hog Croton (*Croton captitus*), Indian Blanket (*Gaillardia pulchella*), Spotted Beebalm (*Mondarda punctata*), Blackeyed Susan (*Rudbeckia hirta*), Drummond Phlox (*Phlox drummondii*), Erect Dayflower (*Commelina erecta*), Cardinal's Feather (*Acalypha radians*), Frostweed (*Verbesina virginica*), Lazy Daisy (*Aphanostephus skirrhobasis*), Slender Snake Cotton (*Froelichia gracilis*), and Texas Bull-Nettle (*Cnidoscolus texanus*).

The region like so many others with major metropolitan areas are becoming more and urbanized. Somerville Lake's vicinity to College Station and Bryan, Texas make it likely to be affected by urban sprawl as these two cities continue to develop and expand.

Results and Discussion

The total habitat score for each point surveyed is a representation of multiple habitat attributes including vegetative diversity and structure, site soil potential, successional stage, and uniqueness of that habitat across the landscape. Data analysis highlights are discussed below, while detailed data for each point surveyed can be found in Attachment A: Somerville Lake WHAP Summary Results of this report.

Upland Forest (N=47) and Riparian or Bottomland Hardwood Forest (N=13) were the most abundant habitat types surveyed. Upland forest scores ranged from 0.41 to 0.77 while Riparian/BHF scores fell between 0.56 to 0.74. Upland and Riparian Forests are the dominant habitat type around the lake, as reflected in the distribution of surveyed habitats. Figures 22-30 show the habitat distribution of all surveyed WHAP points.

The average, maximum, and minimum total score observed for each habitat type surveyed is shown in Table 3.

Table 3 - Average, Maximum, and Minimum Total Adjusted Score for WHAP Points

Habitat Type:	Average Total Score:	Maximum Total Score:	Minimum Total Score:
Marsh	0.73	0.75	0.70
Grassland	0.59	0.77	0.52
BHF/Riparian	0.67	0.74	0.56
Upland Forest	0.59	0.77	0.41

Figures 4-9 show all surveyed points (N=72) with points 11 and 64 being skipped due to inaccessibility. Overall, Marsh (N=2) and BHF/Riparian (N=13) habitats exhibited the highest average total scores (0.73 and 0.67). The marsh habitats scored higher due to their high site potential and uniqueness and relative abundance. BHF/Riparian habitats scored higher due to their high site potential, successional stage, and the combined diversity of woody species and forbs. Figures 13-21 show the score distribution of the WHAP scores surveyed for Somerville Lake.

Beyond vegetative diversity, the three major metrics within the WHAP scoring criteria that allocate points are for site potential, successional stage, and uniqueness and relative abundance. Table 4 shows these metrics' average score per habitat type.

Table 4 - Average Site Potential, Successional Stage, and Uniqueness and Relative Abundance for Habitat Types

Habitat Type:	Average Site Potential: (Max: 25)	Average Successional Stage: (Max: 20)	Average Uniqueness and Relative Abundance: (Max: 20)
Marsh	25.0	10.0	12.5
Grassland*	12.0	5.0	7.5
Riparian/BHF	21.5	9.2	10.0
Upland Forest	11.7	8.4	8.8

Site potential allocates more points based on soil substrates characteristics and hydrologic connectivity that can support hydrophytic habitats, such as marshes, swamps, and bottomland hardwood forests that are often considered to be higher quality, more diverse habitat. This allows areas to score higher even though a recent disturbance, such as fire or flood, may have removed most of the vegetation. Areas scoring high in site potential but low in other metrics can be targeted for management efforts as these areas' vegetation community response should be favorable, thus increasing habitat value.

Successional stage refers to the age of the vegetative community. Older, mature forests, as do climax prairies, score higher than younger pole stands or disturbed grasslands as they provide more diverse forage, cover, and niche habitats. These scores are expected to increase across the board except in areas around the lake that may not have the soil types to support hydrophytic vegetation and are flooded frequently enough to limit upland forest or grassland growth and development.

Uniqueness and Relative Abundance takes into consideration the rarity of a habitat or vegetative community and its abundance in the region.

Riparian forests are typically found in highly productive soils and consist of vegetation communities that persist and even thrive when exposed to frequent or extended periods of flooding. As such, these areas exhibited the highest average site potential, successional stage, and uniqueness and relative abundance scores among all habitat types surveyed.

This WHAP survey had 12 points that scores 0.70 or over, ranging from 0.70 to 0.77; these 4 scores indicate high quality habitat. These areas support riparian and mixed upland forest habitats had features such as mature trees, high tree or woody species diversity, high uniqueness and relative abundance, numerous herbaceous plants, and alluvial or upland soils that contributed to their high scores. Figure 31 shows all points scoring 0.70 or higher.

Recommendation

In summary, combining the WHAP analytical analysis, continued urban development, and spatial distribution of higher scoring points, it appears that the Northeastern part of the Lake had

the most concentrated higher scoring points. This area as well as the general area of the other higher scoring points represented in Figure 31 should warrant special consideration during the Master Planning Process.

Somerville Lake WHAP Summary Figures

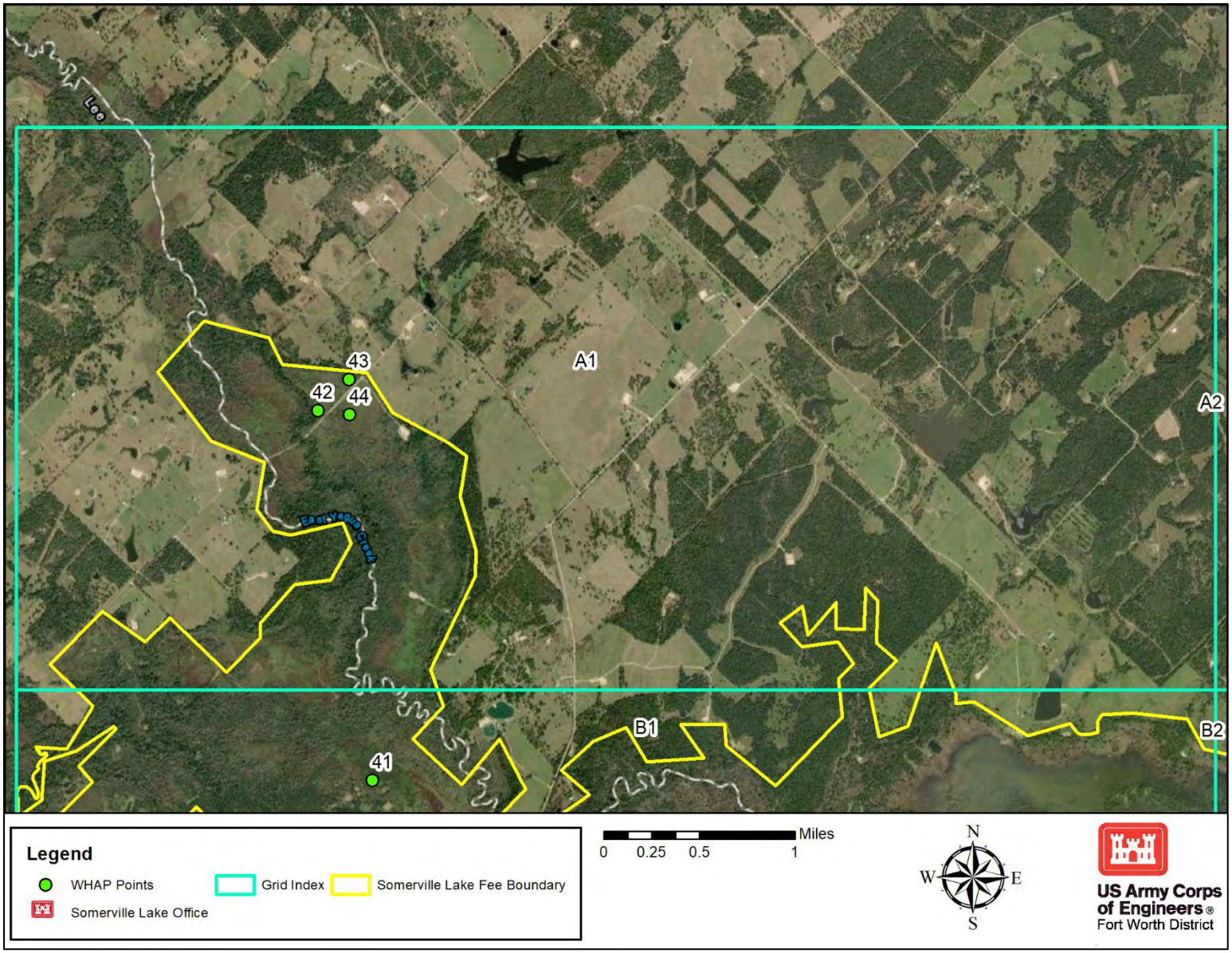


Figure 4 - Surveyed WHAP Points A1

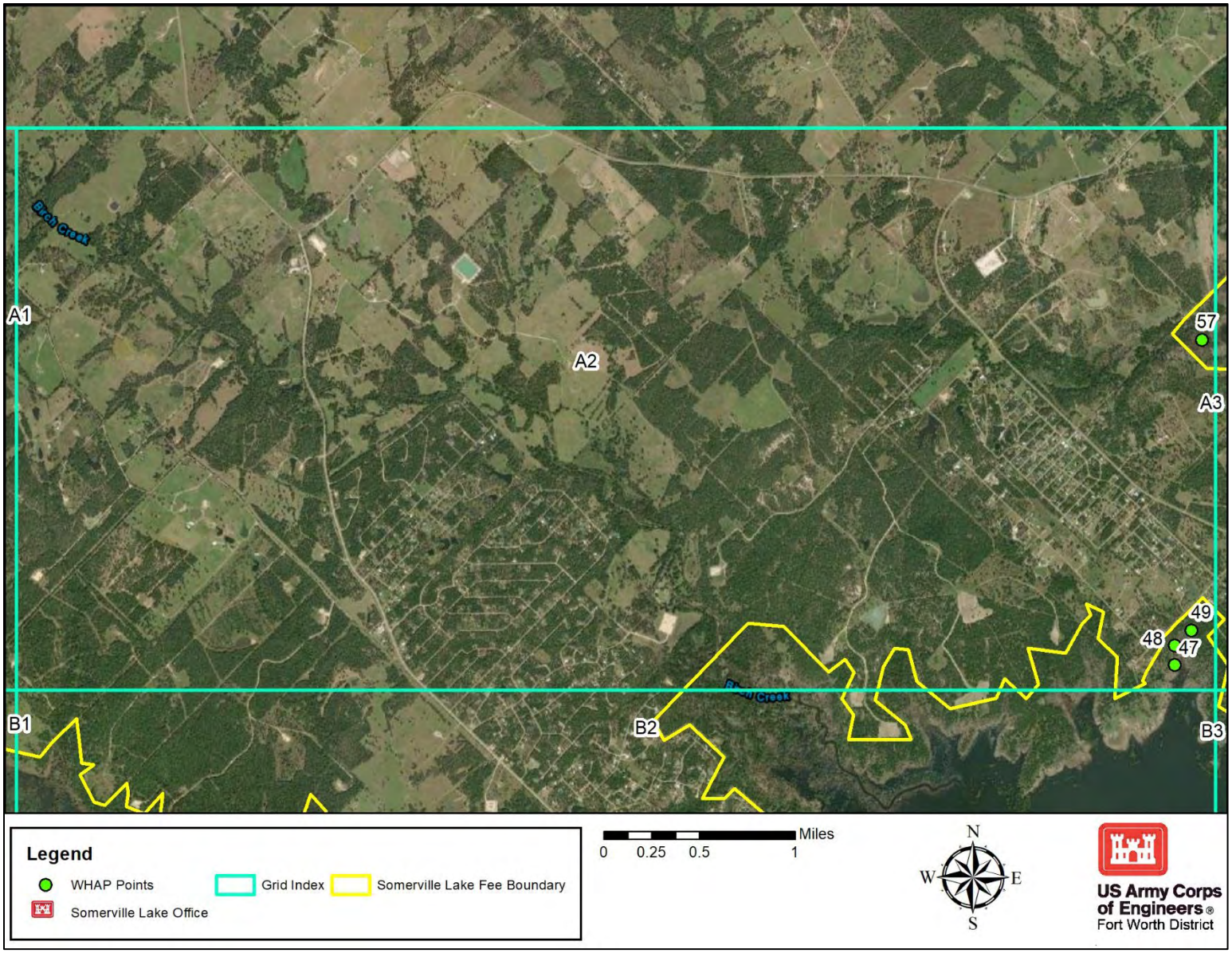


Figure 5 - Surveyed WHAP Points A2

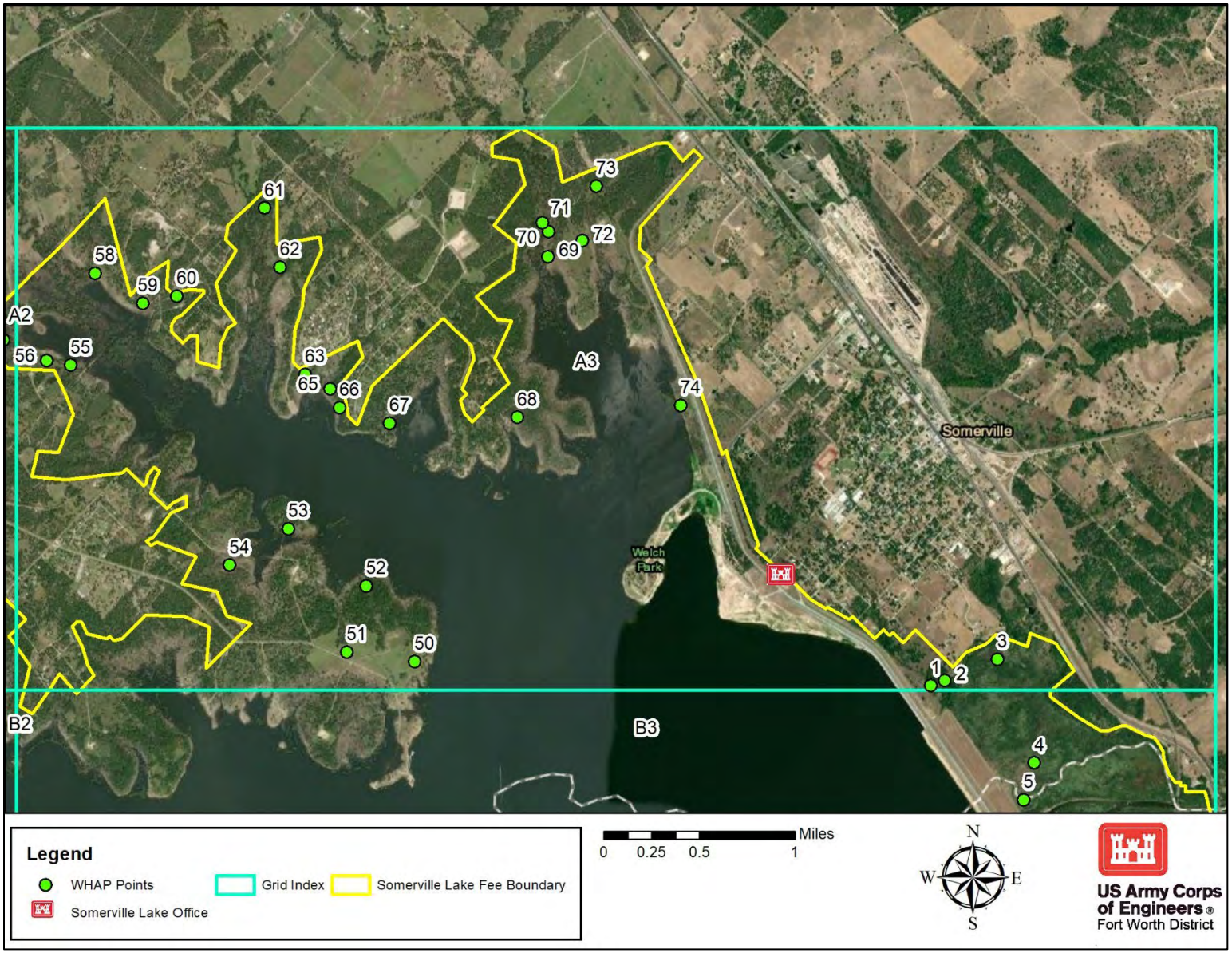


Figure 6 - Surveyed WHAP Points A3

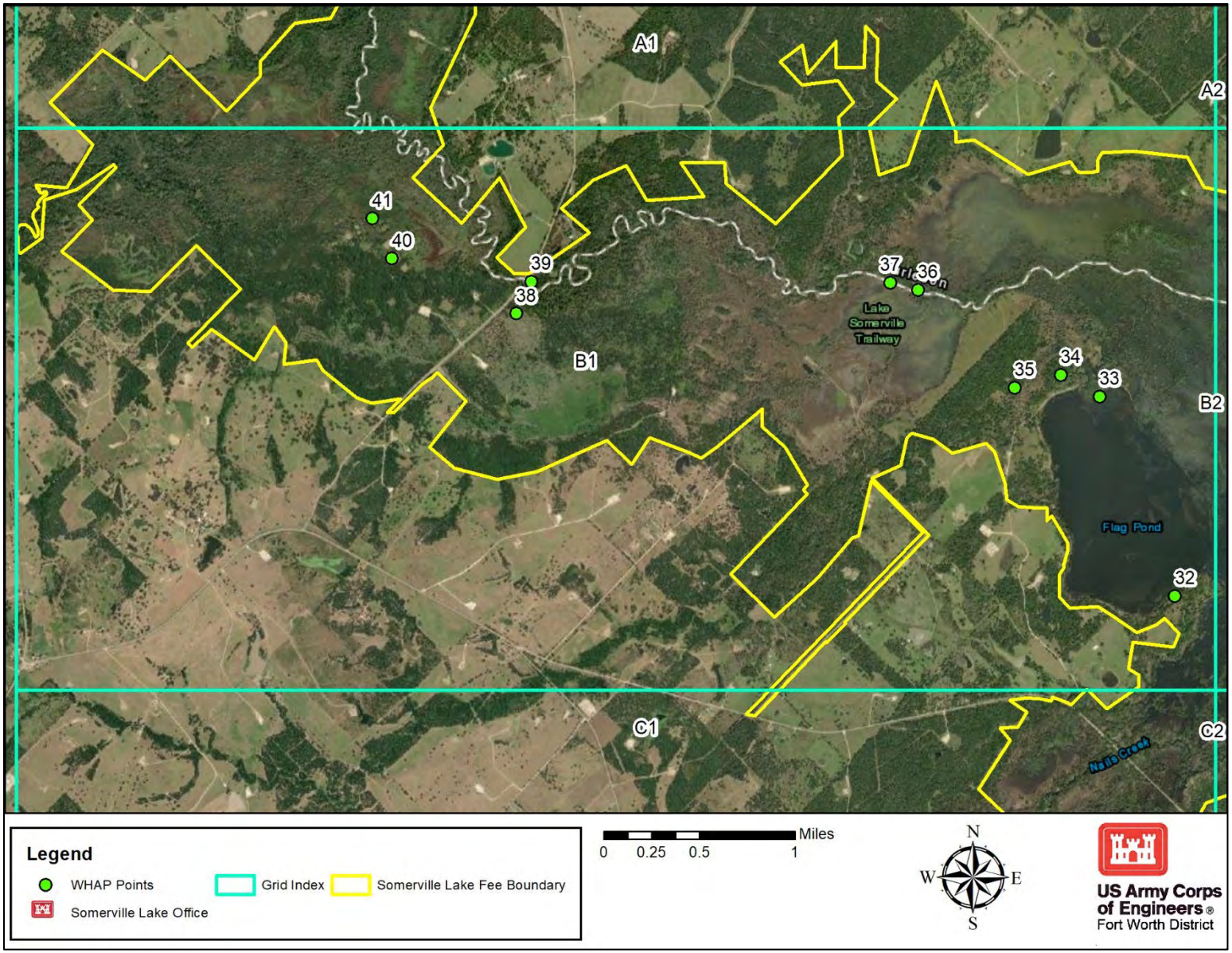


Figure 7 - Surveyed WHAP Points B1

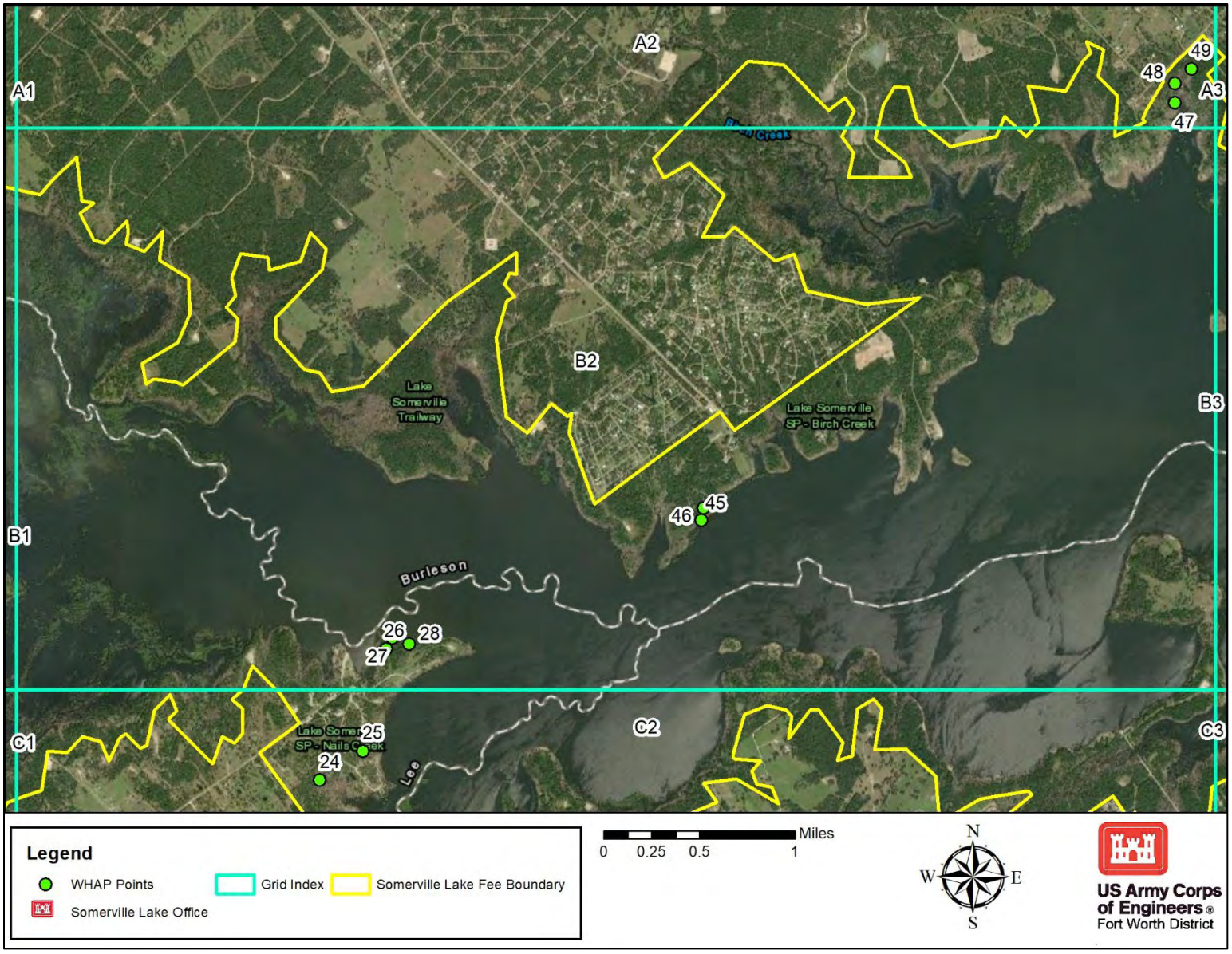


Figure 8 - Surveyed WHAP Points B2

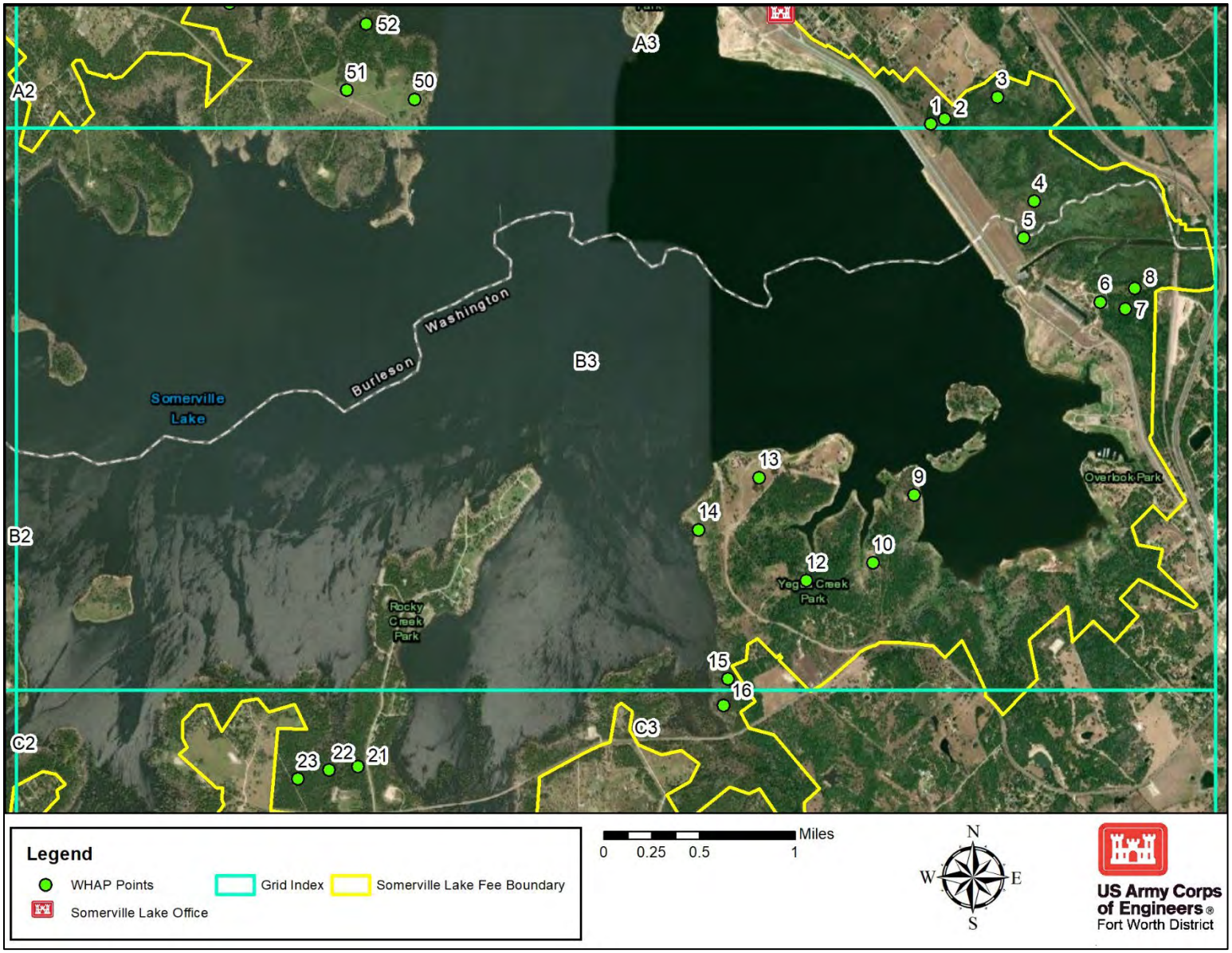


Figure 9 - Surveyed WHAP Points B3

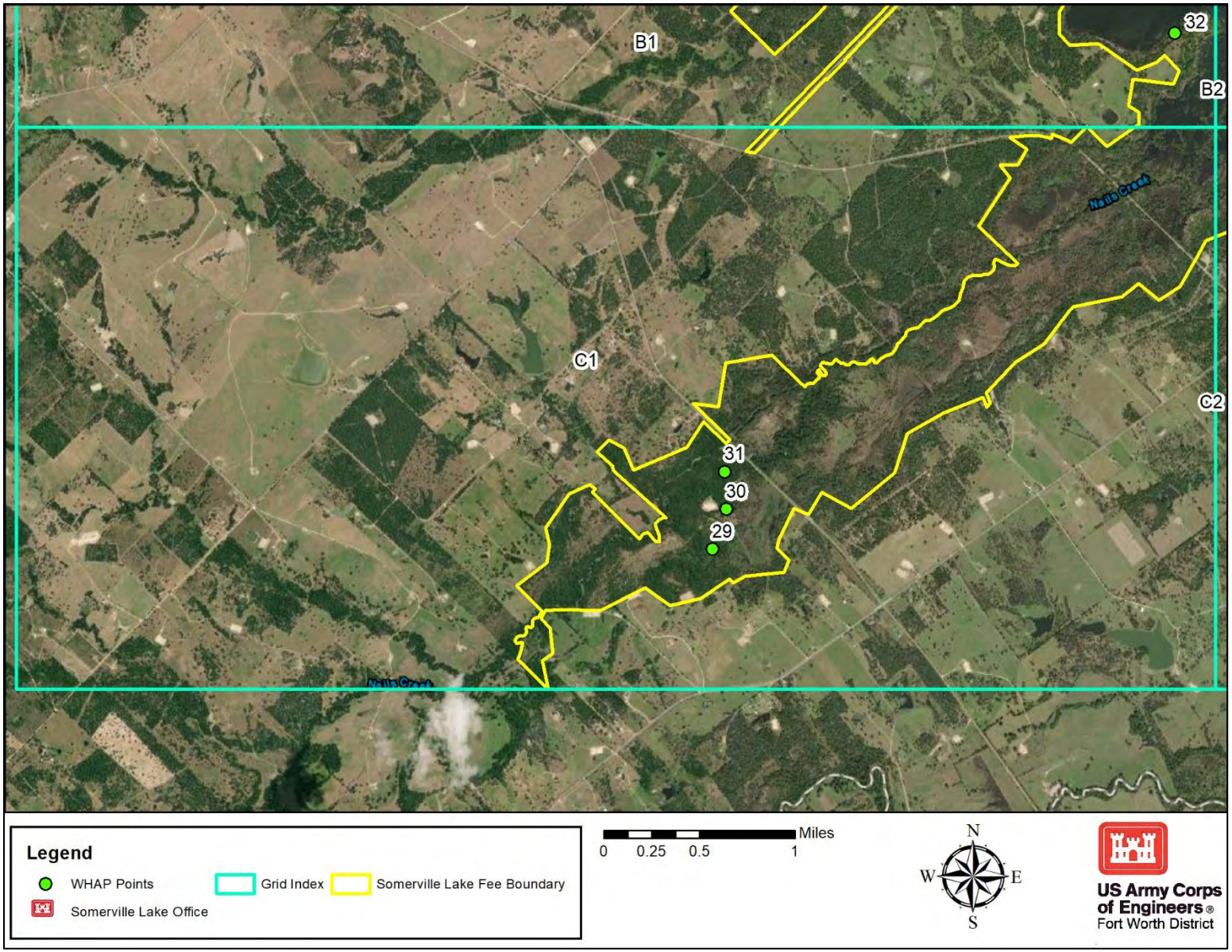
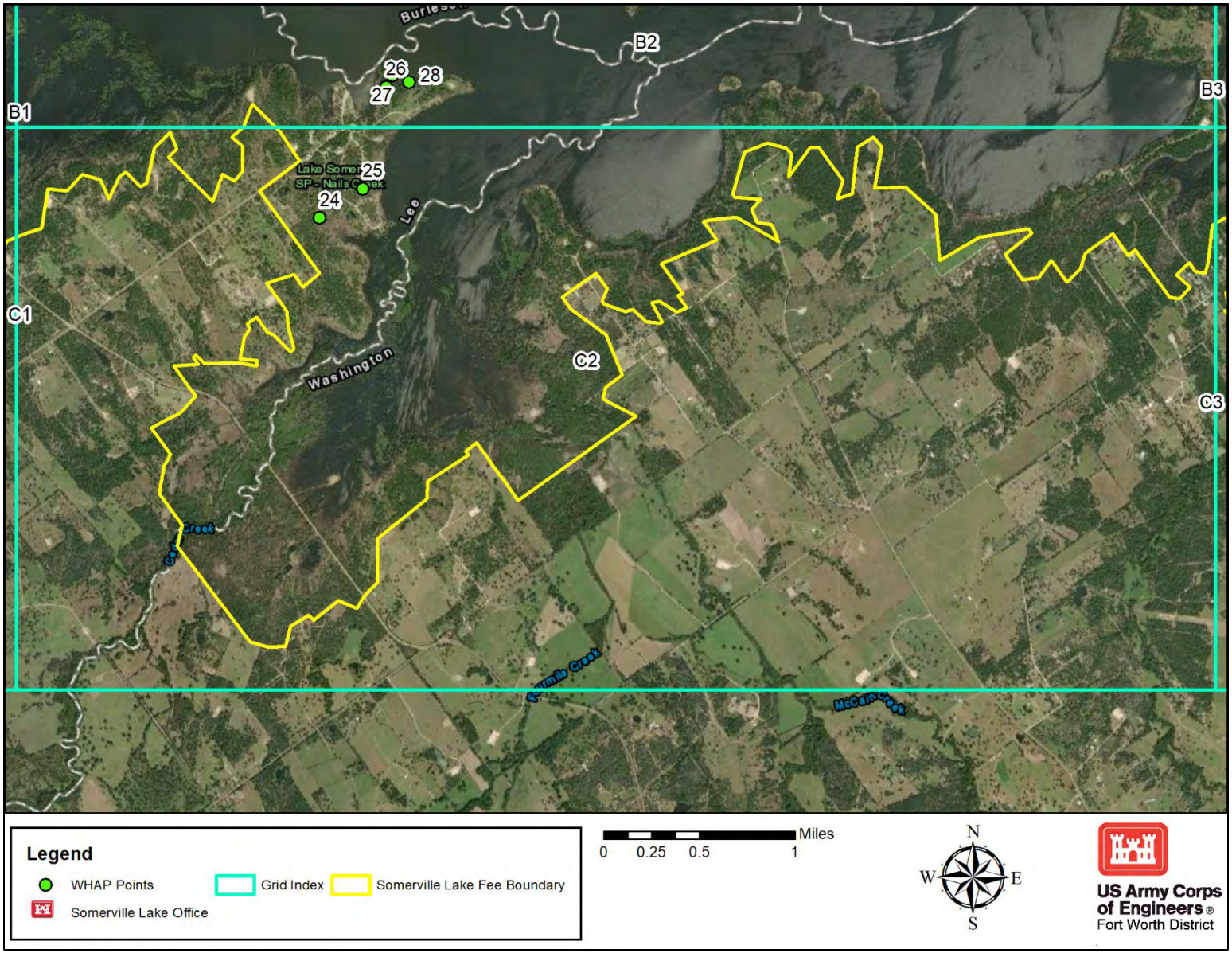


Figure 10 - Surveyed WHAP Points C1



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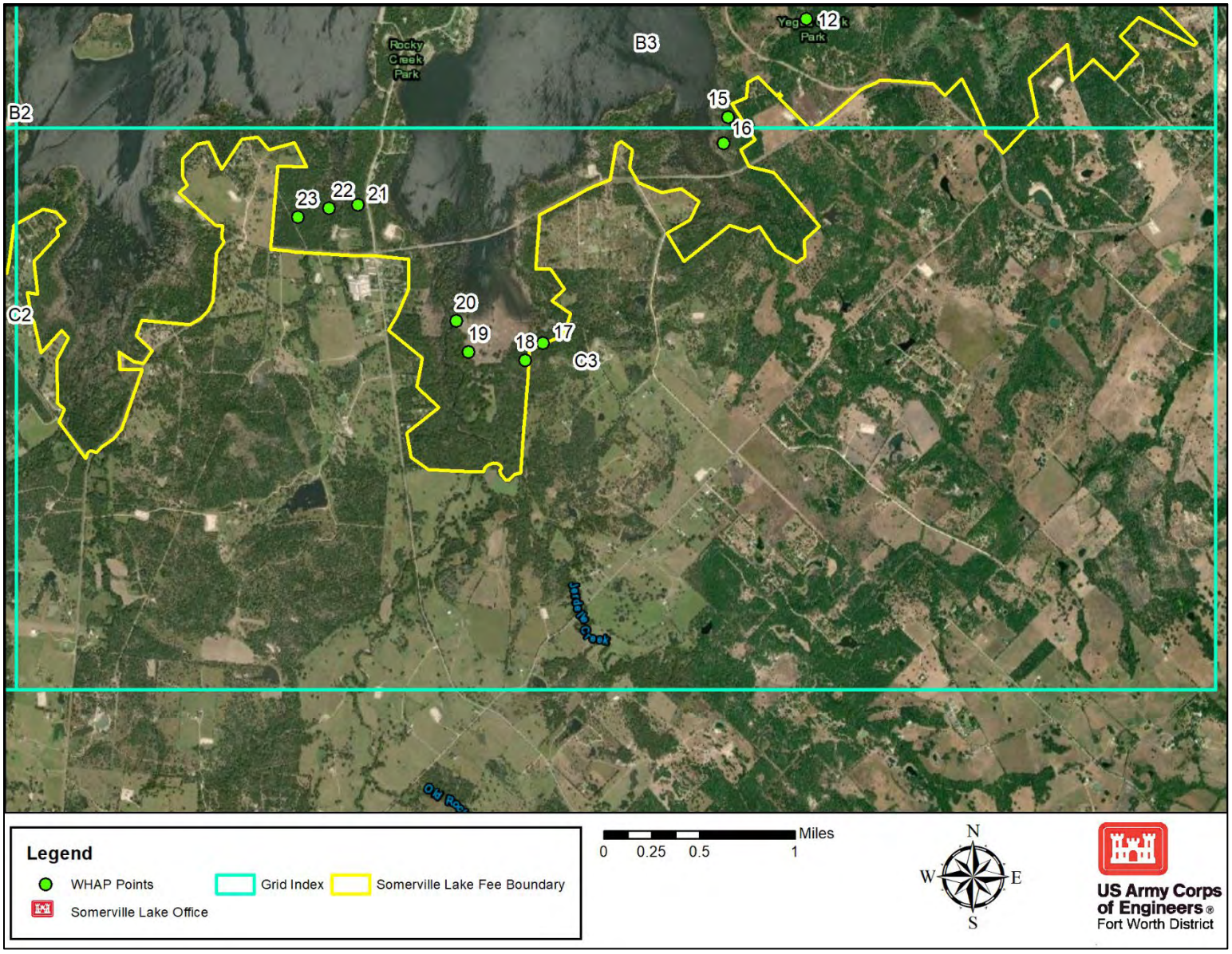

Figure 12 - Surveyed WHAP Points C3

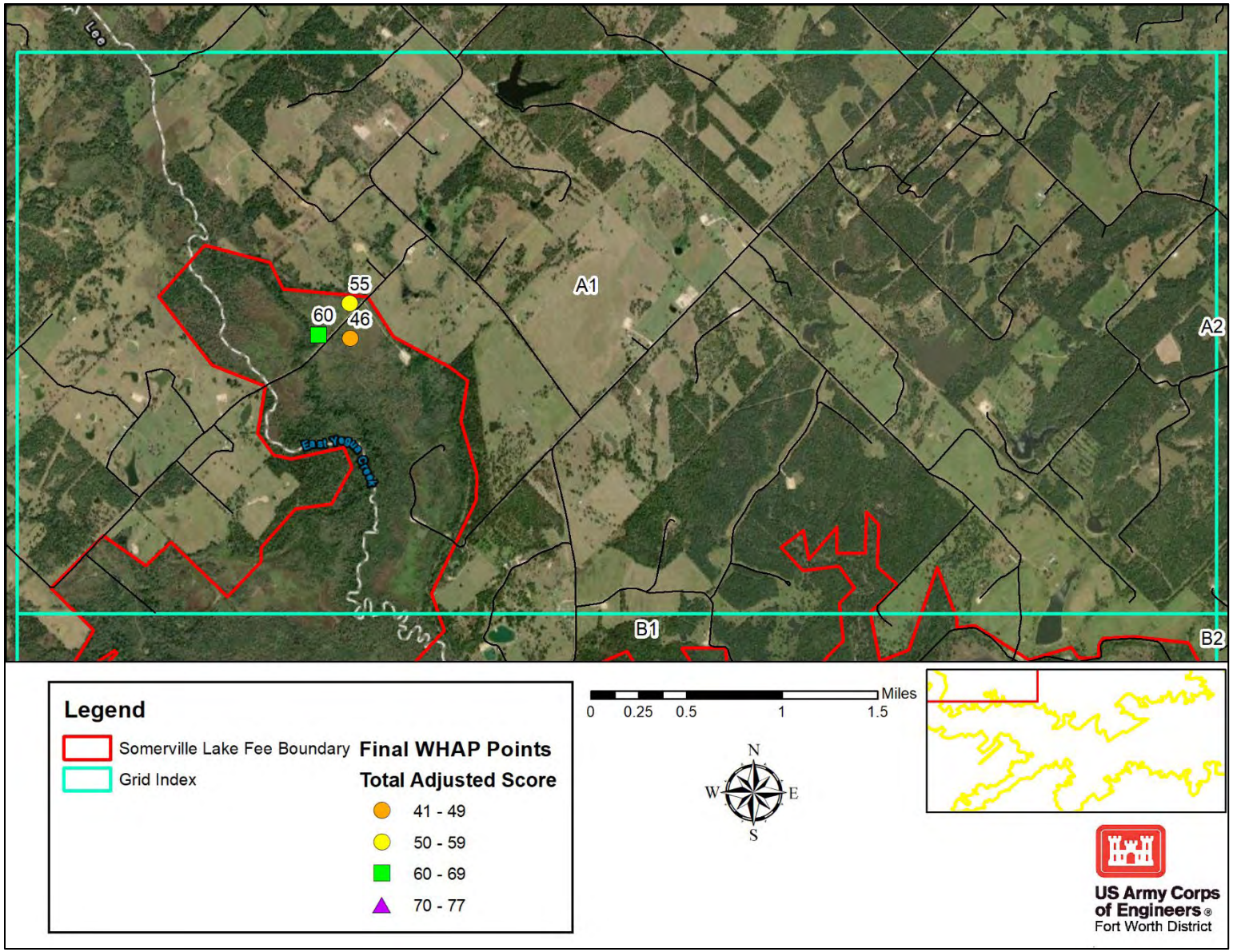

Figure 13 - Score Distribution Map A1

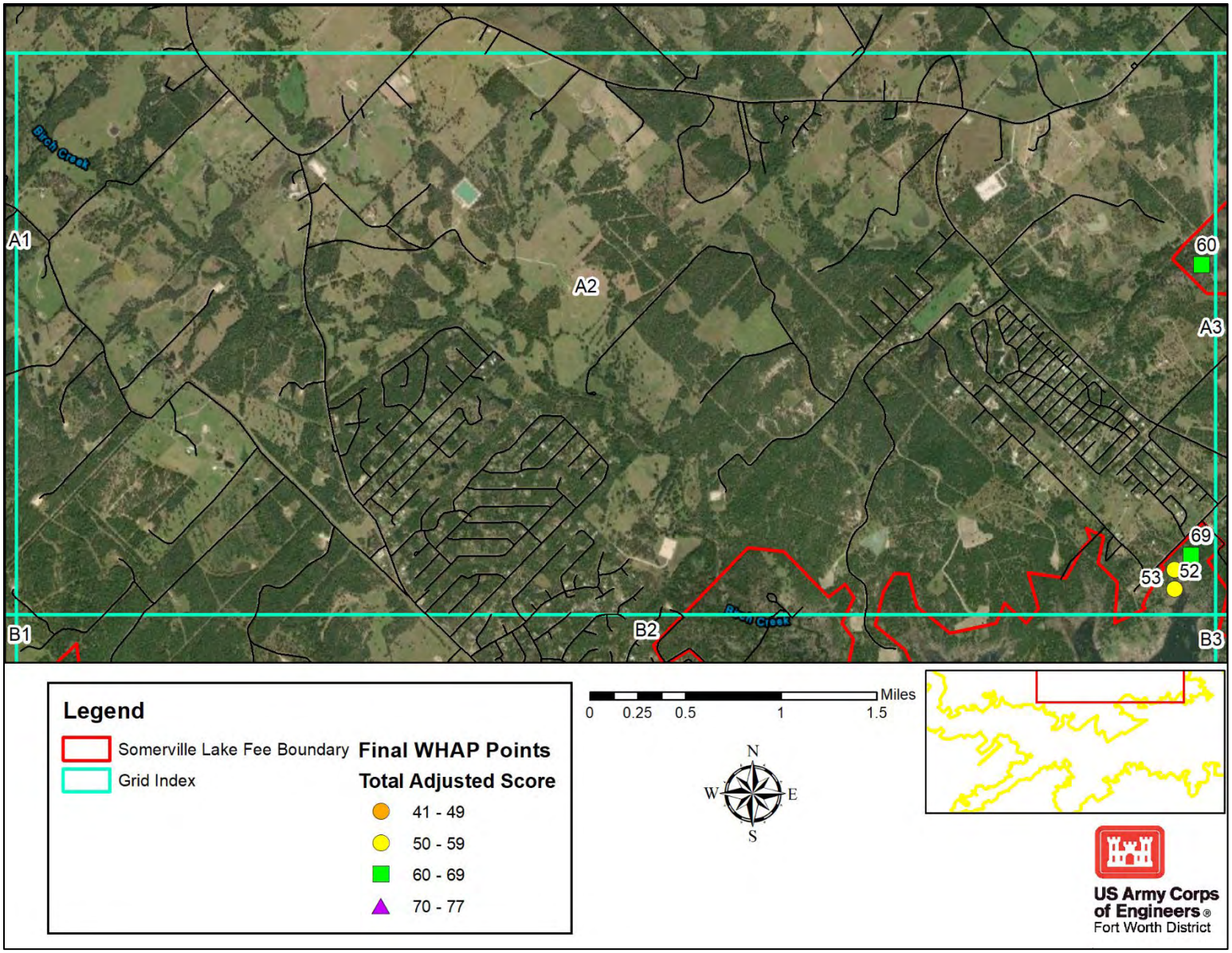

Figure 14 - Score Distribution Map A2

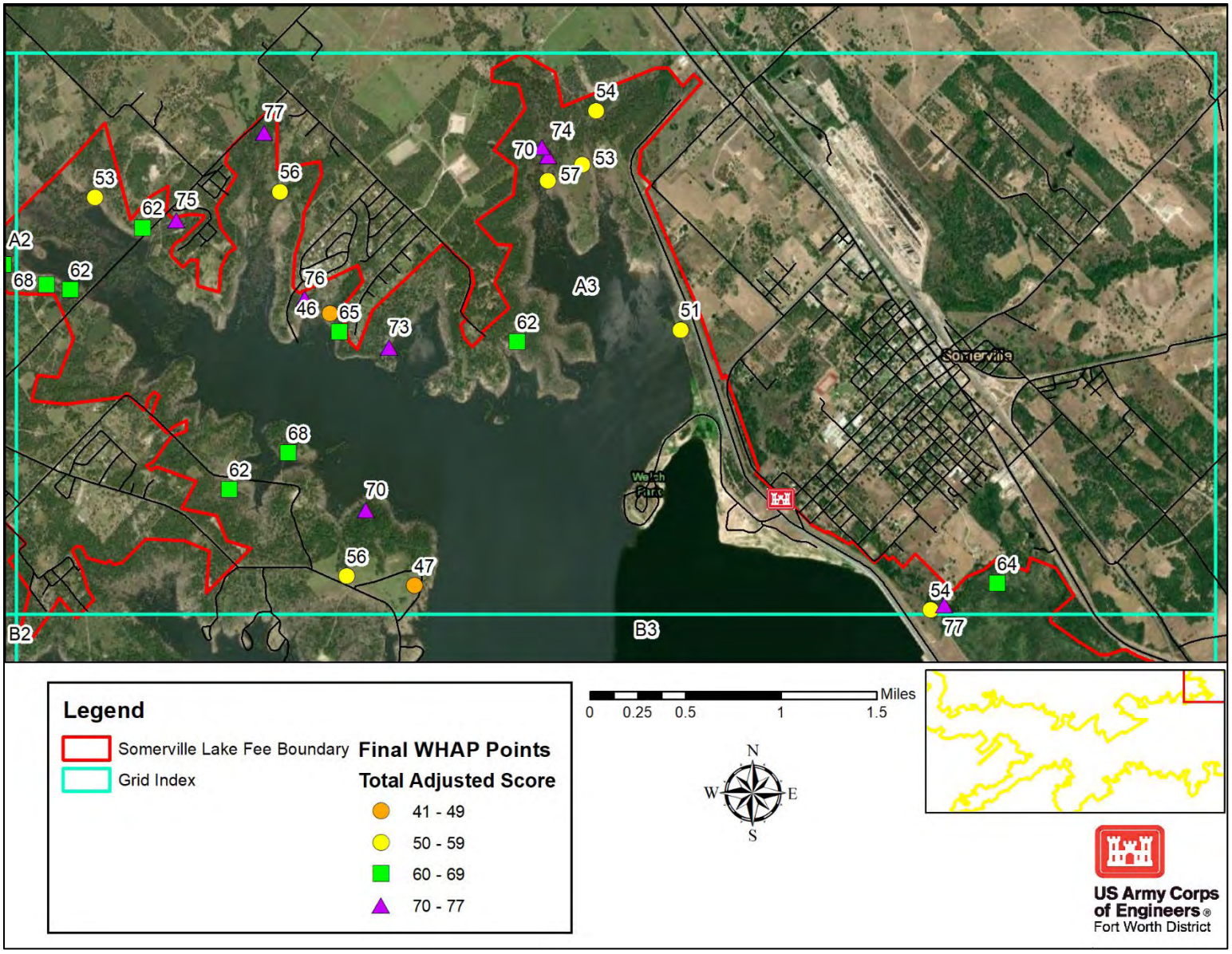

Figure 15 - Score Distribution Map A3

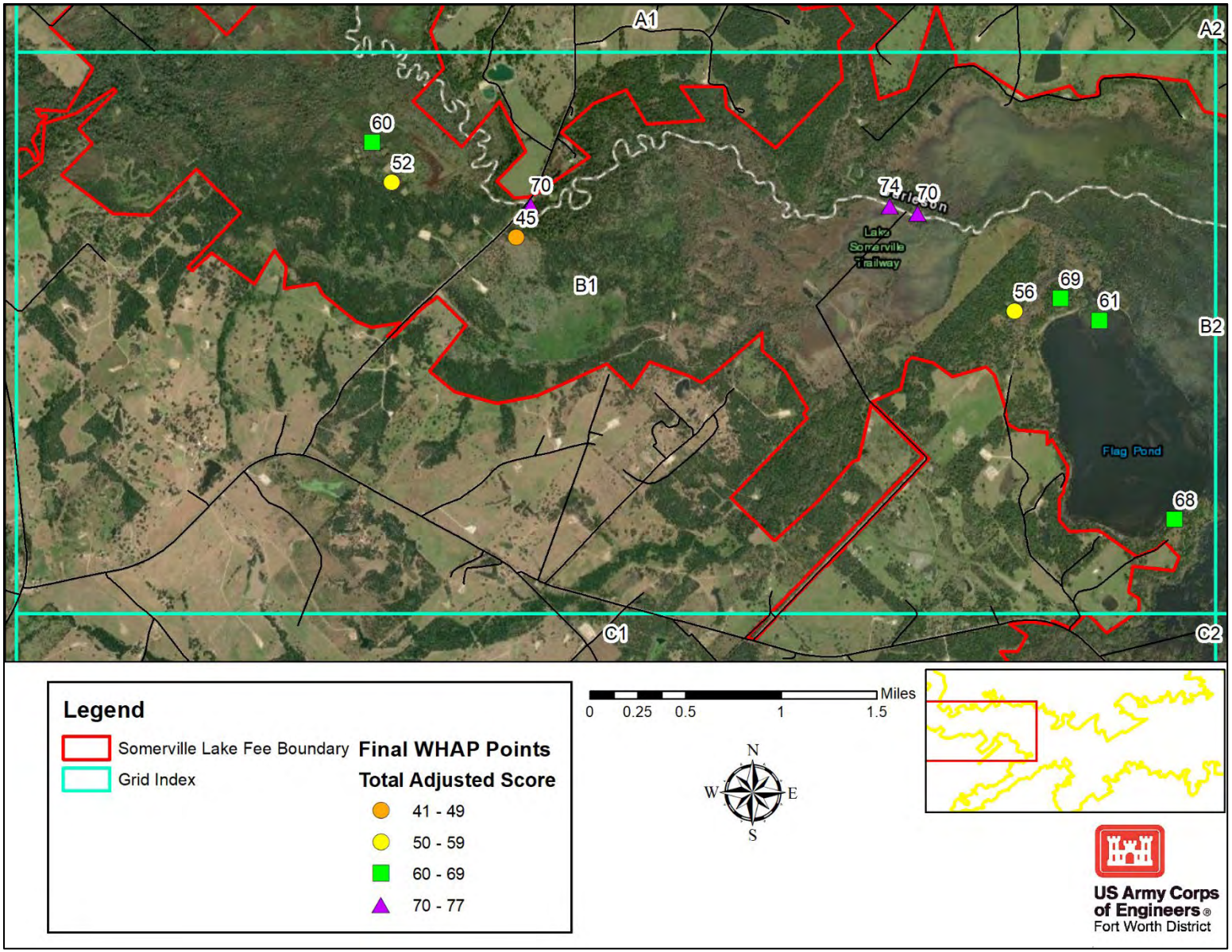

Figure 16 - Score Distribution Map B1

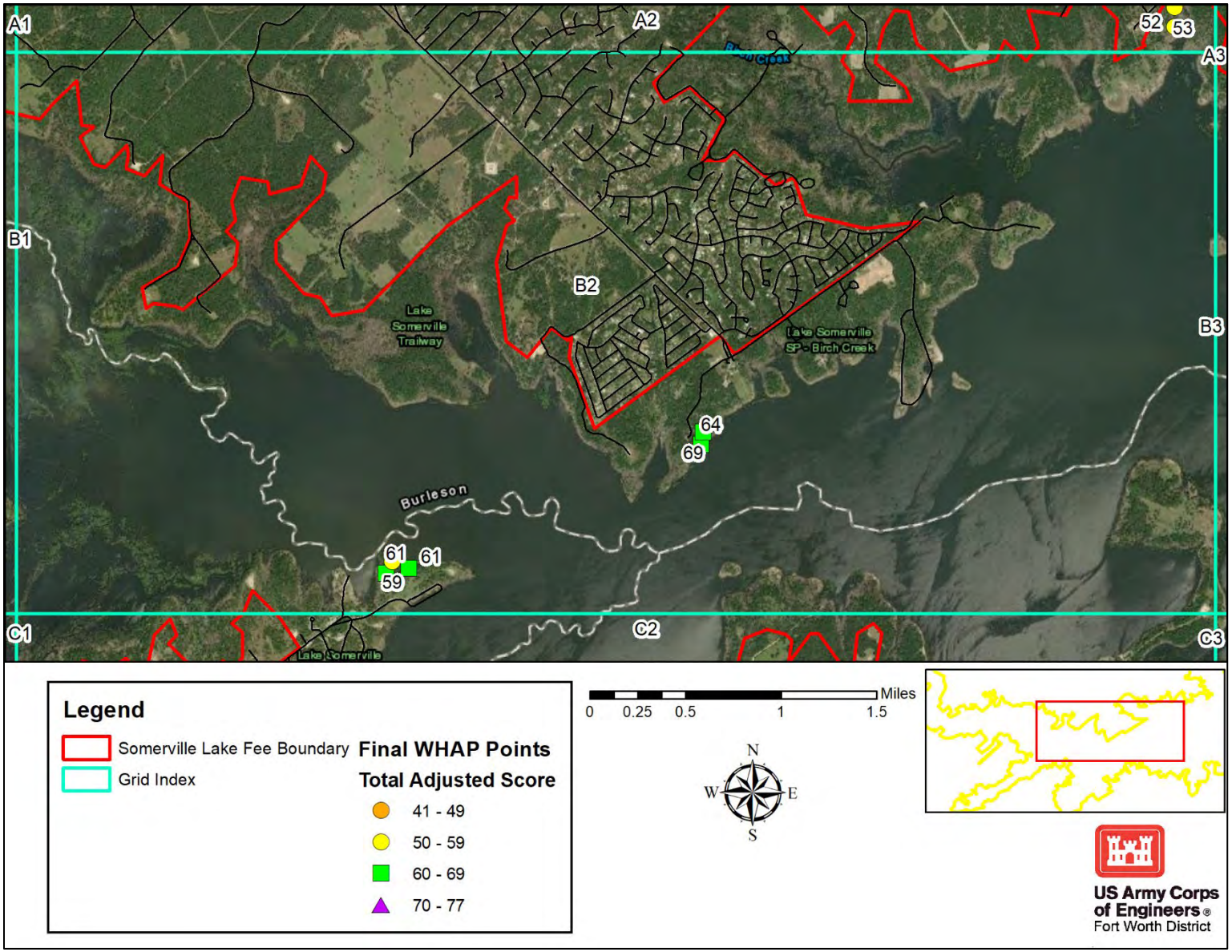

Figure 17 - Score Distribution Map B2

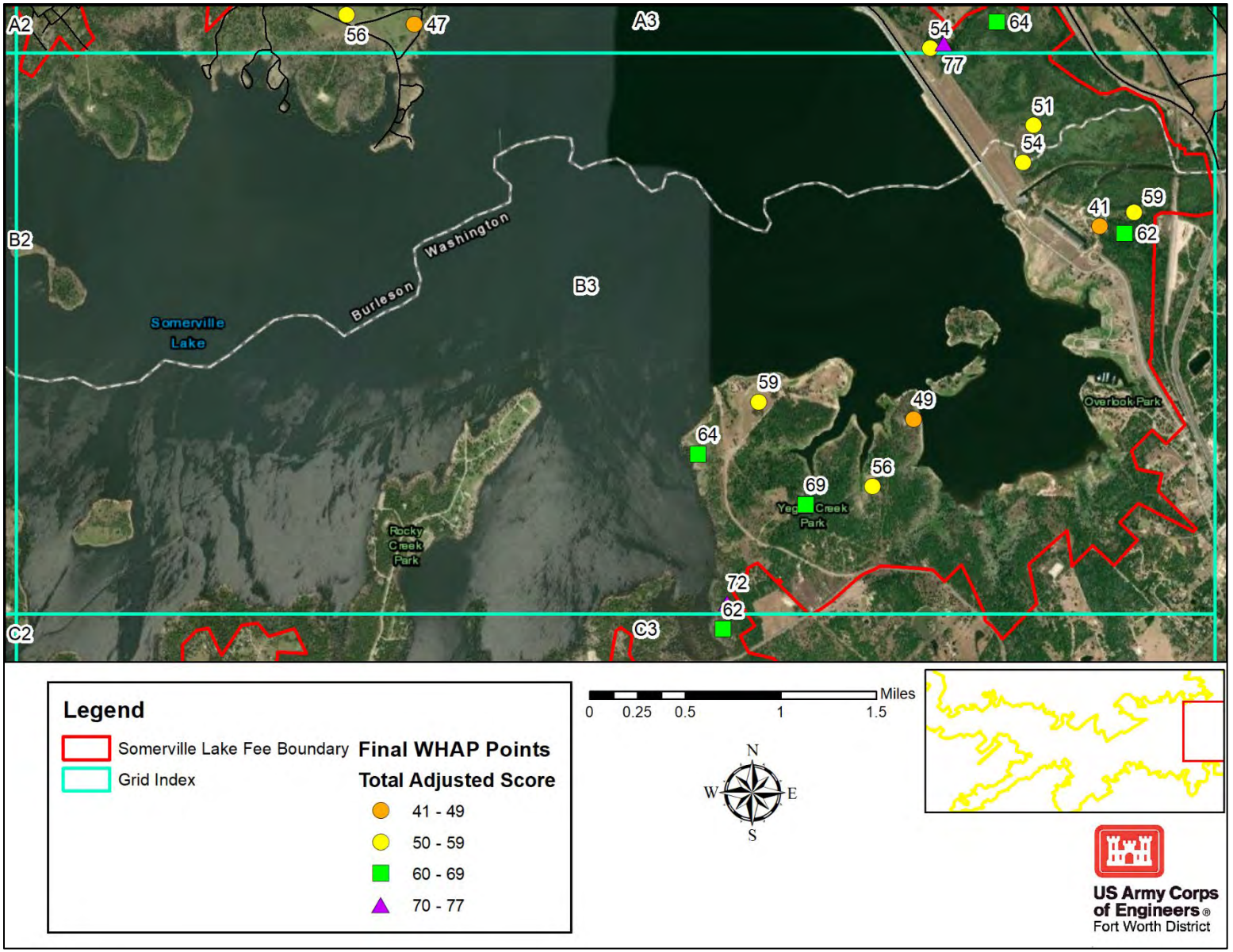

Figure 18 - Score Distribution Map B3

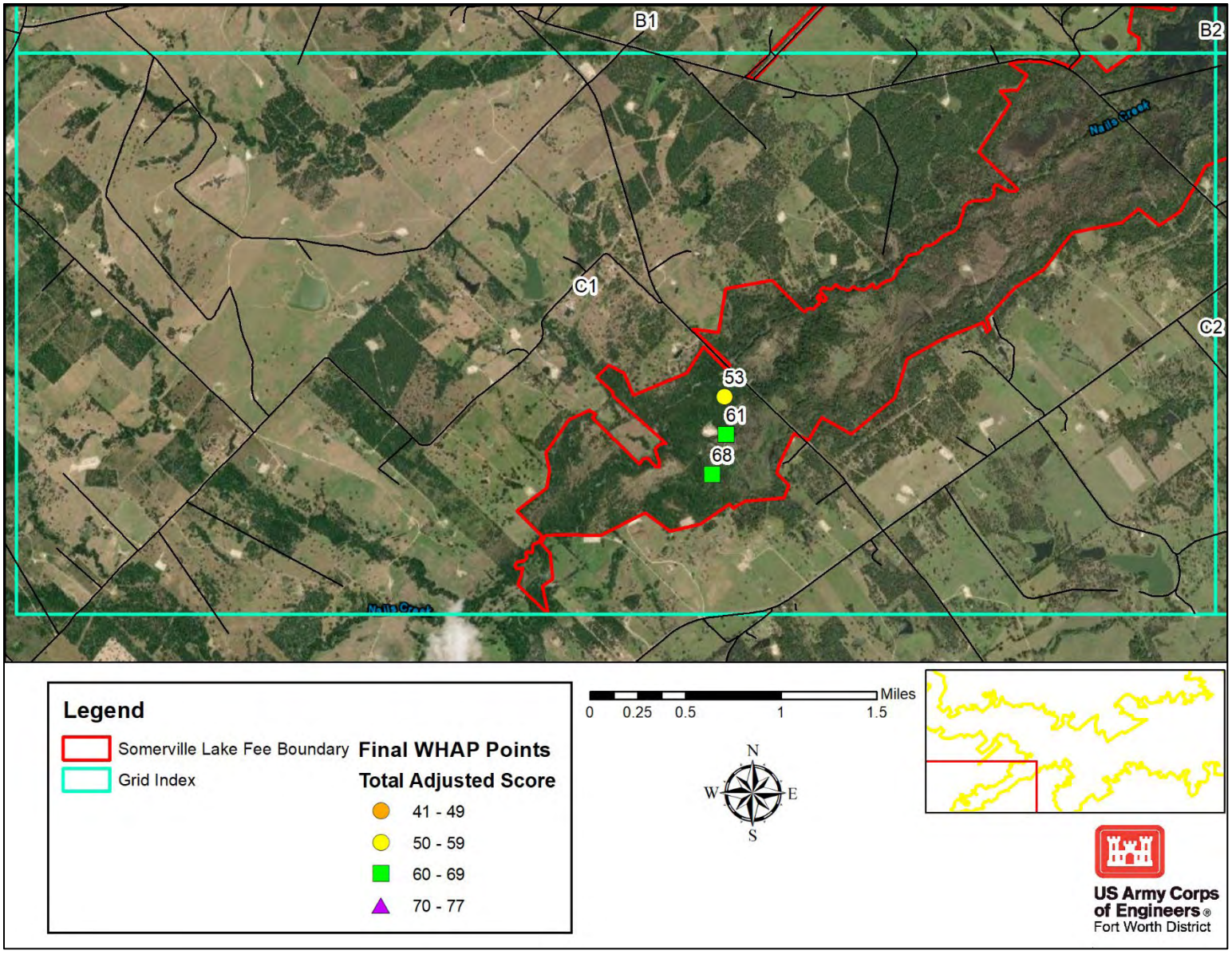

Figure 19 - Score Distribution Map C1

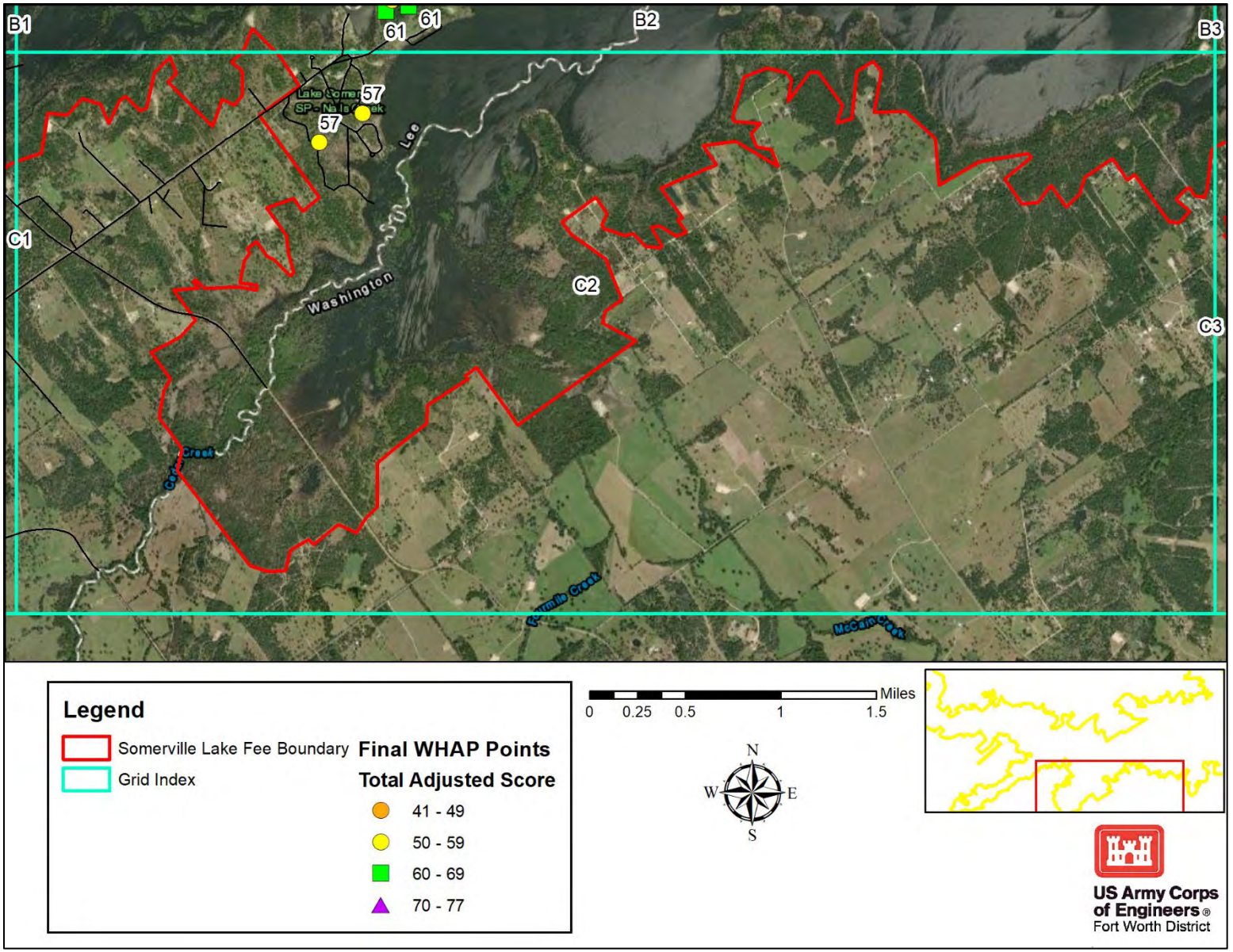

Figure 20 - Score Distribution Map C2

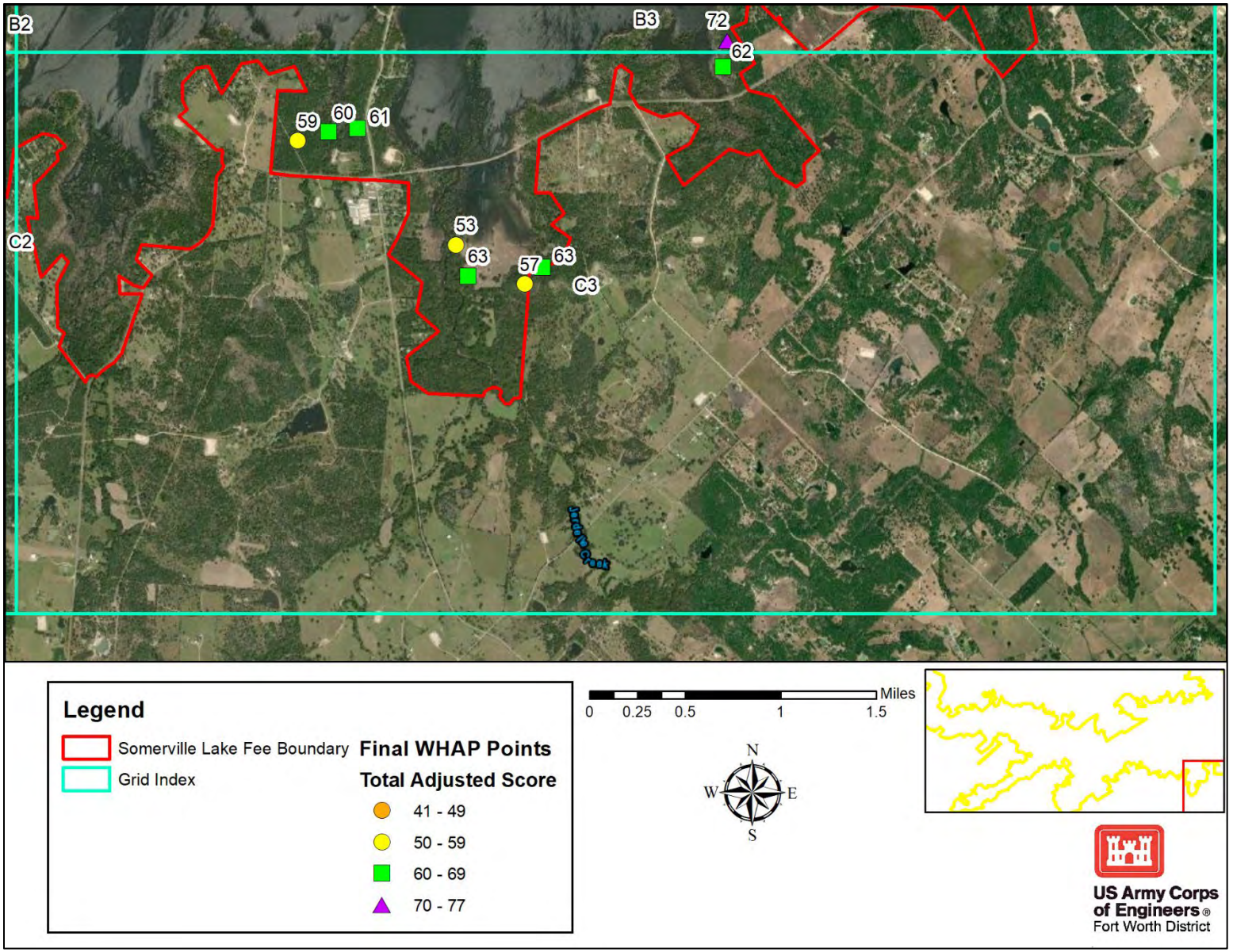

Figure 21 - Score Distribution Map C3

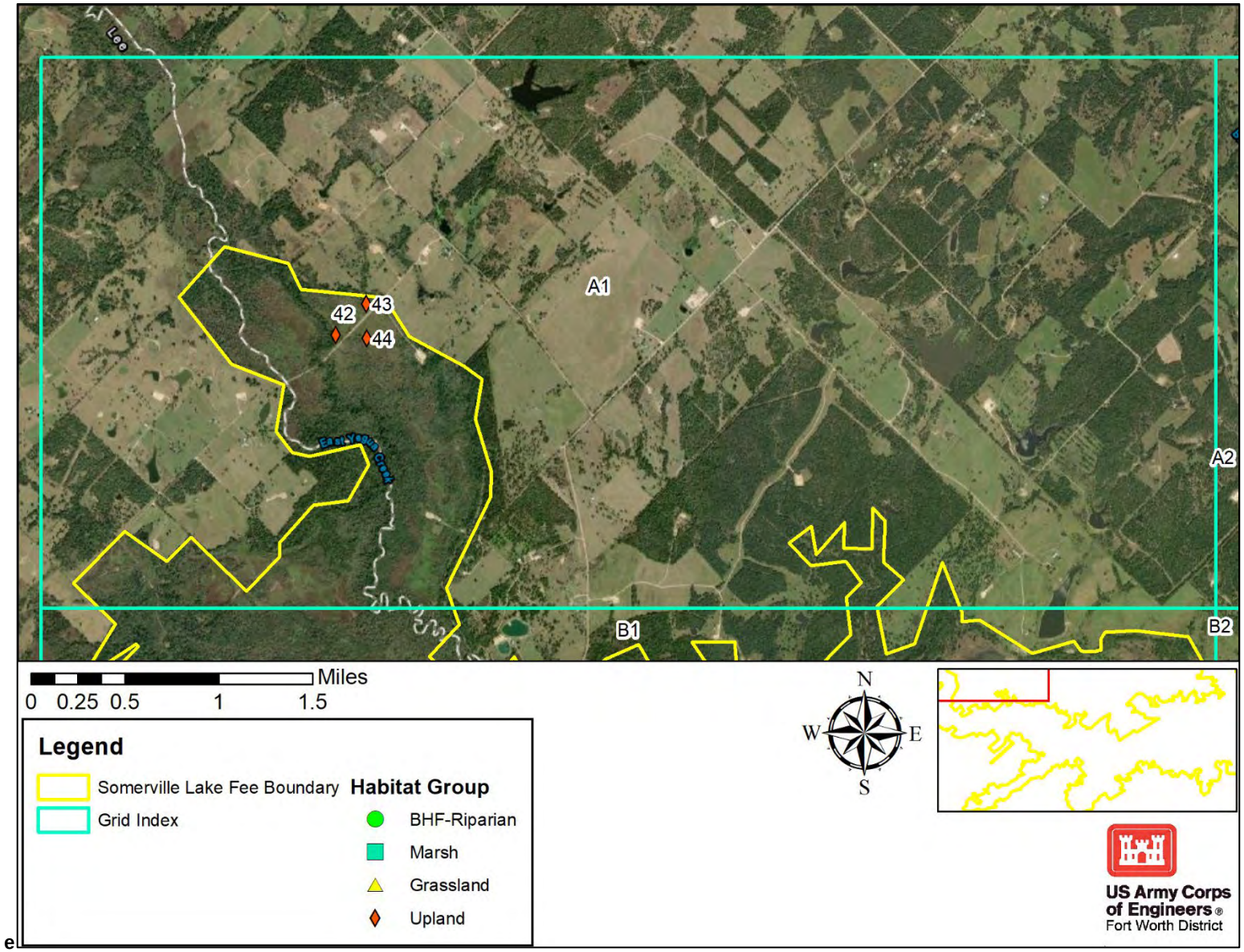

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Figure 22 - Habitat Distribution Map A1

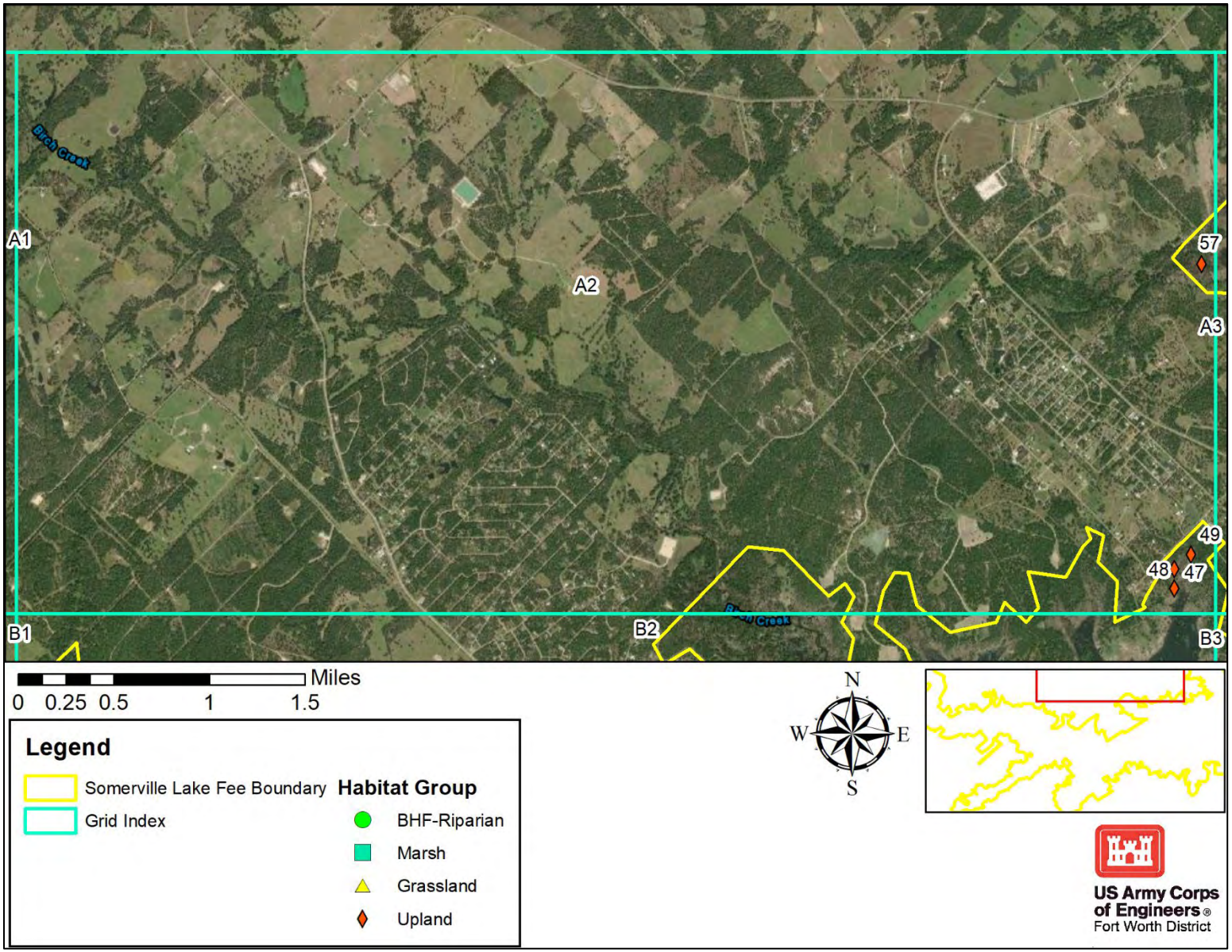

Figure 23 - Habitat Distribution Map A2

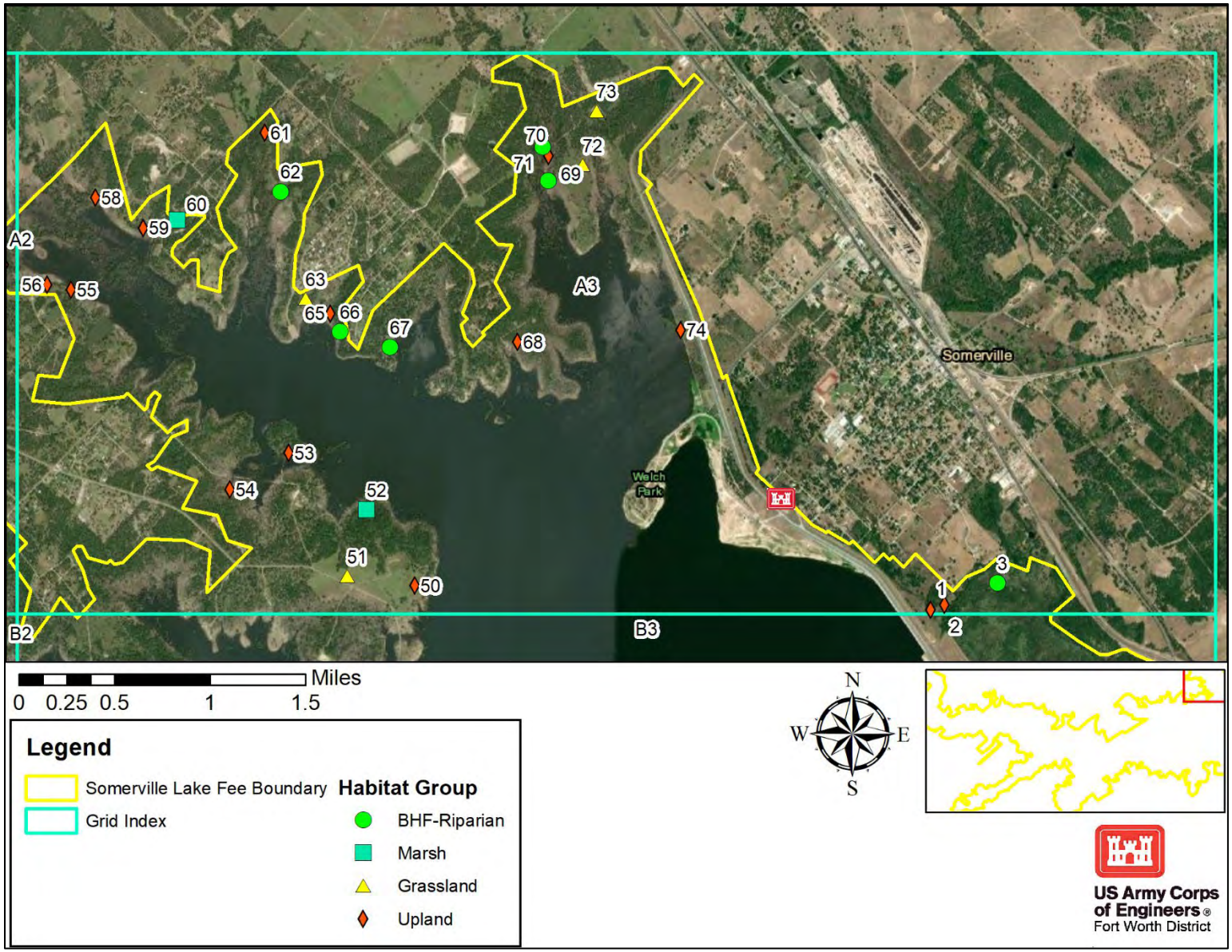

Figure 24 - Habitat Distribution Map A3

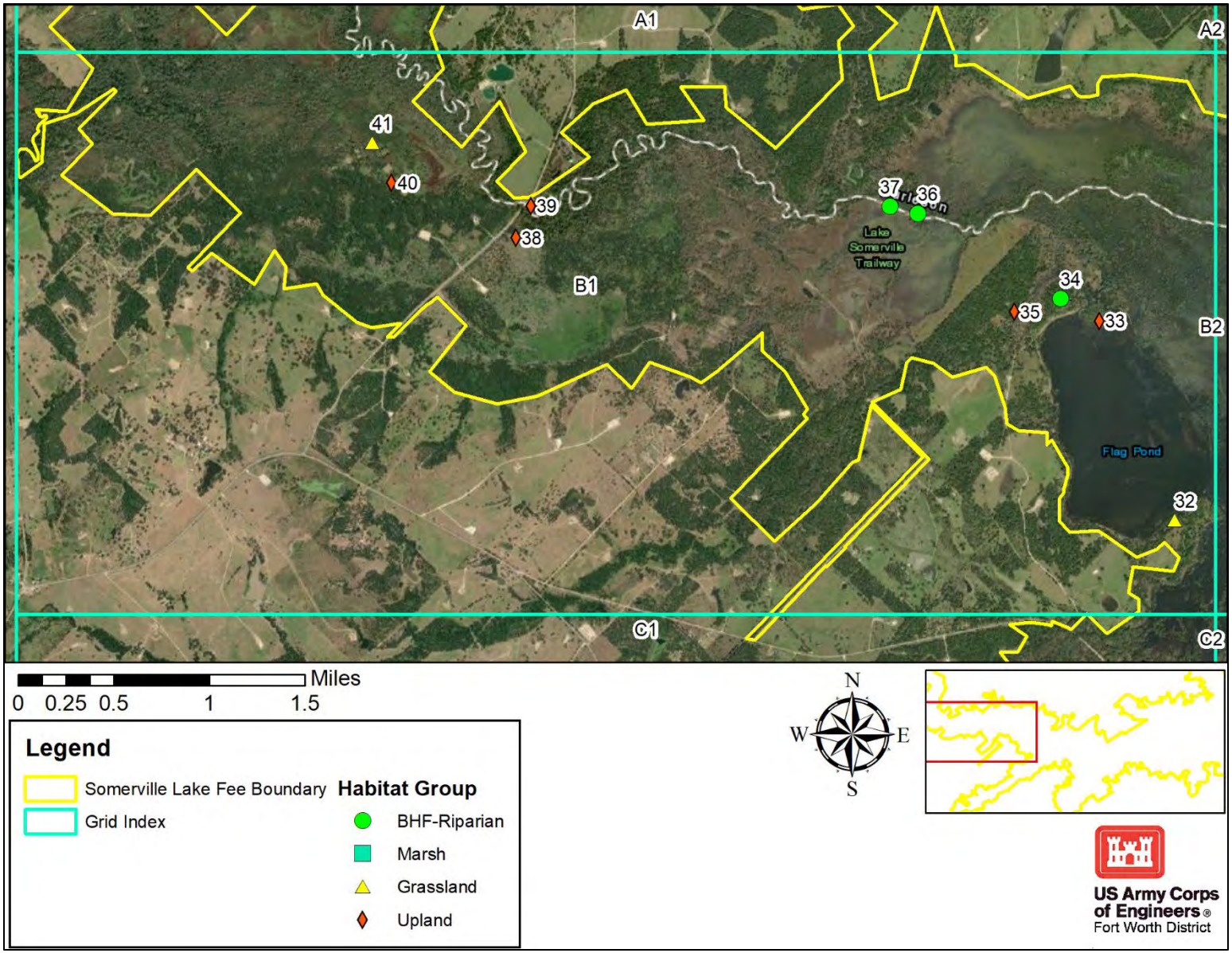

Figure 25 - Habitat Distribution Map B1

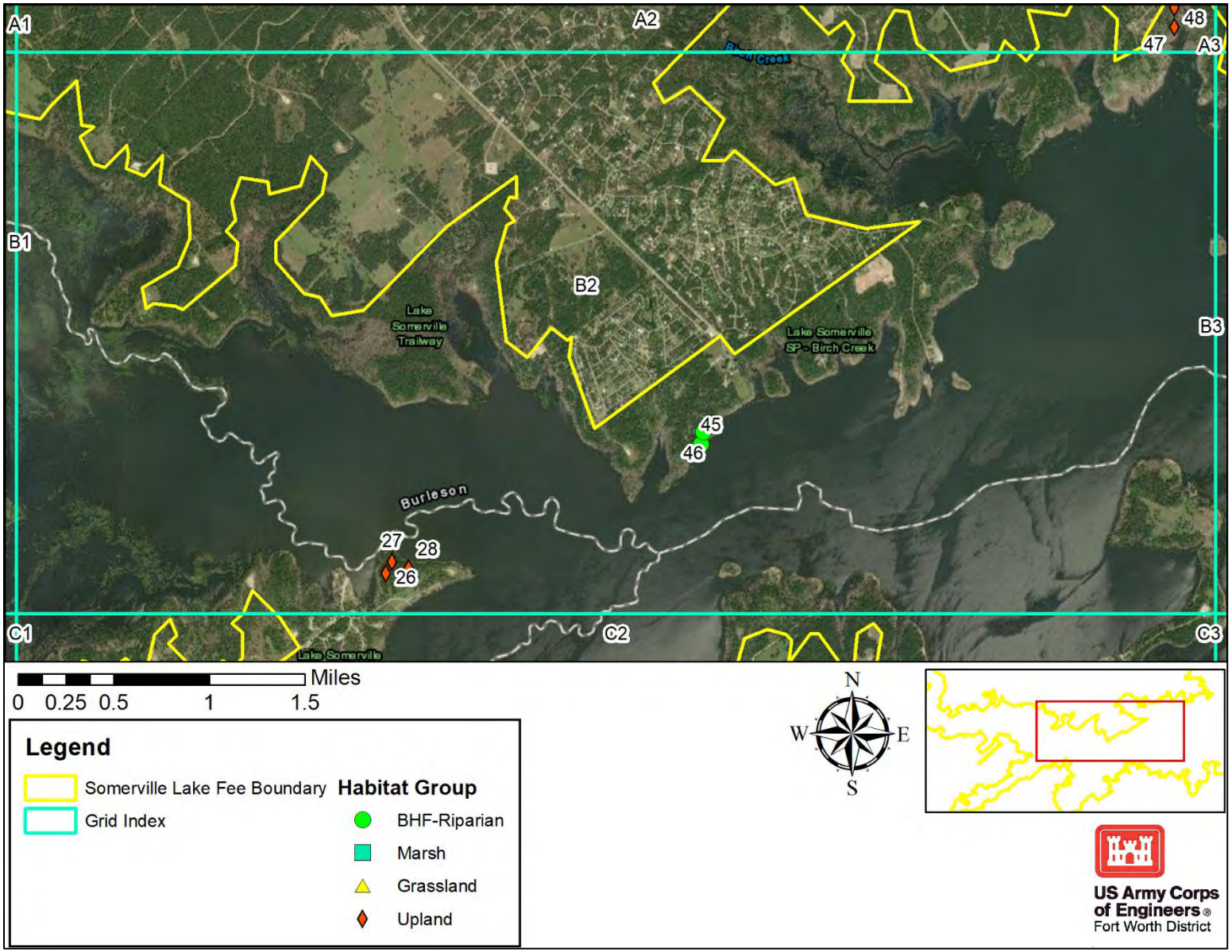

Figure 26 - Habitat Distribution Map B2

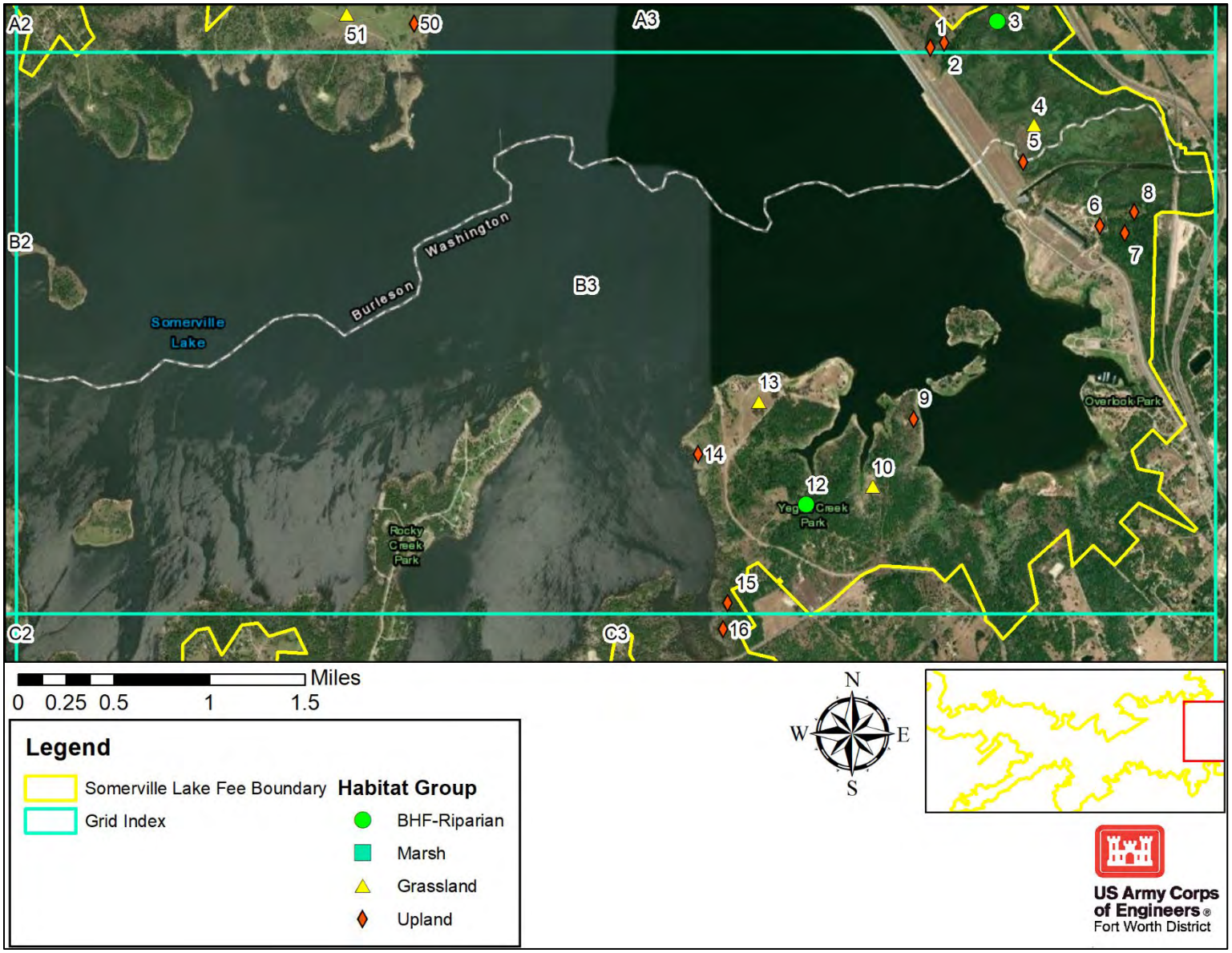

Figure 27 - Habitat Distribution Map B3

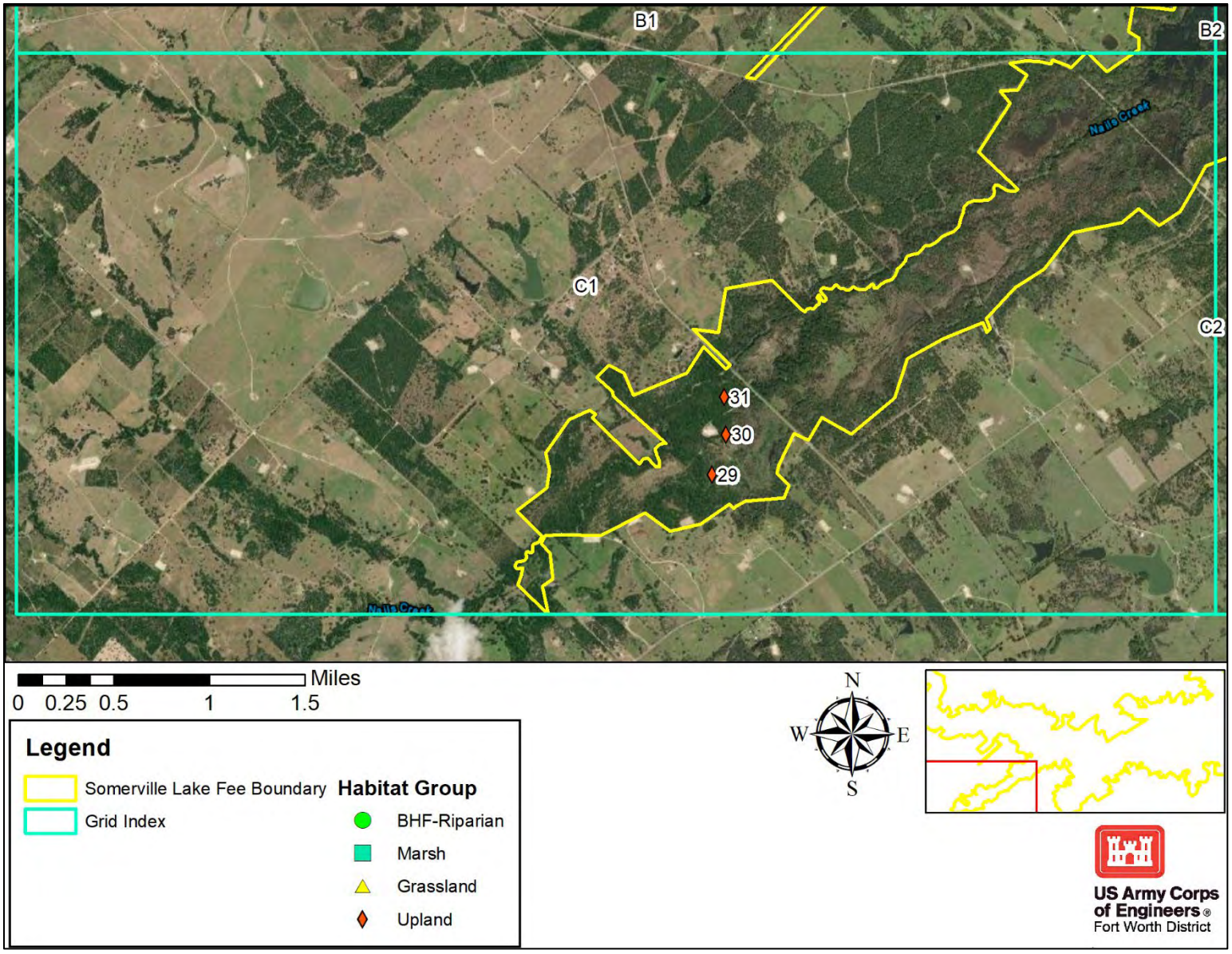

Figure 28 - Habitat Distribution Map C1

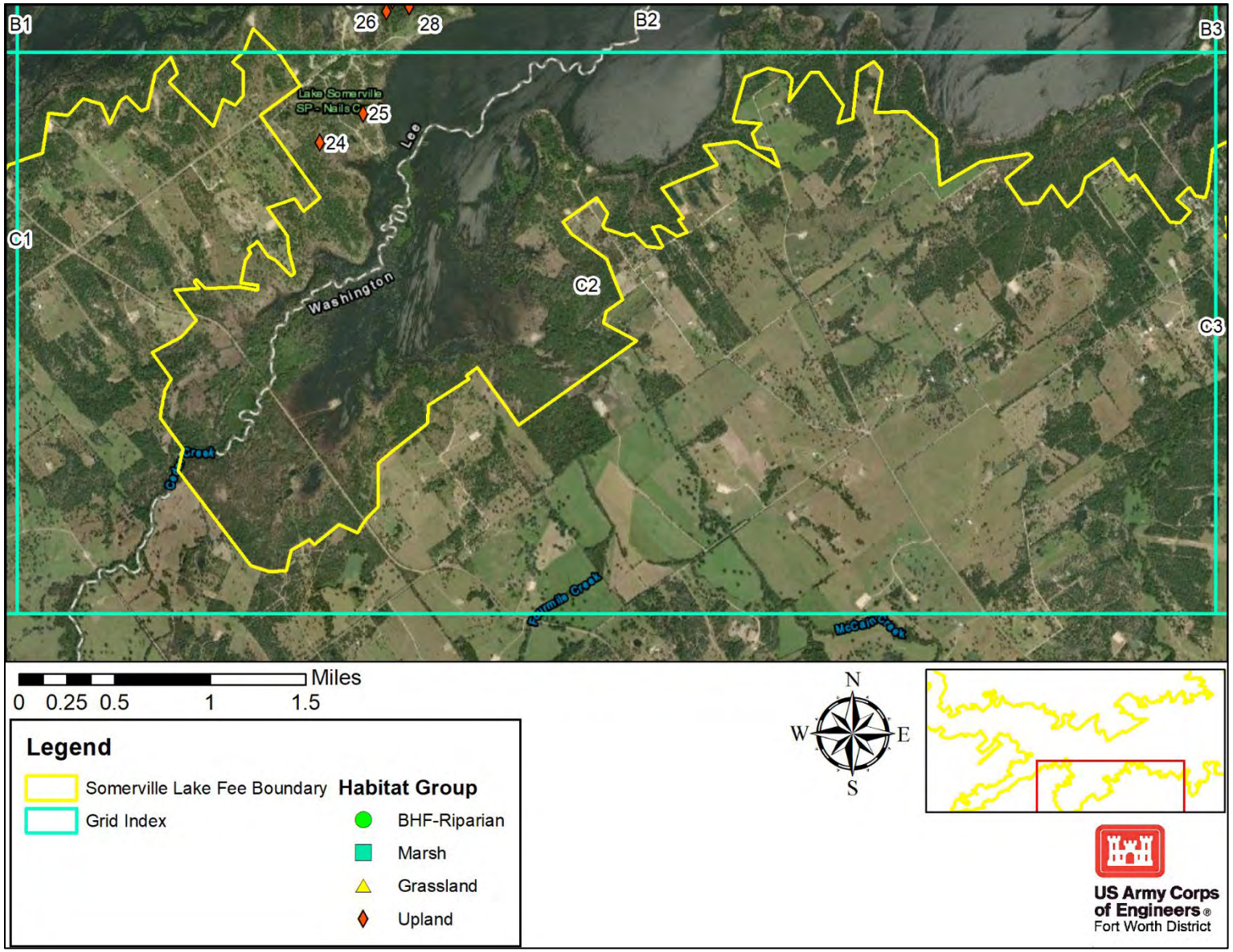

Figure 29 - Habitat Distribution Map C2

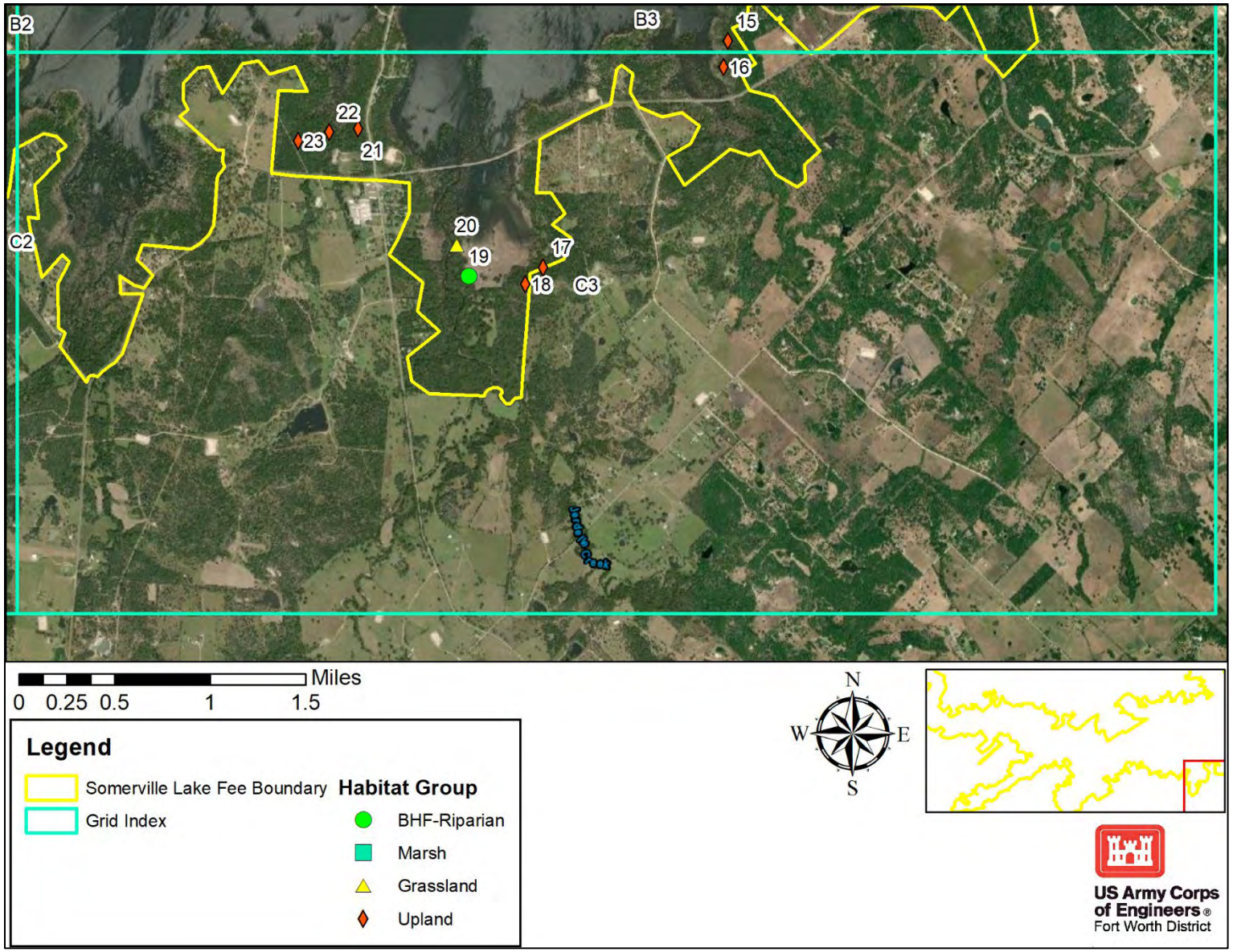

Figure 30 - Habitat Distribution Map C3

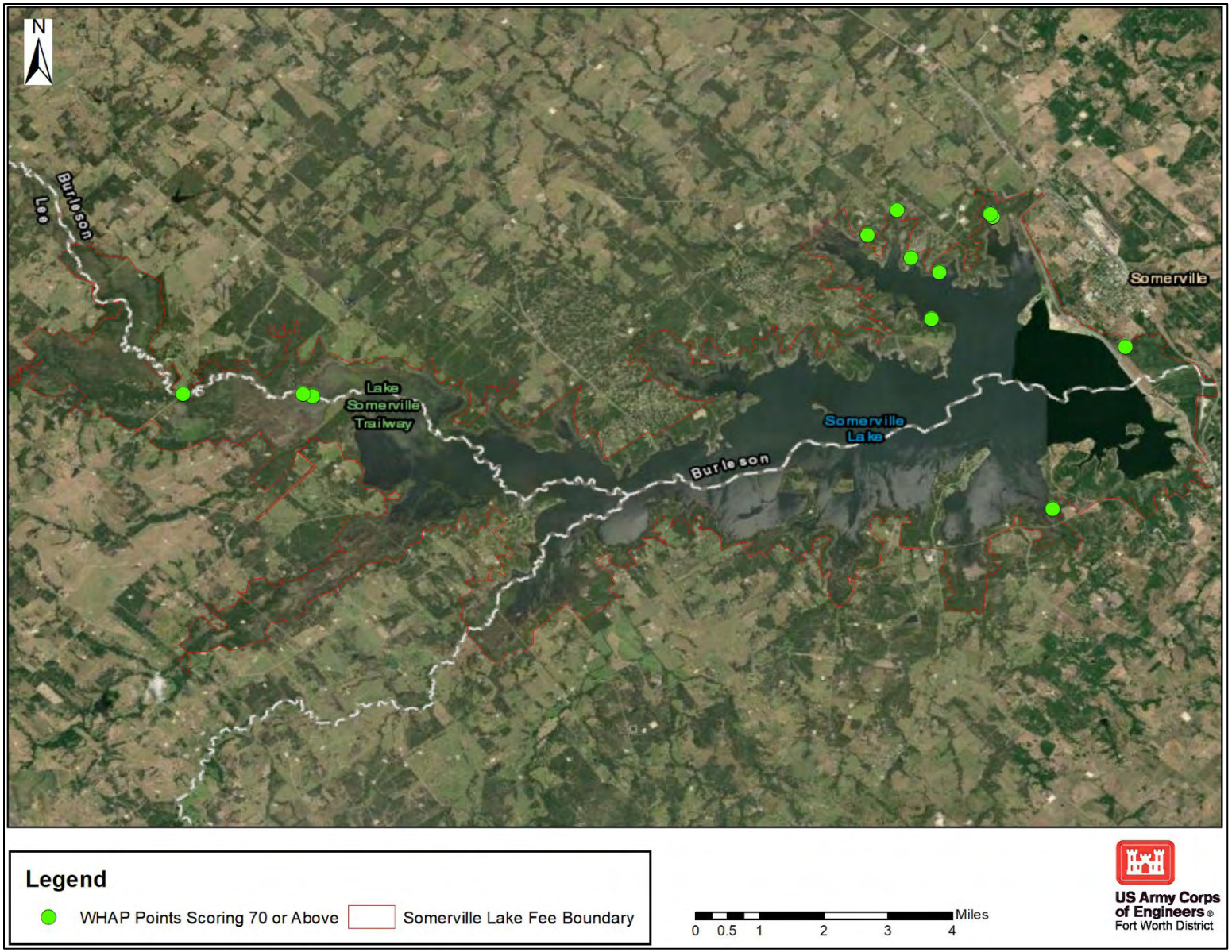

Figure 31 - WHAP Scores 70 or Above

Attachment A: Somerville Lake WHAP Data Summary

ATS = Adjusted Total Score, TS= Total Score, SP= Site Potential, SS= Successional Stage, U+RA= Uniqueness and Relative Abundance, DWS = Diversity of Woody Species, #WS = # of Woody Species, MDV = Marsh Diversity of Vegetation, VS = Vertical Stratification, ASD = Additional Structural Diversity, CWV = Condition of Woody Vegetation

#	ATS	TS	SP	SS	Marsh_SS	U+RA	DWS	#WS	MDV	VS	ASD	CWV	Herbaceous_Vegetation	Marsh_Condition	Berry/Drupe	Legume/Pod	Acorn	Nut/Nutlike	Samara	Cone	Achene	All_Others	Herbaceous_Species
1	54.02	47	12	6		10	3	3		4	3	5	1		Yaupon, Greenbriar, Carolina Snailseed, Muscadine Grape		Post Oak					Dwarf Palm	Catchweed Bedstraw
2	77.01	67	12	6		20	6	5		5	3	5	5		Yaupon, Greenbriar, Soapberry, Muscadine Grape	Bluebonnet	Post Oak, Blackjack Oak	Bitternut Hickory		Eastern Redcedar		Prickly Pear Cactus, Dwarf Palm	Indian Blanketflower, Panic Grass, Rye Grass, Horsemint, Wiregrass, Inland Wood Oats, Texas Ragwort, Rosette Grass, Prairie Bishop, Mat Amaranth, Bull Nettle
3	64.00	64	20	6		15	4	3		5	3	5	3		Climbing Hempvine	Honey Locust		Bitternut Hickory				Dwarf Palm, Willow, Chinese Tallow	Ravensfoot Sedge, Alligator Weed, Knotweed, Baheia Grass, Rumux crispus, Soft Rush, Texas Vervain
4	51.47	35	12	5		5	2	1		3	1	3	3			Honey Locust, Mesquite			Elm				Ravensfoot Sedge, Curly Dock, Texas Vervain, Amsonia, Coyote Brush, Goldenrod
5	54.02	47	12	6		10	4	1		3	1	5	5		Greenbriar	Tiny Vetch			Siberian Elm			Dwarf Palm	Corn Salads, Rye Grass, Horsemint, Yellow Oxalis, Texas Vervain, Rosette Grass, Scarlet Pimpernel, Dandylions, Bristlegrass
6	41.38	36	7	6		5	3	1		3	3	3	3		Yaupon		Live Oak			Eastern Redcedar			Indian Grass, Coryopsis, Cordgrass, Rosette Grass, Meadow Flax, Field Marigold
7	62.07	54	12	6		10	5	3		5	3	5	5		Yaupon, Virginia Creeper, Greenbriar, Coralberry		Post Oak	Bitternut Hickory	Elm	Eastern Redcedar			Rye grass, Spleenwort Fern, Morning Glory, Hairy Hawk Weed, Ravensfoot Sedge, Drummonds Railla, Brittle Bladderfern, Yellow Oxalis, Rosette Grass, Pencil Flower, Yellow Vimlet
8	58.62	51	12	6		10	6	3		3	1	5	5		Greenbriar, Dewberry	Honey Locust, Mesquite	Live Oak			Eastern Redcedar	Baccharis	Prickly Pear	Indian Grass, Sage sp., Fleabane, Green Antelope Horn, Cordgrass, Cudweed, Indian Paintbrush, Yellow Oxalis, Woodrush
9	49.43	43	12	6		5	4	3		4	5	3	1		Yaupon Holly, Greenbriar, Virginia Creeper		Post Oak, Live Oak		Cedar Elm	Eastern Redcedar			Ball Moss, Rye sp.
10	55.88	38	12	5		5	1	1		3	3	3	5								Baccharis		Star Moss, King Ranch Bluestem, Texas Thistle, Texas Baby Blue-eyes, Gallium sp., Texa Daisy, Carex, Roadside blue-eyed grass
12	69.00	69	25	6		10	5	5		5	5	3	5		Greenbriar, Peppervine, Elderberry, Rattanvine, Poison Ivy, Dewberry, Trumpet Vine	Vetch	Water Oak	Hickory				Chinese Tallow	Crane's Bill, Germander, Carex, Millet, Sedge sp., Bedstraw, Wood Sorrel, Western Ragweed
13	58.82	40	12	5		5	1	1		5	3	3	5			Sensitive Briar							Rye sp. (3), Little Bluestem, Ball Nettle, Red Sorrel, Texas Thistle, Dayflower
14	64.37	56	12	12		10	4	5		4	3	3	3		Greenbriar, Mustang Grape, Dewberry, Chinaberry	Rattlepod, Vetch			Cedar Elm			Yucca, Prickly Pear Cactus	Rye sp (3), Bluebonnet, Carex, Alamo Switchgrass, Little Bluestem, Spiderwort, Vervain, Red Sorrel, Wood Sorrel, Cowpin Daisy, Japanese Brome, Shrubby Indigo, Germander
15	72.41	63	12	20		10	3	3		4	5	5	1		Yaupon Holly, American Beautyberry, Possumhaw Holly, Sparkleberry		Post Oak			Eastern Redcedar			Sedge sp., Star Moss, Goldenrod
16	62.07	54	12	6		10	5	5		5	5	3	5		Greenbriar, Yaupon Holly, Gum Bumelia, Dewberry	Sensitive Briar, Honey Mesquite, Bluebonnet	Post Oak		Cedar Elm	Eastern Redcedar			Texas Thistle, Venus Looking Glass, Beggar's Lice, Virginia Wild Rye, Indian Grass, Little Bluestem, Sedge sp., Vervain, Croton, Rosette Grass, Cuban Jute
17	63.22	55	12	12		10	3	5		5	5	3	0		Yaupon Holly, Virginia Creeper, American Beautyberry, Greenbriar, Trumpet Creeper		Post Oak, Water Oak		Cedar Elm				
18	57.47	50	12	6		10	3	5		5	5	3	1		Yaupon Holly, Virginia		Post Oak		Cedar Elm				Fiddle Dock, Fern sp., Spanish Moss

#	ATS	TS	SP	SS	Marsh_SS	U+RA	DWS	#WS	MDV	VS	ASD	CWV	Herbaceous_Vegetation	Marsh_Condition	Berry/Drupe	Legume/Pod	Acorn	Nut/Nutlike	Samara	Cone	Achene	All_Others	Herbaceous_Species
															Creeper, Possumhaw Holly, American Beautyberry, Privet								
19	63.00	63	20	6		5	2	3		4	5	3	5		Carolina Snailseed, Hackberry, Virginia Creeper, Mustang Grape, Greenbriar, Western Soapberry	Purple Vetch							Rescue Grass, American Germander, Texas Thistle, Stickywillie, Curly Dock, Fiddle Dock, Little Barley, Fox Sedge
20	52.94	36	12	5		5	1	1		1	1	5	5		Purple Passionflower, Carolina Snailseed, Muscadine Grape								Johnsongrass, Common Bermuda, Curly Dock, Euphorbia sp., Geranium sp., False Ragweed, Plains Bristlegrass, Texas Thistle
21	60.92	53	12	12		10	3	5		4	3	3	1		Yaupon Holly, Greenbriar, American Beautyberry, Poison Ivy, Virginia Creeper		Live Oak, Red Oak			Eastern Redcedar			White Crownbeard, Carex sp.
22	59.77	52	12	12		10	4	3		4	3	3	1		Yaupon Holly, Hackberry, Possumhaw Holly, Greenbriar, American Beautyberry		Post Oak		Cedar Elm	Eastern Redcedar			Barynyard Grass
23	58.62	51	12	6		10	4	5		5	3	5	1		Yaupon Holly, American Beautyberry, Greenbriar, Sparkleberry, Red Mulberry Virginia Creeper, Dewberry		Post Oak, Red Oak		Green Ash, Cedar Elm	Eastern Redcedar			Bur Clover, Scribners Panicum, Barnyard Grass
24	57.47	50	12	6		10	4	3		4	5	3	3		Greenbriar	Honey Mesquite	Live Oak, Post Oak		Cedar Elm				Indian Paintbrush, Little Bluestem, Texas Baby Blue-eyes, Bluestar
25	57.47	50	12	6		5	4	5		5	5	5	3		Greenbriar, Yaupon, Holly, Virginia Creeper, Dewberry, American Beautyberry, Gum Bumelia, Coralberry		Bur Oak		Cedar Elm	Eastern Redcedar			Black Snakeroot, Ponysfoot, Sedge sp., Ball Moss, Sandspur, Straggler Daisy
26	60.92	53	12	6		10	2	3		5	5	5	5		Muscadine Grape, American Beautyberry, Greenbriar, Flameleaf Sumac, Yaupon, Holly, Carolina Snailseed, Gum Bumelia				Elm				Frostweed, Poppy-mallow, Turk's Cap, Bluebonnet, Texas Baby Blue-eyes, Sedge sp.., Spiderwort, Rescue Grass, Cloth of Gold
27	58.62	51	12	6		10	2	3		5	5	5	3		Coralberry, Greenbriar, Holly, American Beautyberry, Hackberry				Cedar Elm				Spanish Moss, Sedge sp., Frostweed, Lamiaceae sp.
28	60.92	53	12	6		10	2	3		5	5	5	5		Coralberry, Holly, Peppervine, Greenbriar, Hackberry, American Beautyberry				Cedar Elm, Winged Elm				Frostweed, Sedge sp., Beggar's Lice, Clover, Texas Baby Blue-eyes, Poppy Mallow, Spiderwort, Switchgrass, Turk's Cap
29	67.82	59	12	12		15	5	3		3	3	3	3		Yaupon, Greenbriar, Dewberry	Honey Locust	Live Oak, Post Oak		Cedar Elm	Eastern Redcedar			Frostweed, Cordgrass, Rye Grass, Eve's Necklace, Catching Bedstraw, Sedge sp., Yellow Oxalis
30	60.92	53	12	12		10	2	1		3	3	5	5		Muscadine Grape, Trumpet Vine				Cedar Elm				Wild Onion, Catching Bedstraw, Sedge sp., Yellow Oxalis, Greater Plantain, Poison Hemlock, Ragweed, Sow Thistle

#	ATS	TS	SP	SS	Marsh_SS	U+RA	DWS	#WS	MDV	VS	ASD	CWV	Herbaceous_Vegetation	Marsh_Condition	Berry/Drupe	Legume/Pod	Acorn	Nut/Nutlike	Samara	Cone	Achene	All_Others	Herbaceous_Species
31	52.87	46	12	6		10	5	3		3	1	3	3		Poison Oak, Yaupon, Greenbriar	Partridge Pea		Pecan Tree	Elm	Eastern Redcedar			Parsley, True Sedge, Catching Bedstraw, Beggar's Lice, Yellow Oxalis
32	67.65	46	12	5		10	4	3		3	1	3	5		Peppervine	Bluebonnet, Sensitive Briar		Pecan Tree	Elm				White Prickle Poppy, Rosette Grass, Texas Vervain, Virginia Spiderwort, Old Plainsman, Rustweed, Dandelion, Cutleaf Primrose, Bull Nettle, Sticky Ragwort, Velvet Leaf, Carolina Canarygrass, Texas Ragwort, Sage sp., Bee Balm, Eastern Bluestar
33	60.92	53	12	12		10	3	1		4	3	3	5		Yaupon				Siberian Elm			Black Willow	Boneset, Cocklebur, Ragweed, Lambs Quarters, Ravensfoot Sedge, Geranium, Wood Bluegrass, Broom Sedge, Catching Bedstraw, Dandelion, Curly Dock, Pokeweed, Germander
34	69.00	69	20	12		15	3	3		5	5	3	3		Hackberry, Yaupon, Greenbriar, American Beautyberry, Grapevine		Post Oak			Eastern Redcedar			Catching Bedstraw, Pennsylvania Pellitory, Ponysfoot, Drummond's Phlox, White Prickle Poppy, Texas Baby Blue-eyes, Stinging Nettle
35	56.32	49	12	6		5	3	3		5	5	5	5		Yaupon Holly, American Beautyberry, Sugarberry, Muscadine Grape, Snailseed	Partridge Pea				Eastern Redcedar, Common Juniper			Sedge, Dayflower, Turk's Cap, Rosette Grass, Wood Sorrel, Little Bluestem, Unknown Herbs, St. Andrews Cross, Moss
36	70.00	70	25	12		10	2	1		5	5	5	5						Cedar Elm			Buttonbush	Curly Dock, Western Ragweed, Giant Ragweed, Fox Sedge, Boneset, Virginia Rye, Foxtail, Bedstraw, Bentgrass, Moss
37	74.00	74	25	12		10	5	3		4	5	5	5		Greenbriar, Hackberry, Trumpet Creeper, Dewberry			Hickory	Cedar Elm	Eastern Redcedar		Buttonbush	Fox Sedge, Boneset, Texas Thistle, Winter Bent Grass, Foxtail, Sumpweed, Western Ragweed, Prairie Bishop, Wild Oats, Rosette Grass, Curly Dock, Giant Ragweed
38	44.83	39	12	6		5	2	1		4	1	3	5		Greenbriar				Elm				Bristlegrass, Corn Salad, Hedge Nettle, True Sedge, Texas Ragwort, Rye Grass, Dandelion, Catching Bedstraw, Wild Onion, Beggar's Lice, Greater Plantain, Yellow Sow Thistle
39	70.11	61	12	12		15	3	3		5	3	3	5		Dewberry. Carolina Snailseed, Muscadine Grape, Hackberry, Trumpet Vine		Water Oak		Elm				Wild Onion, Spiderwort, Parsley, Texas Ragwort, True Sedge, Catching Bedstraw, Beggar's Lice, Yellow Oxalis, Venus Looking Glass, Black-eyed Susan, Dandelion, Trampweed
40	51.72	45	12	6		10	3	1		4	1	3	5		Dewberry	Honey Locust			Elm				True Sedge, Tall Fescue, Wild Onion, Texas Vervain, Marsh Ragwort, Corn Salad, American Mallow, Marsh Hedgenettle, Curled Dock, Lambs Quarters, Beggar's Lice, Poverty Rush, Parsley
41	60.29	41	12	5		10	1	1		3	1	3	5						Elm				Dandelion, Lambs Quarters, Sedge sp., Brome sp., Beggar's Lice, Wood Bluegrass, Yellow Oxalis, Texas Vervain
42	59.77	52	12	6		10	4	3		4	3	5	5		Yaupon, Greenbriar, Dewberry, Peppervine, Trumpet Vine	Honey Locust	Post Oak		Elm				Beggar's Lice, True Sedge, Woodland Oats, Wild Onion, Catching Bedstraw, Lambs Quarters, Texas Ragwort, Corn Salad, Sedge Parsley
43	55.17	48	12	6		10	3	1		5	3	3	5		Peppervine, Trumpet Vine	Honey Locust			Elm, Green Ash				Lambs Quarters, Ragweed, Parsley, Beggar's Lice, Texas Ragwort, Yellow Oxalis, Texas Vervain, Goldenrod, Catching Bedstraw, Curly Dock, Ravensfoot Sedge, Corn Salad, Rosette Grass, Sand Phacelia, Geranium, Spinyfruit Buttercup
44	45.98	40	7	6		10	3	1		4	1	3	5		Dewberry	Honey Locust			Elm, Green Ash				Hooker's Eryngo, Texas Vervain, Lambs Quarters, Curly Dock, Wood Bluegrass, White Sweetclover, Corn Salad, Sedge sp., Pink Lady, Goldenrod,

#	ATS	TS	SP	SS	Marsh_SS	U+RA	DWS	#WS	MDV	VS	ASD	CWV	Herbaceous_Vegetation	Marsh_Condition	Berry/Drupe	Legume/Pod	Acorn	Nut/Nutlike	Samara	Cone	Achene	All_Others	Herbaceous_Species
																							Ragweed, Yellow Oxalis, Texas Ragwort
45	64.00	64	20	12		5	4	3		5	5	5	5		Greenbriar, Coralberry, Peppervine	Sensitive Briar, Vetch			American Elm, Cedar Elm			Buttonbush	Rosette Grass, Virginia Rye, Annual Ragweed, Crane's Bill, Bluebonnet, Switchgrass, Ironweed, Wood Sorrel
46	69.00	69	20	12		10	4	3		5	5	5	5		Greenbriar, Chinaberry, Hackberry, Mustang Grape	Vetch	Oak		American Elm				Texas Ragwort, Mellic Grass, Beggar's Lice, American Germander, Annual Ragweed, Brome, Bedstraw, Poppymallow, Germanium, Sunflower sp., Texas Baby Blue-eyes
47	51.72	45	12	6		5	4	3		4	3	3	5		Greenbriar, Hackberry		Bur Oak, Willow Oak		Cedar Elm	Eastern Redcedar			Ragweed, Beggar's Lice, Sedge sp., American Germander, Switchgrass, Wood Sorrel, Clover, Bluestem, Thistle sp., Prairie Plantain
48	52.87	46	12	6		5	4	3		5	3	5	3		Greenbriar		Bur Oak, Live Oak			Eastern Redcedar		Chinese Tallow, Buttonbush	Wild Indigo, Rosette Grass, Sedge sp., Bluestem, Ragweed
49	68.97	60	12	12		10	5	3		5	5	3	5		Peppervine, Dewberry, Greenbriar	Vetch			Cedar Elm	Eastern Redcedar		Salt Cedar	Little Ragweed, Beggar's Lice, Sedge sp., Virginia Rye, Thistle sp., Buttercup, Clover, Germander, Bullrush
50	47.13	41	12	6		5	2	1		4	3	3	5			Honey Mesquite, Vetch	Live Oak						Rush, Crow-poison, Ragweed, Beggar's Lice, Bluestem, Germander, Crane's Bill, Panicum sp., Tickseed
51	55.88	38	12	5		10	0	0		3	3	0	5										Little Bluestem, Tickseed, Rosette Grass, Toad Flax, Texas Baby Blue-eyes, Panicum sp., Small-flowered Milkweed, Sheep Sorrel
52	70.00	70	25		10	10			15		5			5		Rattlebush, Black Locust	Live Oak					Buttonbush, Chinese Tallow	Green flat-sedge, Creeping Burhead, Little bBuestem, Swamp Smartweed, Ravensfoot Sedge, Alligator Weed, Pickerel Weed, Panicum sp.
53	67.82	59	12	12		10	4	3		5	5	5	3		Greenbriar, Muscadine Grape, Peppervine, Virginia Creeper	Honey Locust	Live Oak					Chinese Tallow	Panicum sp., Switchgrass, Ragweed, Boneset, Germander, Ball Moss
54	62.07	54	12	12		5	4	3		5	5	3	5		Greenbriar	Rattlebush, Vetch			Cedar Elm			Chinese Tallow, Buttonbush	Clover, Crane's Bill, Germander, Boneset, Panicum, Switchgrass, Mellec Grass, Texas Croton, Rosette Grass
55	62.07	54	12	6		10	5	3		5	5	3	1		Greenbriar	Honey Mesquite, Sensitive Briar	Live Oak, Bur Oak		Cedar Elm			Buttonbush	Little Bluestem, Annual Ragweed, Indian Paintbrush, Rosette Grass, Texas Toad-flat, T.linearifolia, Winecup, Spiderwort, Clover, Crane's Bill, Venus Looking Glass
56	67.82	59	12	12		5	5	5		5	5	5	5		Greenbriar, Coralberry, Yaupon, Dewberry, Virginia Creeper	Honey Locust	Live Oak, Bur Oak		Cedar Elm			Prickly Pear Cactus	Venus Looking Glass, Frostweed, Virginia Rye, Allium sp., Prarie Plaintain, Ponysfoot, Lesser Calamint, Spanish Moss, T.linearifolia, Sedge sp.
57	59.77	52	12	12		5	3	3		4	5	5	3		Muscadine Grape, Hackberry	Honey Locust			Cedar Elm, American Elm				Eastern Woodland Sedge, Annual Ragweed, Virginia Wild Rye, Clover, Venus Looking Glass, Texas Thistle, Rescue Grass
58	52.87	46	12	6		5	3	3		4	3	5	5		Grenbriar	Honey Locust, Mesquite			Cedar Elm, American Elm				Sesbania, Annual Ragweed, Crowfoot Sedge, Perennial Rye, Prairie Plantain, Little Barley, Cherokee Sedge, Wood Sorrel
59	62.07	54	12	6		5	6	5		5	5	5	5		Greenbriar, American Beautyberry, Holly, Coralberry, Dewberry, Peppervine		Water Oak	Walnut	Cedar Elm	Eastern Redcedar		Chinese Tallow	Clover, Annual Ragweed, Germander, Cherokee Sedge, Woodsorrel, Beggar's Lice, Little Bluestem, Rosette Grass
60	75.00	75	25		10	15			15		5			5		Honey Mesquite, Vetch				Eastern Redcedar		Buttonbush, Willow	Ragweed, Fleabane, Evening Primrose, Lanceleaf Arrowhead, Typha sp., Floating Primrose, Velvetleaf, Crane's Bill, Swamp Smartweed, Algae
61	77.01	67	12	20		10	5	3		5	5	5	3		Coralberry, Common Juniper, American Beautyberry,	Vetch	Post Oak		Cedar Elm	Eastern Redcedar			Inland Sea Oats, Carex, Sedge sp., Clover,

#	ATS	TS	SP	SS	Marsh_SS	U+RA	DWS	#WS	MDV	VS	ASD	CWV	Herbaceous_Vegetation	Marsh_Condition	Berry/Drupe	Legume/Pod	Acorn	Nut/Nutlike	Samara	Cone	Achene	All_Others	Herbaceous_Species
															Greenbriar, Trumpet Vine								
62	56.00	56	20	6		10	4	3		4	3	3	3		Gum Bumelia, Trumpet Creeper	Black Locust, Mesquite, Vetch	Pin Oak		Cedar Elm				Inland Sea Oats, Winter Rye, Wood Sorrel, Dwarf Dandelion, Texas Thistle, Panic Grass, Sedge sp.
63	76.47	52	12	5		15	2	1		4	3	5	5		Gum Bumelia	Mesquite, Vetch							Little Bluestem, Coryopsis, American Germander, Western Ragweed, Indian Grass, Texas Croton, Rumex sp., Virignia Rye, Wild Indigo, Red Sorrel, Eastern Bluestar, Clover
65	45.98	40	7	6		5	5	3		3	5	3	3		Greenbriar, Yaupon Holly		Blackjack Oak, Post Oak		Cedar Elm	Eastern Redcedar		Prickly Pear Cactus	Carex, Wild Indigo, Threeawn, Aster sp., Bluestar
66	65.00	65	20	12		5	5	5		5	5	3	5		American Beautyberry, Greenbriar, Dewberry, Purple Passionflower		Post Oak		Cedar Elm, Winged Elm	Eastern Redcedar		Chinese Tallow, Buttonbush	Wood Sorrel, Virignia Rye, Nut Sedge, Panic Grass, Germander, Western Ragweed, Red Sorrel, Yellow Oxalis
67	73.00	73	20	12		10	6	5		5	5	5	5		Greenbriar, Chinaberry, Sugarberry, Backvine, Gum Bumelia	Rattlepod, Mesquite, Bluebonnet	Live Oak		Cedar Elm	Eastern Redcedar		Chinese Tallow	Barnyard Millet, Wood Sorrel, Poppymallow, Rosette Grass, Fox Sedge, Wildflower, Curley Dock, Bloodweed, Boneset, Wild Lettuce, Dayflower, Vervain, Smartweed, Texas Thistle, Western Ragweed, Germander
68	62.07	54	12	6		10	4	3		4	5	5	5		Greenbriar, Yaupon Holly		Post Oak		Cedar Elm	Eastern Redcedar			Boneset, Ox Sedge, Virginia Rye, Western Ragweed, Sedge sp., Brome sp., Little Bluestem, Wood Sorrel, Vervain
69	57.00	57	20	6		5	4	3		4	5	5	5		Gum Bumelia, Greenbriar	Black Locust, Bluebonnet, Vetch			Cedar Elm	Eastern Redcedar			Silene sp., Dayflower, Sedge sp., Rosette Grass, Winecup, Vervain, Wildflower, Red Sorrel, Alamo Switchgrass, Western Ragweed, Texas Croton, Wood Sorrel, Clover, Carex
70	70.11	61	12	12		10	4	3		5	5	5	5		Greenbriar, Purple Passionflower	Rattlepod, Vetch			Winged Elm			Buttonbush	Texas Thistle, Western Ragweed, Sprangletop, Virginia Rye, Rosette Grass, Germanium, Curley Dock, Brome sp.
71	74.00	74	25	5		20	3	3		5	3	5	5			Rattlepod, Sesbania Pea, Vetch			Cedar Elm			Buttonbush, Chinese Tallow	Bentgrass, Virginia Rye, Box Sedge, Boneset, Croton, Rosette Grass, Curley Dock, Moss, Western Ragweed
72	52.94	36	12	5		5	1	1		3	1	3	5			Honey Mesquite, Sensitive Briar							Crown Tickseed, Milkweed, Green Antelope Horn, Broomsedge Bluestem, Little Bluestem, Wooly Croton, Pointed Phlox, Scribners Panicum, Indian Paintbrush, Soft Golden Aster, Winecup
73	54.41	37	12	5		5	2	1		3	1	3	5			Mesquite, Sensitive Briar, Common Vetch						Salix Purpurea	Scribner's Panicum, Indian Paintbrush, Pointed Phlox, Plains Flax, Soft Golden Aster, False Dandelion, Carex, Sandwort, Winecup, Smooth Cats Ear, Little Bluestem, Wooly Croton, False Ragweed, Beet Corn Salad, Common Goldstar
74	50.57	44	12	6		5	4	3		5	1	3	5		Southern Dewberry, Yaupon Holly, Greenbriar	Mesquite, Black Locust	Post Oak, Live Oak		Winged Elm, Cedar Elm				Crown Tickseed, Prairie Bishop, Clover, Blue Sedge Bluestem, Broom Sedge, Annual Fleabane, False Dandelion, Scribners Panicum, Spear Grass, Chickweed, Wooly Croton, Little Barley, Carolina Buckthorn Muhlenberg's Sedge, P. tenellus

Attachment B: WHAP Site Photos

Site 1 NESW:

Site 2 NESW:

Site 3 NESW:

Site 4 NESW:

Site 5 NESW:

Site 6 NESW:

Site 7 NESW:

Site 8 NESW:

Site 9 NESW:

Site 10 NESW:

Site 12 NESW:

Site 13 NESW:

Site 14 NESW:

Site 15 NESW:

Site 16 NESW:

Site 17 NESW:

Site 18 NESW:

Site 19 NESW:

Site 20 NESW:

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Site 22 NESW:

Site 23 NESW:

Site 24 NESW:

Site 25 NESW:

Site 26 NESW:

Site 27 NESW:

Site 28 NESW:

Site 29 NESW:




Site 30 NESW:




Site 31 NESW:




Site 32 NESW:

Site 33 NESW:

Site 34 NESW:




Site 35 NESW:

Site 36 NESW:

Site 37 NESW:

Site 38 NESW:




Site 39 NESW:




Site 40 NESW:

Site 41 NESW:




Site 42 NESW:



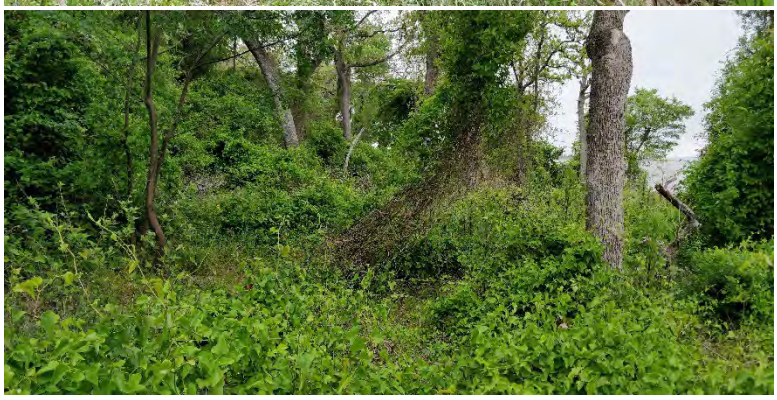

Site 43 NESW:




Site 44 NESW:

Site 45 NESW:

Site 46 NESW:



Site 48 NESW:

Site 49 NESW:

Site 50 NESW:

Site 51 NESW:

Site 52 NESW:

Site 53 NESW:

Site 54 NESW:

Site 55 NESW:

Site 56 NESW:

Site 57 NESW:

Site 58 NESW:

Site 59 NESW:

Site 60 NESW:

Site 61 NESW:

Site 62 NESW:

Site 63 NESW:

Site 64 NESW:

Site 65 NESW:

Site 66 NESW:

Site 67 NESW:

Site 68 NESW:

Site 69 NESW:

Site 70 NESW:

Site 71 NESW:

Site 72 NESW:

Site 73 NESW:




Site 74 NESW:

APPENDIX D – PERTINENT PUBLIC LAWS

- House Document 74-308. Proposed the construction of the Caddoa Dam and Reservoir for flood control and irrigation purposes

- Public Law 74-738, Flood Control Act of 1936 as amended by the Public Law 75-761, Flood Control Act of 1938 – Authorized the construction of the Caddoa Dam and Reservoir for flood control and irrigation purposes.

- Public Law 76-667. Chapter 430, 3rd Session. Changed to name of the project to John Martin Reservoir Project in honor of John A Martin, the lake Congressman from Colorado.

- Public Law 78-534, Flood Control Act of 1944. Section 4 of the Act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to Federal, State, or local governmental agencies.

- Public Law 85-624, Fish and Wildlife Coordination Act 1958. – The FWCA as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.

- Public Law 86-717, Forest Conservation Act. This Act provides for the protection of forest and other vegetative cover for reservoir areas under the jurisdiction of USACE.

- Public Law 89-298, Flood Control Act of 1965. Authorizes the Chief of Engineers to use and not to exceed 10,000 acre-feet of flood control storage space in the reservoir for the purpose of establishing and maintaining a permanent pool for fish and wildlife and recreations purposes at such times as storage space may be available for such permanent pool within the conservation pool as defined in Article III F, Arkansas River Compact I63 Stat. 145).

- Public Law 89-72, Federal Water Project Recreation Act of 1965. This Act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at Federal reservoir projects shall be borne by a non-Federal public body. A HQUSACE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.

- Public Law 91-190, National Environmental Policy Act of 1969. NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a "continuing policy of the Federal Government...to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations, and public law of the United States shall be interpreted and administered in accordance with the policies of the Act. It is Section 102 that requires consideration of environmental impacts associated with Federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

Specifically, Section 101 of the National Environmental Policy Act declares:

  - Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
  - Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
  - Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
  - Preserve important historic, cultural, and natural aspects of our national heritage and maintain wherever possible an environment which supports diversity and variety of individual choice;
  - Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities, and
  - Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

- Public Law 89-665, National Historic Preservation Act of 1966 (NHPA). Establishes a national policy of preserving, restoring, and maintaining cultural resources. It requires Federal agencies to account for the effect an action may have on sites that may be eligible for inclusion on the National Register of Historic Places.

- Public Law 101-601, Native American Graves Protection and Repatriation Act. Requires Federal agencies to return Native American human remains and

cultural items, including funerary objects and sacred objects, to their respective peoples.

- Public Law 59-209, Antiquities Act of 1906. The first Federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities and Uniform Rules and Regulations.

- Public Law 74-292, Historic Sites Act of 1935. Declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior."

- Public Law 87-874, Rivers and Harbors Act of 1962. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

- Public Law 88-578, Land and Water Conservation Fund Act of 1965. This act established a fund from which Congress can make appropriations for outdoor recreation. Section 2(2) makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act as amended.

- Public Law 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 21, 1976. This act authorized a research and development program with respect to solid waste disposal. It proposes (1) to initiate and accelerate a national research and development program for new and improved methods of proper and economic solid-waste disposal, including studies directed toward the conservation of national resources by reducing the amount of waste and unsalvageable materials and by recovery and utilization of potential resources in solid waste; and (2) to provide technical and financial assistance to State and local governments and interstate agencies in the planning, development, and conduct of solid-waste disposal program.

- Public Law 90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages. Section 210 restricted collection of entrance fee at USACE lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.

- Public Law 91-611, River and Harbor and Flood Control Act of 1970. Section 234 provides that persons designated by the Chief of Engineers shall have authority

to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.

- Public Law 92-463, Federal Advisory Committee Act. The Federal Advisory Committee Act became law in 1972 and is the legal foundation defining how federal advisory committees operate. The law has special emphasis on open meetings, chartering, public involvement, and reporting.

- Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972. The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. Public Law 92-500 strongly affirms the Federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

- Public Law 92-516, Federal Environmental Pesticide Control Act of 1972. This act completely revises the Federal Insecticide, Fungicide, and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.

- Public Law 93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each Federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at Federal expense.

- Public Law 93-251, Water Resources Development Act of 1974. Section 107 of this law establishes a broad Federal policy which makes it possible to participate with local governmental entities in the costs of sewage treatment plan installations.

- Public Law 93-291, Archeological Conservation Act of 1974. The Secretary of the Interior shall coordinate all Federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non reimbursable project costs.

- Public Law 93-303, Recreation Use Fees. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which Federal agencies may charge fees for the use of campgrounds developed and operated at Federal areas under their control.

- Public Law 93-523, Safe Drinking Water Act. The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish Federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a

joint Federal-State system for assuring compliance with these standards and for protecting underground sources of drinking water.

- Public Law 94-422, Amendment of the Land and Water Conservation Fund Act of 1965. Expands the role of the Advisory Council. Title 2 Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the NRHP.

- Public Law 99-662, The Water Resources Development Act. Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

APPENDIX E – Public and Stakeholder Comments

Table E-1 Public Comments from 24 February 2021 Public Scoping Meeting

Comment	USACE Response
Comments from Texas Parks and Wildlife Department	
Recommendation: TPWD recommends referring to the TCAP, RTEST, and TXNDD for information regarding sensitive resources potentially occurring in the area, priority habitats, and issues affecting sensitive resources within the Gulf Coast Prairies and Marshes Ecoregion.	Concur. Areas that received a high score in the WHAP including several grasslands, riparian corridors, scenic bluffs, wetlands, and both upland and bottomland forests have been changed to an ESA classification. Other areas were classified as Multiple Resource Management, either Low-Density Recreation or High-Density Recreation, to reflect management and stewardship of natural resources.
In addition to addressing sensitive resources, TPWD recommends the Master Plan include natural resource inventories and monitoring goals to identify habitat changes that may occur over the life of the project and trigger adaptive management, when needed.	Noted.
TPWD recommends utilizing EMST data during the revision of the Master Plan. Such data may be useful in examining project lands and identifying appropriate land use classifications.	Noted.
TPWD recommends accessing the iNaturalist and eBird applications to supplement the occurrence data provided within the TXNDD.	Noted.
To contribute to pollinator conservation efforts, TPWD encourages USACE to incorporate pollinator conservation into the Master Plan to promote and sustain the availability of floral resources throughout the growing season. Species appropriate for the project area can be found by accessing the Lady Bird Johnson Wildflower Center, working with TPWD biologists to develop an appropriate list of	Concur, information on pollinator species is included in the environmental assessment.

Comment	USACE Response
species, or utilizing resources found at the Xerces Society's Guidelines webpage.	
To aid in the scientific knowledge of a species' status and current range, TPWD encourages reporting encounters of protected and rare species to the TXNDD according to the data submittal instructions found at the TPWD Texas Natural Diversity Database: Submit Data webpage.	Noted.
Comments from City of Somerville	
Include a process where leased recreational parks can be improved by lease holder. i.e. new restrooms, playgrounds, property improvement.	These requests are outside the scope of the Master Plan. Lease holders should contact the USACE Lake Office for specific requests to their lease area.
Install walking trails north of Welch Park.	These requests are outside the scope of the Master Plan. Lease holders should contact the USACE Lake Office for specific requests to their lease area.
Replace old outdated Masonry toilets with Modern Green Flush Restrooms that operate using solar energy.	These requests are outside the scope of the Master Plan. Lease holders should contact the USACE Lake Office for specific requests to their lease area.
Outline a plan for the City of Somerville to utilize surface water for city use, similar to Brenham.	Non-concur, this request is outside of the scope of the MP.
Resurface Thornberry Dr. to SH. 36 (road improvement)	Concur. Roadway improvements can be completed through a work package request.
Repair drainage structure along Thornberry Dr. (drainage improvement)	Non-concur, the City of Somerville built the existing drainage structure and is therefore responsible for drainage improvement along Thornberry Drive.
Comments from the Public	
Better maps of the area including trails turn outs etc. (see also 2)	Concur. Land use maps are included in this project submittal. Maps of Somerville Lake include trails.

Comment	USACE Response
Walking trails (with better maps) and public access to such trails. Based on a little research and the plan, walking, hiking, biking, orienteering, and photography were not activities that were generally considered important; when the original plan was developed. The focus of most of the plan seems to be hunting, fishing, and boating – with camping and picnicking associated with those activities in many public use areas. I know there is a trailway, I walked on part of it when I was in college, and I have heard of it, but actually finding it and having a good understanding of where it starts end and the trail itself? Actually, I found a map online of the **state park trail system**, and links to rocky creek and Yegua walking/nature trails, which I understand are to be closed to the general public and only used by campers at those parks; but I understand from friends that a lot of these trails are not maintained, open or are trashed out especially around the Yegua. And further, all of these are away from the Somerville end of the park. Why aren't there trails north and south of Welch park? Especially the area to the north along the dam and heading east before the private parks.	Concur, please reference attached maps for trails located at Somerville Lake.
Partnerships, signage, and enforcement of litter and illegal dumping along the river and banks of the impoundment, Annual clean-ups in concert with KTB affiliate sand other groups that are actually workable.	Concur.
DREDGE IT. 2015, 2016, 2017 – the downstream flooding, especially in 2017 was horrendous. Three events caused water over the uncontrolled spillway in the past 5 ½ years, which I have heard had only happened once since the structure was built 9in the memory of local citizens anyway. Whether the increased number of incidents are due to silting up of the lake, climate change or whatever, it is an opportunity to help make a difference not only here but downstream along the Brazos, too. Without utterly destroying the	Non-concur. Dredging falls outside of the scope as regularly schedule high water releases mitigate the flood risk.

Comment	USACE Response
capacity of the local recreational area to remain in business. State and private parks were closed for almost two years at one point in time.	
Although the plan mentions the conservation of plant and animals and habitat for support, the environmental attitudes have changed; keeping people out instead of providing a way for those truly interested to learn or experience a place for the peaceful contemplation of nature should be incorporated into the plan – bird blinds, non-hunting nature blinds, wild flower distribution, etc. if you won't let the public in to hike do photography or enjoy nature, why do you let frackers in to destroy that?	Opportunities to hike, bird, and generally experience nature are available in many areas around the lake. TPWD State Parks is currently working to install a new Bird Blind on the lake. Mineral rights are managed by BLM for federal lands.

APPENDIX F – ACRONYMS

ac-ft..... Acre-Feet
AQI..... Air Quality Index
B.P. ..... Before Present
BMP..... Best Management Practices
CAP ..... Climate Action Plan
CHSP..... Cedar Hill State Park
CRMP ..... Cultural Resources Management Plan
CWA ..... Clean Water Act
DC..... District Commander
DF ..... Deciduous Forest
DQC..... District Quality Control
DQCB ..... District Quality Control Board
DM ..... Design Memorandum
EA..... Environmental Assessment, NEPA Document
EMS..... Ecological Mapping System
EOP ..... Environmental Operating Principles
EP..... Engineering Pamphlet
EPA ..... United States Environmental Protection Agency
ER..... Engineering Regulation
ESA..... Environmentally Sensitive Area
°F ..... Degrees Fahrenheit
FONSI..... Finding of No Significant Impact
FWCA ..... Fish and Wildlife Coordination Act of 1958
GIS ..... Geographical Information Systems
HDR..... High Density Recreation
HQ ..... USACE Headquarters (also HQUSACE)
IH ..... Interstate Highway
IPaC..... Information for Planning and Consultation
LDR..... Low Density Recreation
LEED ..... Leadership in Energy and Environmental Design
MP ..... Master Plan or Master Planning
MRML ..... Multiple Resource Management Lands
NAAQS ..... National Ambient Air Quality Standards
NCTCOG ..... North Central Texas Council of Governments
NEPA..... National Environmental Policy Act, 1970
NGVD29 ..... National Geodetic Vertical Datum (1929)
NHPA..... National Historic Prevention Act
NRHP ..... National Register of Historic Places
NOA..... Notice of Availability
NRCS..... Natural Resource Conservation Service
NRHP..... National Registry of Historic Places
NVCS..... National Vegetation Classification System
NWI ..... National Wetland Inventory
O&M..... Operations and Maintenance

OMB..... Office of Management and Budget
OMBIL..... Operations and Maintenance Business Information
OMP..... Operations Management Plan for a specific lake Project
OPM..... Operations Project Manager
PDT..... Project Development Team
PII ..... Personally Identifiable Information
PL ..... Public Law
PM ..... Project Management or Project Manager
PMP ..... Project Management Plan
PO..... Project Operations
RBLH ..... Riparian Bottomland Hardwoods
RBS ..... Recreational Boating Survey
RIFA..... Red Imported Fire Ant
RPEC..... Regional Planning and Environmental Center
RTEST ..... Rare, Threatened, and Endangered Species of Texas
SCORP ..... Statewide Comprehensive Outdoor Recreation Plan (synonymous with TORP in Texas)
SGCN ..... Species of Greatest Conservation Need
SH..... State Highway
SHPO..... State Historical Preservation Office
SMPS..... Shoreline Management Policy Statement
SIP ..... State Implementation Plan
SMU..... Southern Methodist University
SWA..... State Wildlife Area
TCAP ..... Texas Conservation Action Plan
TCEQ..... Texas Commission on Environmental Quality
TPWD ..... Texas Parks and Wildlife Department
TORP..... Texas Outdoor Recreation Plan
TRA..... Trinity River Authority
TX ..... Texas
TXDOT..... Texas Department of Transportation
TXNDD ..... Texas Natural Diversity Database
US..... United States (U.S.)
USACE ..... United States Army Corps of Engineers
USFWS..... U. S. Fish and Wildlife Service
USGS..... U.S. Geological Survey
VM ..... Vegetative Management Area (VMA)
WDA ..... Workforce Development Area
WHAP ..... Wildlife Habitat Appraisal Procedure
WM ..... Wildlife Management Area (WMA)