LAKE JACKSON SUB-BASIN WORK PLAN

Lake Jackson bordering Phipps Park

NORTHWEST FLORIDA WATERSHEDS PARTNERSHIP PROGRAM
OCHLOCKONEE RIVER AND BAY WATERSHED
JANUARY 2026

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

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ACKNOWLEDGEMENTS

The Northwest Florida Water Management District (District) watersheds planning effort relies on a large team of District professionals. Primary authors and contributors are noted below.

The District acknowledges and appreciates the many local government staff, estuary program staff, public supply utilities, the public, and other interested parties who provided valuable review and feedback on the priority sub-basins and proposed projects to address water resource issues.

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Executive Summary

The **Northwest Florida Watersheds Partnership Program (Program)** is a collaborative, multi-party initiative to proactively address critical water resource issues within priority sub-basins of the Northwest Florida Water Management District (District). The Program is being implemented in coordination with local and county governments, regional entities, and other interested parties to maximize effectiveness.

The Lake Jackson sub-basin encompasses approximately 28,639 acres in Leon County, Florida, including portions of the City of Tallahassee. Together with Carr Lake and Mallard Pond, the lake was designated a Florida Aquatic Preserve in 1973 in recognition of its biological, aesthetic, and recreational values. In addition to Lake Jackson, the sub-basin includes Carr Lake; lakes Hall and Overstreet, and Mallard Pond. The work plan describes the sub-basin's characteristics, critical water resource issues, and strategies and proposed projects that can be implemented to address these issues.

The southern portion of the sub-basin is within the city of Tallahassee, and the northern extent of the sub-basin is within unincorporated Leon County. Thirty-three percent of the sub-basin is developed with the remaining 67% of the area categorized as undeveloped space such as upland forest, wetlands and water. The 2020 census recorded a population size of 26,863 and the estimate for 2045 is 31,106 an increase of 15%.

Current Issues and Challenges

Water quality in Lake Jackson is affected by nonpoint source pollution generated by stormwater runoff and effluent from septic systems with the sub-basin containing more than 4,900 known and likely septic systems. Harmful algal blooms reported in 2025 were clustered in the southern portion of the lake near Fords Arm.

Water quality impairments include:

Lake Jackson (Dissolved oxygen)
Meginnis Arm Run (Dissolved oxygen)
Lake Overstreet Drain (*E. coli*)
Butler Mill Creek (*E. coli*)
Lexington Creek (Total phosphorus, *E. coli*)
Summer Creek (Dissolved oxygen)

Among other challenges affecting the sub-basin, Lake Jackson requires continuing efforts to control invasive aquatic plants such as Cuban bulrush, water hyacinth, Chinese tallow, hydrilla, and alligatorweed. The Florida Fish and Wildlife Conservation Commission's Aquatic Plant Management Program maintains an active program to manage exotic and invasive plants within the lake.

Strategies and Solutions

The work plan summarizes management strategies to address the water resource challenges affecting Lake Jackson. Each strategy identified addresses multiple issue areas and objectives, reflecting the interrelated nature of water resource attributes and conditions. Recommended strategies include stormwater retrofits, sanitary sewer system improvements, ecosystem restoration, septic tank abatement, and water reuse.

As of January 2026, **four** projects have been proposed, at an estimated total cost of **$41.6 million**. The current funding need is also **$41.6 million**. Project types include:

- Ecosystem Restoration
- Stormwater system improvements
- Septic system abatement

For more information please visit: https://nwfwater.com/water-resources/surface-water-improvement-and-management/

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I. Introduction

The **Northwest Florida Watersheds Partnership Program** is a collaborative, multi-party initiative to proactively address critical water resource issues within priority sub-basins within the Northwest Florida Water Management District (District). While shovel-ready projects will be a high priority for implementation, funding is also anticipated to be available for design, feasibility studies, planning, and, where needed, data collection to determine causes of water resource issues or to track improvements. For the first year of the program, efforts will focus on one priority sub-basin within each of the District's seven major watersheds. The program is being implemented in coordination with local and county governments, regional entities, and other interested parties to maximize effectiveness. Partners include the Florida Department of Environmental Protection; Florida Department of Agriculture and Consumer Services; the Florida Fish and Wildlife Conservation Commission; the Choctawhatchee Basin Alliance; and the three Panhandle Estuary Programs: Pensacola and Perdido Bays, Choctawhatchee Bay, and St. Andrew and St. Joseph Bays.

To select priority sub-basins, objective criteria were developed using best-available geographic information system (GIS) datasets and applied to evaluate and rank the 114 sub-basins within the District's seven major watersheds. Evaluation criteria focused on water quality, aquatic habitat restoration, and water supply and considered factors such as water quality impairments, established total maximum daily loads, population growth, and location within a Water Resource Caution Area or Area of Resource Concern. The highest-ranked candidate sub-basins within each watershed were presented at a series of six public workshops held in October 2025. Input received during the workshops and through on-line surveys, together with information regarding proposed projects, was also utilized in the evaluation process to select a single priority sub-basin within each major watershed. Additional details regarding the evaluation process can be found in Appendix A.

The Lake Jackson sub-basin was selected as the priority sub-basin within the Ochlockonee River and Bay watershed. This sub-basin encompasses approximately 28,639 acres in Leon County, including portions of the city of Tallahassee. This work plan describes the sub-basin's characteristics, critical water resource issues, and strategies and proposed projects that can be implemented to address these issues.

The goal of this work plan is to provide an integrated framework for a multi-year collaborative effort to improve the environmental resources, ecological functions, and public benefits of the Lake Jackson sub-basin.

Specific objectives of the program and this work plan include:

- Describe critical water resource issues, with a focus on water quality, aquatic habitat, and water supply needs,
- Determine strategies and projects needed to address the most critical issues including project costs and funding needs,
- Provide an integrated and holistic approach framework that recognizes and incentivizes projects with multiple resource benefits,
- Secure and leverage funding and associated resources needed to implement priority strategies and projects,

- Protect and improve water quality in Lake Jackson and its contributing sub-basin,
- Enhance, protect, and sustain aquatic and wetland habitats with the Lake Jackson sub-basin, together with their economic, recreational, and other societal benefits for the community and for natural systems,
- Enhance the resilience and sustainability of aquatic habitats and water supplies,
- Track project implementation metrics and trends in environmental conditions to monitor and evaluate success and inform an adaptive management approach to enhance strategies and maximize the program's effectiveness.

Accomplishing these objectives will require extensive collaboration and coordination among state and local government agencies, federal agencies, nonprofit organizations, and the private sector to maximize synergy between projects and achieve lower overall restoration costs.

II. Watershed Characteristics

The focus of this work plan, the Lake Jackson watershed, is a component drainage basin (sub-basin) of the Ochlockonee River and Bay watershed (Figure 1). A watershed is a geographic area of land that drains to a common waterbody. Lake Jackson, however, stands alone within its larger watershed in that it is an entirely closed basin. The lake is internally drained and has no surface water outflow. The Lake's hydrology is discussed further below. Detailed information about the Ochlockonee River and Bay watershed, which covers 2,476 square miles in Florida and Georgia, is provided by the Ochlockonee River and Bay Watershed Surface Water Improvement and Management (SWIM) Plan (2017).

The Lake Jackson sub-basin (Figure 2) covers approximately 28,639 acres in Leon County. This includes a portion of the city of Tallahassee and unincorporated areas of Leon County. In addition to Lake Jackson, the watershed includes Carr Lake; lakes Hall and Overstreet; Mallard Pond; and Lexington, Jackson Heights, Meginnis, and Summer creeks. Lake Jackson has a highly variable surface area, generally described as approximately 4,000 acres at normal pool. As described further below, lake levels vary dramatically depending on precipitation trends and leakage to the underlying Floridan aquifer through the lakebed and karst features.

Lake Jackson is positioned within the Tallahassee Hills subdivision of the Northern Highlands physiographic region of northwest Florida (NWFWMD 2017). The geography of the sub-basin is depicted by Figure 3. Land elevations range from approximately 65 feet above sea level (NAV88) at the lakebed, to about 275 feet in the surrounding hills.

Together with Carr Lake and Mallard Pond, Lake Jackson was designated a Florida Aquatic Preserve in 1973 in recognition of its value as a biological, aesthetic, and recreational resource and to promote its long-term protection. Management and protection of Lake Jackson is encompassed within two existing watershed-based management plans:

- The Florida Department of Environmental Protection published the Lake Jackson Aquatic Preserve Management Plan in November 2019 (DEP 2019). The plan provides a comprehensive description of the aquatic preserve, issues and challenges, and accompanying management programs.
- The Northwest Florida Water Management District approved an update to the Ochlockonee River and Bay SWIM Plan in September 2017 (NWFWMD 2017). The SWIM plan describes the interstate Ochlockonee River and Bay watershed, including Lake Jackson, and details watershed issues, responsive strategies, and recommended project approaches.

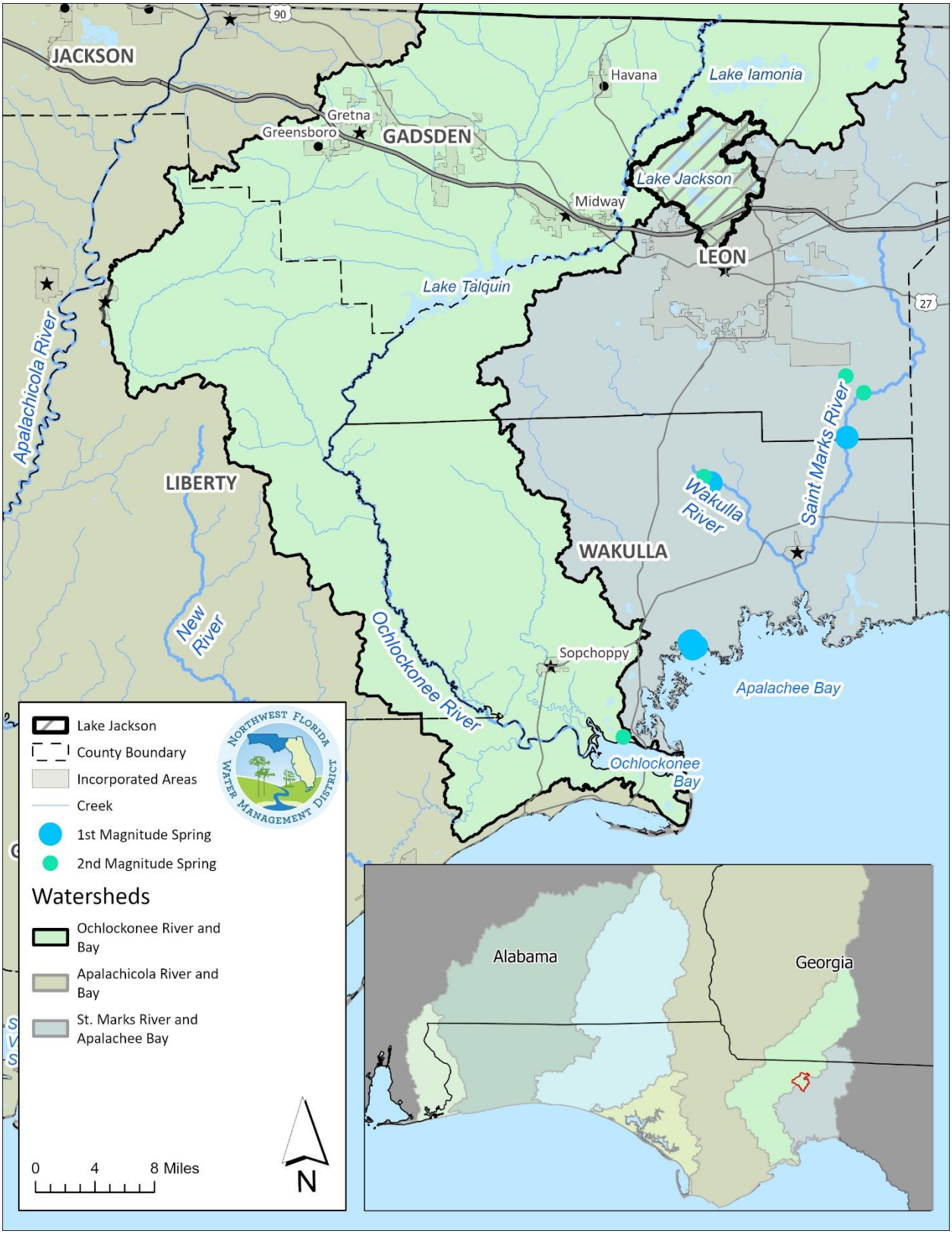

Figure 1. Location of Lake Jackson Sub-basin within the Ochlockonee River and Bay Watershed

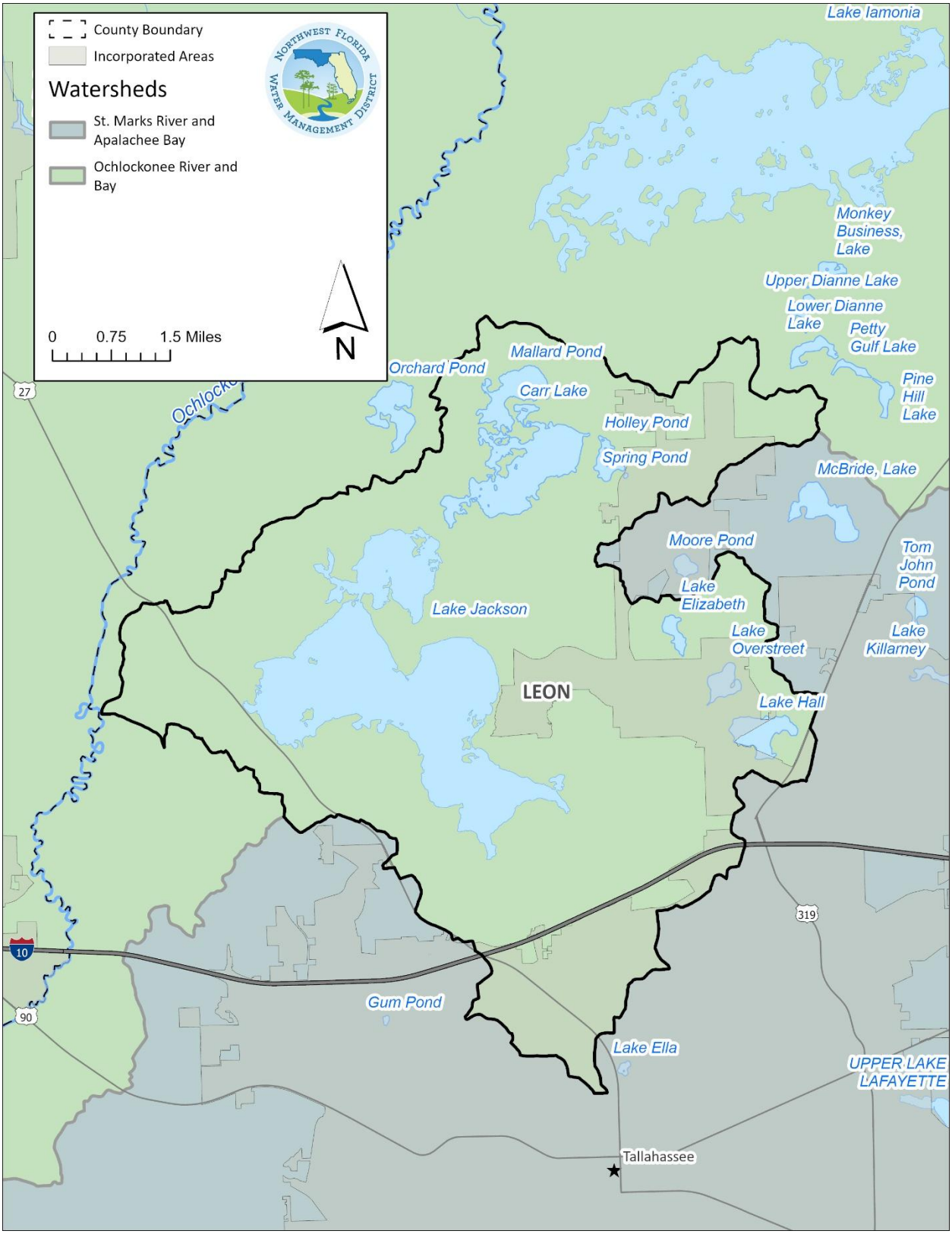

Figure 2. Lake Jackson Sub-basin

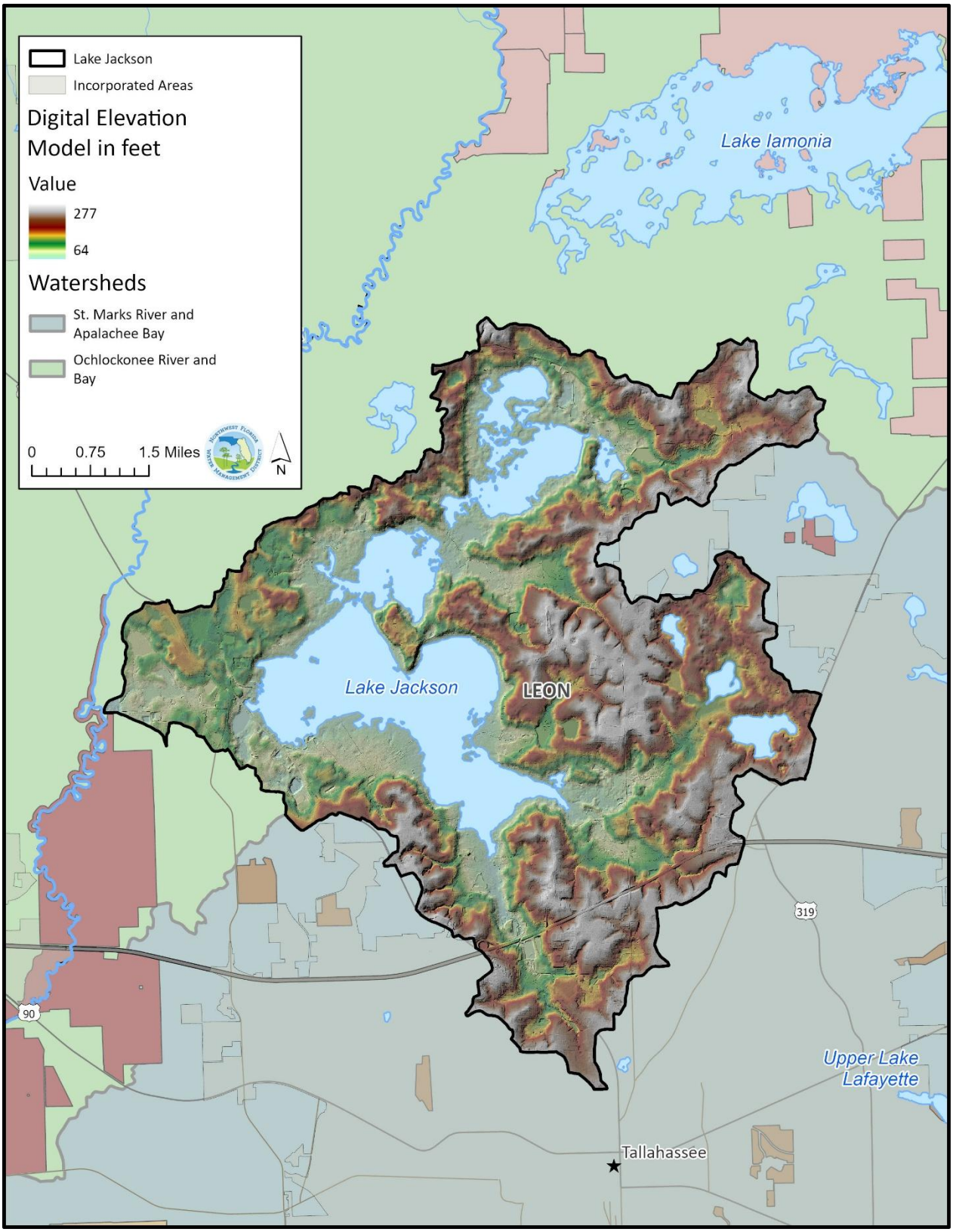

Figure 3. Topography within the Lake Jackson Sub-Basin

Management and resource protection for Lake Jackson is accomplished cooperatively by several state, regional, and local agencies, including the Lake Jackson Aquatic Preserve, Florida Fish and Wildlife Conservation Commission (FWC), Northwest Florida Water Management District (NWFWMD, or District), Leon County, and the city of Tallahassee. The FWC conducts extensive aquatic plant and habitat management activities and coordinates closely with members of the public and participating agencies. The District performs land management at Elinor Klapp-Phipps Park in cooperation with the City of Tallahassee and the Aquatic Preserve, and it manages the Meginnis Arm regional stormwater treatment facility. Leon County and the city of Tallahassee manage comprehensive programs to protect Leon County's lakes and to provide for flood protection and water quality improvement. The county and the city conduct ongoing monitoring programs, discussed below and described in detail by Leon County (2025) and the city of Tallahassee (City of Tallahassee 2025a; 2025b). Management plans for Lake Jackson Mounds Archaeological State Park and Alfred B. Maclay Gardens State Park are provided by DEP (2004; 2014). Management of Elinor Klapp-Phipps Park is incorporated within the District's East Region Land Management Plan (NWFWMD 2019).

The city of Tallahassee and Leon County are responsible for land use and land development regulations, within a broad array of other local government responsibilities. The Florida Department of Environmental Protection (FDEP) regulates water quality, wastewater, and septic systems, and it owns and manages state parks and coordinates other environmental programs at the state level. The District is responsible for environmental resource permitting and regulation of wells and consumptive uses of water, as well as land management and nonregulatory water resource programs. Lake Jackson is also within the region served by the Apalachee Regional Planning Council (ARPC), which coordinates economic development, emergency and environmental planning, housing, transportation, and other services cooperatively with local governments across a nine-county area of northwest Florida. Among nongovernmental organizations, the Friends of Lake Jackson promotes public engagement and works with local governments and state agencies to support protection, restoration, and sustainable management of Lake Jackson.

2.1 Sub-basin Functions and Benefits

Ecosystem services and values provided by Lake Jackson and its accompanying watershed include fish and wildlife, recreational opportunities, aesthetic qualities, surface and groundwater storage and regulation, and the economic benefits of all of these. Wetlands within the lake's drainage basin protect water quality, provide important fish and wildlife habitat, and provide essential flood protection for the community. The basin's public lands help protect aquatic habitat and water quality and they provide public access, recreational and educational opportunities, and protection of important archaeological resources.

2.2 Hydrology

Lake Jackson is a closed basin lake formed through dissolution of limestone within the underlying karst topography. The lake is recharged by rainfall and runoff. Outflow from the lake occurs through evaporation, leakage through the lake bottom, seepage through submerged sinkholes, and transpiration. The lake continually contributes water to the underlying Floridan aquifer both through the confining unit and, more directly, through sinkholes in the lakebed. There are numerous sinkholes throughout the lake bottom (DEP 2019), including two major sinks: Lime Sink and Porter Hole. During extended dry periods, when rates of infiltration and evapotranspiration exceed rainfall recharge, the lake drains completely. Refilling occurs when there is sufficient rainfall in the basin whereby inflow into the lake exceeds the rate of drainage and evapotranspiration. Normally plugged with sediments, sinkholes within the lake are

subject to collapse when groundwater levels drop, allowing lake water to drain to the aquifer, often dramatically lowering the lake water level (DEP 2019; Leon County 2025). Recent drydown events have occurred in 1999-2000, 2007, 2021-2023, and 2025.

Tributaries of the lake include the following:

- Lake Overstreet, within Maclay Gardens State Park, drains to Fords Arm through Lake Overstreet drain. Lake Hall, also within the park, has a floodplain connection to Lake Overstreet.
- Lexington Creek drains commercial and residential land uses in the vicinity of Maclay Road and Interstate 10, ultimately discharging into Fords Arm.
- Meginnis Creek is a substantially altered stream that receives runoff from a highly urbanized basin in northern Tallahassee. The creek drains through the District's Lake Jackson Meginnis Arm facility to discharge into Meginnis Arm.
- Summer Creek drains residential areas in northern Tallahassee and discharges to Carr Lake.
- Jackson Heights Creek is a heavily altered stream system that drains through the Harbinwood neighborhood to discharge into the northwest lobe of Lake Jackson.
- Seepage streams originating from several steepheads flow through Lake Jackson Mounds Archaeological State Park, contributing water to Meginnis Creek.

2.3 Aquatic and Terrestrial Habitats

Major habitats and vegetation communities associated with the lake and its surrounding watershed are described in detail by DEP (2004; 2014; 2019). In summary, they include:

- Clastic upland lake – Shallow, irregular depressions or basins within uplands on clay substrates. These are lentic waterbodies without significant outflows. Water is dissipated through evapotranspiration and through sinks that connect with the underlying aquifer.
- Wet prairie – Herbaceous communities found on wet soils on flat, gentle slopes. Wet prairie communities are prevalent in the northern section of Lake Jackson.
- Hydric hammock – Elevated patches of land supporting hardwood species within low, flat, wet areas. This community exists in the southeast near Fords Arm and east of Jackson View Park.
- Upland hardwood forest – Closed canopy hardwood forest typically occurring on slopes with generally mesic conditions. Overstory tree species include southern magnolia, sweetgum, and oaks. These communities are prevalent in Maclay Gardens State Park.
- Basin swamp – Freshwater forested wetlands with an extended hydroperiod. Supports species such as pond cypress, black gum, slash pine, red maple, sweetbay, and others.
- Bottomland forest – Relatively low lying, mesic community prone to periodic flooding. Vegetation consists of deciduous and evergreen trees.
- Upland mixed forest – Successional forest of various hardwoods and loblolly pines, prevalent within Lake Jackson Mounds Archaeological State Park.
- Seepage streams – Narrow, relatively short perennial or intermittent streams formed by baseflow from adjacent uplands. Seepage streams occur on slopes draining to the western side of Lake Jackson and within Maclay Gardens State Park. Steepheads occur within slope forest ravines in Lake Jackson Mounds Archaeological State Park.

- Slope forest – Upland forest found along the steep slopes surrounding seepage streams. Prevalent species include American beech, swamp chestnut oak, white oak, southern magnolia, and diverse understory species.

Aquatic habitats, wetlands, and terrestrial habitats within the planning area are important for sustaining biological diversity within the region, including several species federally listed under the Endangered Species Act (Table 1).

Table 1. Listed Species Potentially Occurring in the Lake Jackson Sub-basin

Common Name	Scientific Name	Federal Status
Chaffseed	*Schwalbea americana*	Endangered
Fringed campion	*Silene catesbyi*	Endangered
Eastern Indigo Snake	*Drymarchon couperi*	Threatened
Red-cockaded Woodpecker	*Dryobates borealis*	Threatened
Wood Stork	*Mycteria americana*	Threatened
Gray Bat	*Myotis grisescens*	Endangered
Source: FNAI 2025		

2.4 Land Use and Land Cover

Land use and land cover are listed in Table 2 and depicted in Figure 4. Residential, commercial, and industrial land uses, aggregated as Urban and Built-Up, encompass about 31.5 percent of the basin, concentrated in the southern portions of the sub-basin. Upland forests and wetlands occupy about 25 percent and 18 percent of the sub-basin, respectively.

Table 2. Land Use and Land Cover in the Lake Jackson Sub-basin

Land Use/Cover	Area (acres)	Percent
Urban and Built-Up	9,015	31.48
Upland Forest	7,118	24.86
Wetlands	5,162	18.02
Transportation, Communication, Utilities	813	2.84
Agriculture	3,090	10.79
Barren Land	21	0.07
Water	2,806	9.80
Rangeland	613	2.14
Total	28,638	100.00

As listed in Table 3 and depicted in Figure 5, public conservation lands comprise approximately 7.6 percent of the sub-basin.

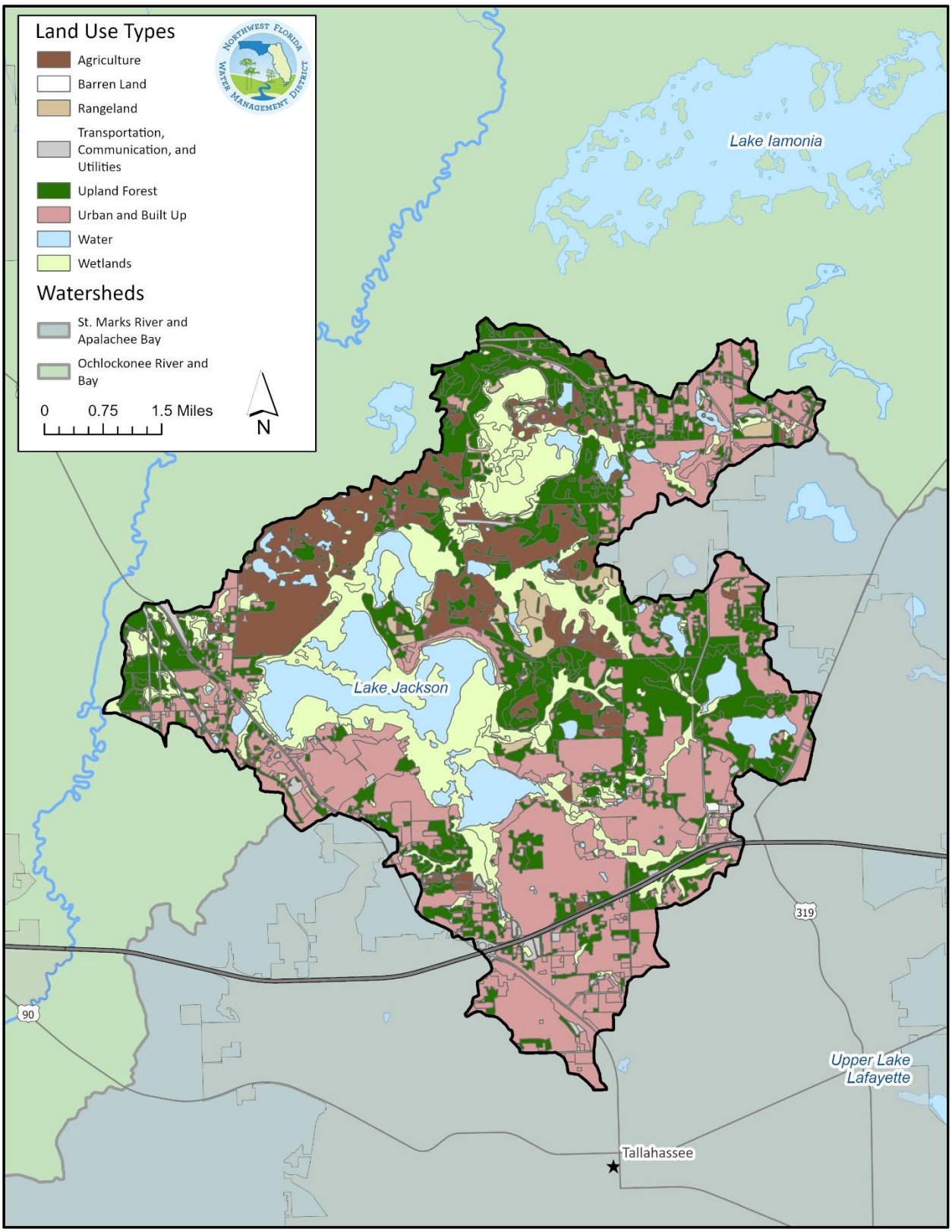

Figure 4. Land Use and Land Cover in the Lake Jackson Sub-basin

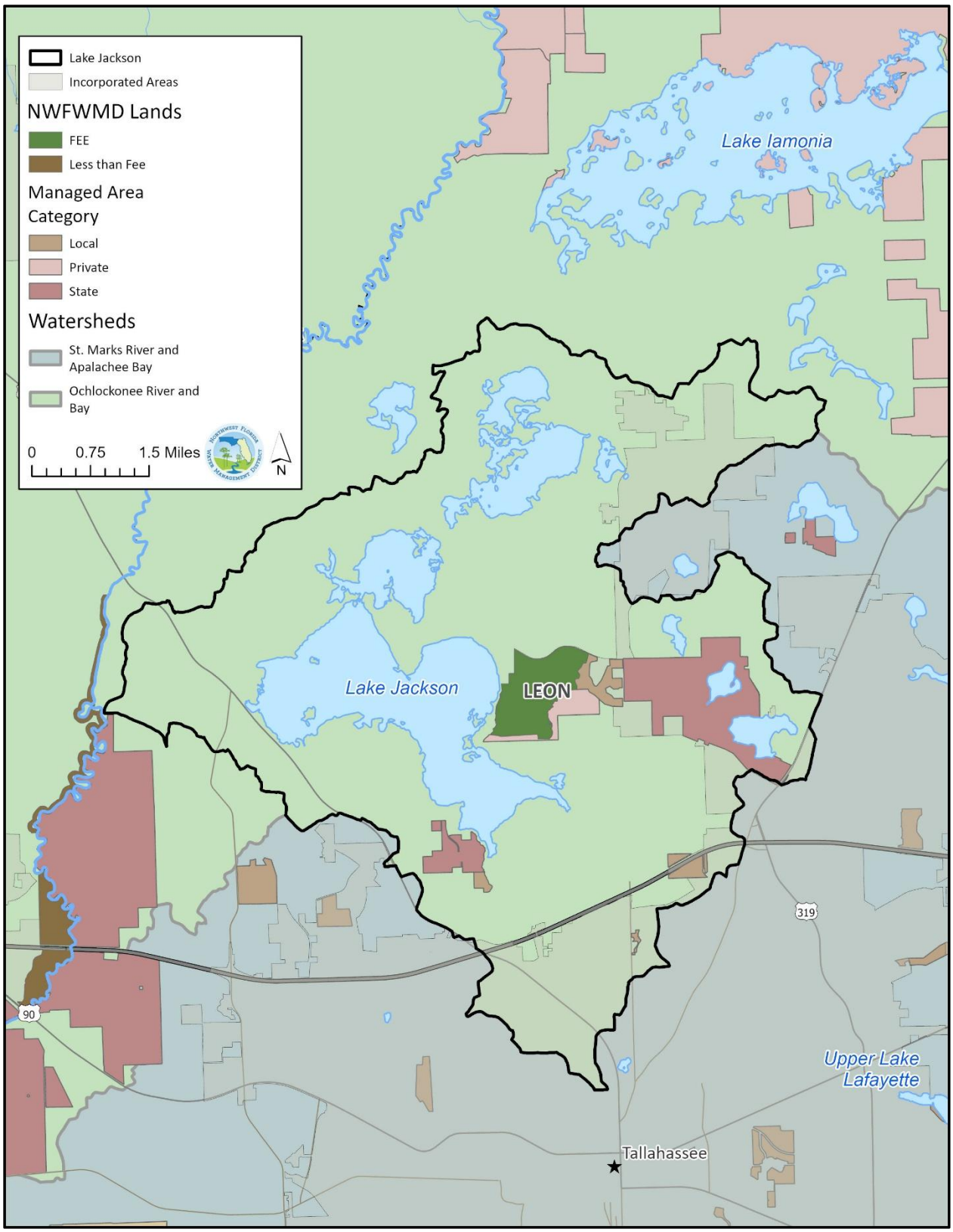

Figure 5. Public Lands within the Lake Jackson Sub-Basin

Table 3. Public Lands in the Lake Jackson Sub-basin

Property	Managing Agency	Area (acres)
Elinor Klapp-Phipps Park	City of Tallahassee and NWFWMD	662
Alfred B. Maclay Gardens State Park	DEP Division of Recreation and Parks	1,164
Lake Jackson Mounds Archaeological State Park	DEP Division of Recreation and Parks	200
Jackson View Park	Leon County	45
J. Lee Vause Park	Leon County	40
Timberlane Ravine	City of Tallahassee	72
Total		2,183

2.5 Population and Growth

The University of Florida Bureau of Economic and Business Research (BEBR) (2024) estimated the 2024 population of Leon County at 300,488. The 2020-2024 population growth rate for the county was estimated at two percent. Analysis of the 2020 U.S. Census point data indicates a Lake Jackson planning area population of 26,863. By 2045, the sub-basin area is projected to grow an additional 16 percent, to reach 31,106.

2.6 Water Supply

The Floridan aquifer system is the water supply source for Leon County. It consists of carbonate and dolomitic rocks that reach nearly 1,200 feet in thickness (NWFWMD 2023). In the Lake Jackson area, the Floridan aquifer is semi-confined, with the intermediate confining unit ranging in thickness from less than 70 feet up to 130 feet (NWFWMD 1984). Most water production occurs from the St. Marks/Chattahoochee Formation and the Suwannee Limestone, which comprise the upper portion of the aquifer in this region.

The hydrogeology near Lake Jackson is characterized by high aquifer recharge and groundwater availability. Local recharge has resulted in the dissolution of carbonate minerals within the aquifer. Karst features such as sinkholes are common. Lime Sink and Porter Hole Sink are two prominent sinkholes within Lake Jackson. Groundwater in the Floridan aquifer system generally flows toward the south and discharges to the springs, streams, and coastal waters.

Water supply in the sub-basin is provided by Talquin Electric Cooperative and the city of Tallahassee. Some residences are served by private domestic wells. Water demands within Leon County are projected to increase by 6.01 mgd (15.1 percent), from 39.58 mgd in 2020 to 45.59 mgd in 2045. Due to high groundwater availability and good water quality, existing and future supplies are anticipated to be sufficient to meet demands for the 20-year planning period (NWFWMD 2023).

III. Current Issues and Challenges

Challenges affecting Lake Jackson primarily include water quality and invasive plant management, as described further below.

3.1 Monitoring and Trends

Leon County conducts quarterly water quality monitoring in the Lake Jackson sub-basin, including within Lake Jackson, Carr Lake, Jackson Heights Creek, Lake Hall, Lexington Creek, Meginnis Creek, and Summer Creek (Leon County 2025). During sampling conducted in Lake Jackson from 2004-2024, Florida numeric nutrient criteria (NNC) for chlorophyll-a, Total Phosphorus (TP), and Total Nitrogen (TN) were exceeded during certain years, most recently 2025 for chlorophyll-a and TN and 2024 for TP (Leon County 2025). Additionally, dissolved oxygen (DO) levels did not always meet Class III water quality standards. Interpretation of results during much of this timeframe was complicated by extreme water level fluctuations and heavy plant cover. Low water precluded sampling during part of 2021 and the entirety of 2022-2023. Results from Lake Carr, Jackson Heights Creek, Meginnis Creek, Summer Creek, and Lake Hall were within NNC thresholds, although nutrient trends in Jackson Heights Creek appeared to be increasing. The TP criterion was exceeded in Lexington Creek in 2018, 2019, and 2021. Within Meginnis Creek, specific conductivity and dissolved solids were elevated as compared to Lake Jackson, potentially attributable to effects stemming from the prevalence of impervious surfaces in the watershed. Dissolved oxygen in Meginnis and Summer creeks rarely met Class III water quality standards.

Leon County completed a Lake Vegetation Index (LVI) assessment of Lake Jackson in 2018, and assessments of Lake Hall and Carr Lake in 2022 and 2023, respectively. The LVI is based on rapid field assessment of aquatic and wetland plants and evaluates how closely a lake's plant community resembles one expected in a condition of minimal human disturbance. The 2018 LVI score for Lake Jackson was in the Healthy category, although continuing issues with invasive exotic plants within the lake and its contributing watershed were described (Leon County 2018). The LVI scores for Lake Carr and Lake Hall were both in the Healthy category (Leon County 2022; 2023).

The city of Tallahassee conducts quarterly water quality sampling in Lake Jackson (north and south) and Lake Hall, as well as annual LVI assessments (City of Tallahassee 2025a; 2025b). Within Lake Jackson, the results indicate generally unimpaired water quality and a healthy plant community, although the plant community was noted as having considerably changed following the lake's refilling in 2023. Monitoring was inhibited during 2021-2023 due to low water levels and COVID restrictions, and access for additional LVI monitoring was precluded. For Lake Hall, the city found excellent water quality and a healthy plant community. Increasing trends for nitrogen and phosphorus were noted, however, as well as a reduction in submerged aquatic vegetation.

The Northwest Florida Water Management District maintains four rainfall stations within the basin, as well as a water level monitoring station at Miller Landing and a discharge station within the Fords Arm basin. The Florida Department of Health (2025) has issued fish consumption advisories for certain species of fish from Lake Jackson due to elevated levels of mercury.

The city of Tallahassee, in cooperation with DEP and the NWFWMD, completed a stormwater sampling assessment of the Meginnis Arm Regional Stormwater facility in 2023. Following seven sampling events, the city concluded the facility is effective at removing nutrients and suspended solids. Assessment of the overall effectiveness of the facility was complicated, however, because runoff from approximately 180

acres of the Interstate 10 corridor were found to be discharging into the system downstream of the wet detention pond but upstream of the wetland treatment system.

3.2 Water Quality

Water quality in Lake Jackson is affected by nonpoint source pollution generated by stormwater runoff across the landscape picking up pollutants from diffuse sources. Common pollutants include nutrients, sediments, bacteria, fertilizers, herbicides, insecticides, oils and greases, effluent from onsite sewage treatment and disposal systems (OSTDS), and litter. Sources may include residential yards, commercial and industrial sites, streets and parking lots, agricultural areas, construction sites, pet and wildlife waste, atmospheric deposition, and erosion sites. The highest rates of pollutant loading, including for nutrients, suspended solids, and biochemical oxygen demand, are typically associated with residential, commercial, industrial, and agricultural land uses (Harper 1999).

Impairments listed by the state of Florida within the Lake Jackson watershed planning area include dissolved oxygen, *E. coli*, and total phosphorus. Segments of the lake watershed designated as not attaining standards at the time of this writing are listed in Table 3. Water quality issues are also depicted in Figure 6.

Table 4. Waters Not Attaining Standards in the Lake Jackson Sub-basin

Waterbody	WBID*	Parameters Not Attaining Standards
Lake Jackson	582B	Dissolved oxygen (percent saturation)
Butler Mill Creek	582F	*Escherichia coli*
Meginnis Arm Run	809B	Dissolved oxygen
Lexington Creek	758	Total phosphorus *Escherichia coli*
Lake Overstreet Drain	689	*Escherichia coli*
Summer Creek	582F	Dissolved oxygen (percent saturation)

***** Waterbody Identification Number
Source:
DEP, Division of Environmental Assessment and Restoration – Impaired Waters, TMDLs, and Basin Management Action Plans Interactive Map
https://floridadep.gov/dear/water-quality-restoration/content/impaired-waters-tmdls-and-basin-management-action-plans

In a 2006 Total Maximum Daily Load (TMDL) assessment using data published in 2000, the U.S. EPA established a 35 percent target for reduction of total phosphorus concentrations in the Harbinwood Estates Drain (Jackson Heights Creek) (U.S. Environmental Protection Agency 2006). Recent data from Leon County for Jackson Heights Creek meets NNC standards (Leon County 2025).

Florida's Algal Bloom Sampling Status dashboard indicates a cluster of harmful algal blooms reported in 2025 within Lake Jackson. These were in the southern portion of the lake in the vicinity of the mouth of Fords Arm.

The Lake Jackson sub-basin includes approximately 4,943 known and likely OSTDS, which may be a source of nutrients and bacteria affecting Lake Jackson. The distribution of known septic systems is illustrated by Figure 6.

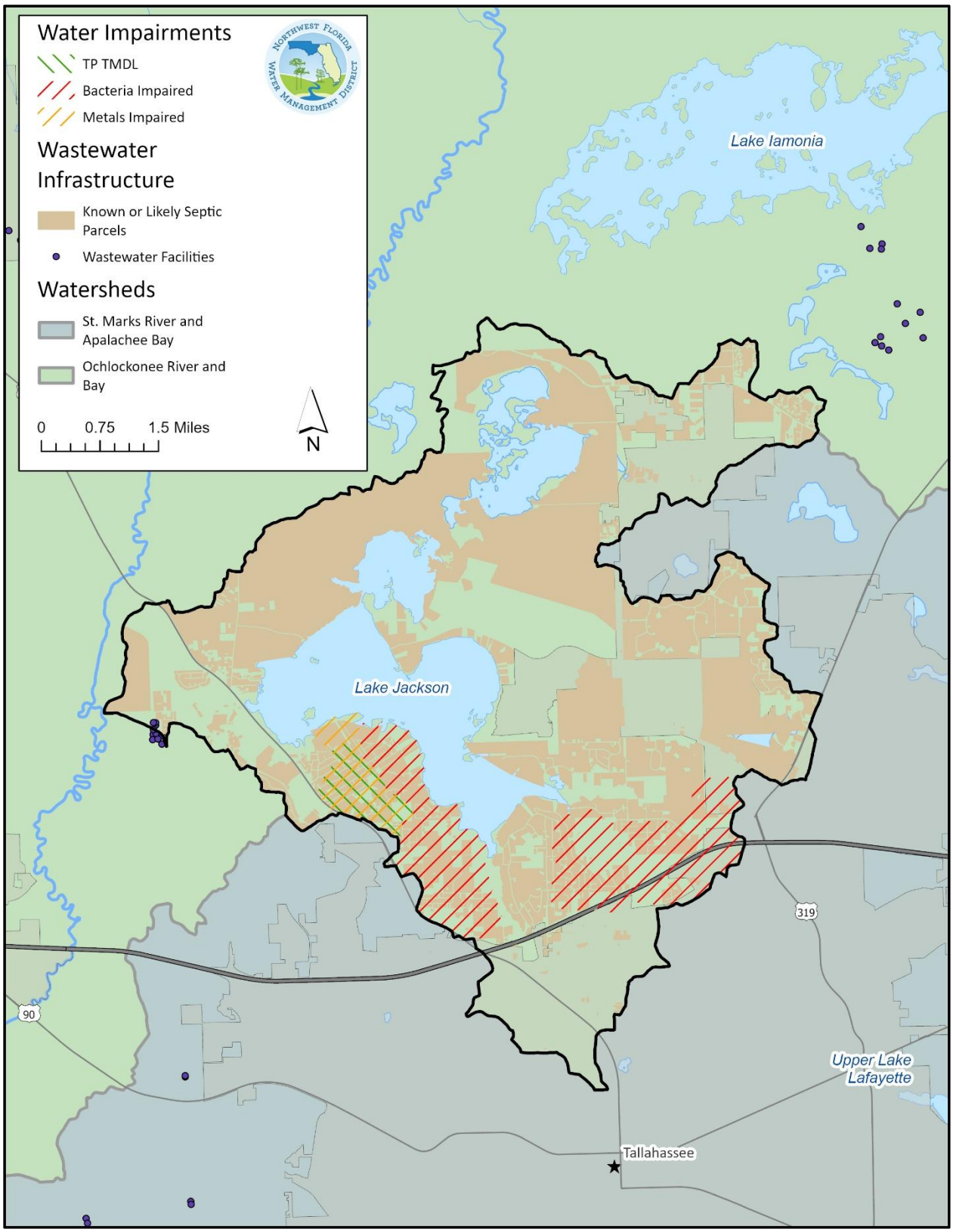

Figure 6. Water Quality Issues in the Lake Jackson Sub-basin

3.3 Invasive Species

Lake Jackson historically has had persistent problems with abundant hydrilla (*Hydrilla verticillata*), which displaced native plant communities and impeded public access. Hydrilla populations were substantially eradicated following a natural drydown in 1999 and are controlled through the stocking of triploid grass carp (*Ctenopharyngodon* spp.) and herbicidal treatments as needed (DEP 2019). The primary invasive plants currently of issue within the lake and its watershed are Cuban bulrush (*Oxycarum cubense*), water hyacinth (*Eichornia crassipes*), Chinese tallow (*Triadica sebifera*), hydrilla, and alligatorweed (*Alternanthera philoxeroides*). The FWC Aquatic Plant Management Program maintains an active program to manage exotic and invasive plants within the lake.

3.4 Water Supply

Challenges potentially faced by water utilities in the Lake Jackson watershed include:

- Infrastructure retrofit and maintenance – As water distribution and transmission lines age, they are subject to leakage and infiltration, necessitating repair or replacement. Population growth and new development may also require increased pipe diameters or water line extensions. Associated improvements may include booster pumps, modernized metering and data systems, and looping and sectionalization of water distribution systems.
- Changes in Regulated Contaminants – Water utilities must track and plan for potential changes in drinking water regulations. An area of ongoing concern for most utilities is changes in regulations regarding per- and polyfluoroalkyl substances (PFAS). PFAS is a category of human-made chemicals that have been widely used in a variety of products and industries, such as firefighting foams, protective coatings, and surfactant applications among many other uses and products (National Groundwater Association 2024). In 2019, the city of Tallahassee sampled its 27 production wells for several PFAS compounds (Water Quality Report | City of Tallahassee Utilities). Although levels measured were below limits, some results exceeded EPA's interim health advisory levels. The city continues to address this issue through monitoring, researching treatment options, and collaborating with other communities, agencies, and industry groups.
- Source water protection – Because the Floridan aquifer system is semi-confined throughout most of Leon County including the Lake Jackson sub-basin, the aquifer is vulnerable to impacts from land surface activities (Baker *et. al*. 2007).

3.5 Data and Knowledge Gaps

Considerable progress has been made in the efforts to understand, protect, and restore Lake Jackson as a resource for northwest Florida. To facilitate further progress, it would be useful to evaluate pollutant loading to the lake and other waterbodies attributable to OSTDS. Additionally, further assessments of lake habitats, trends, and management approaches would be useful given changing ecological and public access conditions related to water levels.

3.6 Risks and Vulnerabilities

Lake Jackson is susceptible to eutrophication and harmful algal blooms, risks of which are exacerbated by the effects of NPS pollution and wastewater. Reducing dependence on conventional septic systems within the contributing watershed area, completing additional stormwater treatment and management improvements, and continuing to address wastewater infrastructure needs would advance sustainability of the lake's ecosystem and public benefits, particularly as populations continue to grow within Leon County.

IV. Management Strategies and Projects

Table 5 summarizes management strategies recommended to address the water resource challenges described above. Each approach identified addresses multiple issue areas and objectives, reflecting the interrelated nature of water resource attributes and conditions and the fact that most projects can be designed to achieve multiple complementary outcomes.

Table 5. Recommended Management Strategies for the Lake Jackson Sub-basin

Management Strategy	Issue Areas Addressed	Objectives	Description
Stormwater Retrofits	Water quality Aquatic and wetland habitats Flood protection	Improved lake and stream water quality Improved flood protection and resilience Sustained aquatic and wetland ecosystems	Retrofit stormwater systems to incorporate BMPs to improve flood protection and downstream water quality. Identify specific BMPs effective for treating bacteria, suspended solids, and nutrients.
Sanitary Sewer System Improvements	Water quality Aquatic and wetland habitats	Improved water quality Sustained aquatic and wetland ecosystems	Design, permitting, and construction of retrofits to existing sanitary sewer systems to reduce inflow and infiltration of stormwater.
Septic Tank Abatement	Water quality Aquatic and wetland habitats	Improved water quality Sustained aquatic and wetland ecosystems	Sewer extensions with connections and abandonments of existing septic systems. Cost reimbursement for upgrades of existing septic systems to modern, nutrient reducing systems.
Green Infrastructure	Water quality Aquatic and wetland habitats Flood protection	Improved lake and stream water quality Improved flood protection and resilience Sustained aquatic and wetland ecosystems Enhanced public access	Apply “nature-based,” green infrastructure methods for multipurpose projects. Projects frequently involve integrating stormwater BMPs, buffer zones, greenways, and living shorelines into public parks and transportation systems.
Reuse of Reclaimed Water	Water quality Water supply sustainability	Improved lake and stream water quality Sustainability of water resources	Construct reclaimed water treatment, storage, transmission, and distribution systems to reduce potable water demand and to reduce wastewater discharges.
Ecosystem(s) Restoration	Aquatic and Wetland Habitats	Sustained aquatic and wetland ecosystems	Littoral habitat restoration Wetland restoration

Proposed projects to address water resource issues within the Lake Jackson Sub-basin are listed in Table 6. These projects include stormwater, septic tank abatement, and restoration activities. Projects listed, details, and cost estimates will be updated in cooperation with local governments and other cooperators within the planning area.

Table 6. Proposed Projects in the Lake Jackson Sub-basin

Project Name	Project Lead and Partners	Water Resource Benefits	Description	Estimated Total Cost	Funding Need
Lexington Creek Ecosystem Restoration	Leon County	Water quality improvement Stream and riparian habitat improvement Sedimentation reduction	The project will provide ecological enhancement and nutrient management through nature-based improvements in Lexington Creek, just upstream of Ford's Arm. Channel enhancements from Meridian Road downstream to Timberlane Road will increase aeration, stabilize the streambed, and strengthen the riparian buffer—reducing sedimentation and erosion while optimizing flow velocities. These measures address Lexington Creek's ongoing sedimentation issues and poor habitat conditions, as well as decrease nutrient loading, reduce algal blooms, and enhance overall ecological health.	$2,000,000	$2,000,000
Lake Jackson Basin Septic Upgrades	Leon County	Water quality improvement Improved wastewater system reliability	This project will provide financial assistance to residential property owners for upgrading existing conventional septic systems to advanced nitrogen-reducing systems. Participants will work directly with a licensed contractor to complete the upgrades and upon completion, the County will reimburse up to $7,500 per septic system. Eligible properties are located within the Lake Jackson drainage basin and outside an area where sewer service will be available within five years. This program is scalable based on available funding. For reference, for each $1,000,000, to 133 systems could be upgraded.	$1,000,000	$1,000,000

Project Name	Project Lead and Partners	Water Resource Benefits	Description	Estimated Total Cost	Funding Need
Harbinwood Estates Septic-to-Sewer	Leon County City of Tallahassee	Water quality improvement Improved wastewater system reliability	The Harbinwood Estates Septic-to-Sewer project is located in the Harbinwood subdivision on the western side of Lake Jackson and will provide an estimated 1,080 sanitary sewer connections to properties currently served by septic systems. In line with the County's established approach to previous septic-to-sewer initiatives, all associated fees and connection costs will be fully covered by the County for property owners who sign up before or during construction, ensuring no financial burden to property owners. Through Leon County's Water Quality Monitoring Program, water quality samples are collected in Jackson Heights Creek, which runs through the center of Harbinwood Estates. Results show an upward trend in *E. coli* levels, including exceedances of Class III water quality standards. These increases may be attributable to aging septic systems within the neighborhood.	$34,200,000	$34,200,000
Meridian Road Drainage Enhancement	City of Tallahassee	Water quality improvement	Ditch armoring to reduce erosion and sedimentation along North Meridian Road.	$4,400,000	$4,400,000
				$41,600,000	**$41,600,000**

V. Monitoring, Metrics, and Next Steps

Setting clear resource protection and restoration goals with associated metrics and monitoring to evaluate progress are essential for achieving the stated objectives. Metrics will be developed cooperatively with local governments and other cooperators to track completion and quantify the benefits of funded projects and monitor trends in environmental indicators. This sub-basin work plan will be updated periodically using adaptive management principles to ensure continued effectiveness.

Examples of metrics for the Lake Jackson sub-basin may include:

- Sub-basin-level:
  - Water quality data and trends
  - Aquatic habitat area and trends
- Project level:
  - Project status (percent complete)
  - Quantifiable project benefits achieved (e.g., lbs. of nutrient reduction)
  - Project targets/objectives met
- Funding and expenditures:
  - Percent of current budget allocated
  - Percent of budget remaining
  - Total estimated project funding cost
  - Total estimated remaining project funding needs

Maintaining a publicly accessible website for the program will facilitate effective monitoring of work plan implementation, project status and metrics, funding needs, and water quality and habitat trends. Additionally, the website will enhance public awareness regarding water resources within the Lake Jackson sub-basin. The website will include information regarding:

- Project status
- Funding and expenditures
- Water quality trends

During 2026, the District, local governments, and state and regional agencies will work collaboratively to refine and prioritize critical water resource issues, as well as the strategies and projects to address the identified issues within the Lake Jackson sub-basin. This work plan is anticipated to be finalized by the summer of 2026. As program funding is obtained, the District and project partners will implement the prioritized projects approved by the District's Governing Board.

Work plans will be updated periodically to reflect progress achieved, new information, or additional proposed projects and remaining funding needs. A program website will be created to track project progress, metrics, and expenditures and to share information regarding trends in water quality and aquatic habitat and water supply improvements achieved by program implementation.

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Appendix A. Sub-basin Prioritization Process

Overview of Prioritization Process

The District's 114 HUC-10 sub-basins were analyzed for water quality, water supply, and natural areas criteria using multiple different GIS layers. From this initial analysis, the top-ranked basins from each watershed were selected based on a natural break in scores within each watershed. In total, 34 HUC-10 candidate basins were selected from the seven watersheds. The District then hosted public workshops for each watershed to discuss the candidate sub-basins with the public. Online surveys were also created to expand the opportunity for public input on the sub-basins. The District also reviewed planned projects within the 34 candidate sub-basins based on available information from local governments and utilities. The public feedback from the workshops, online surveys, and project information were then scored and added to each sub-basin's GIS analysis scores to create the final overall scores. The top-ranked candidate sub-basin per watershed was then recommended for the development of a sub-basin workplan. The recommended priority sub-basins were presented to and approved by the District Governing Board on December 10, 2025. Additional details regarding the prioritization process are provided below.

Public Input

During October 2025, the District hosted public workshops for each of the seven watersheds to share information about the program and obtain input regarding the prioritization of sub-basins for work plan development. In addition to the public meetings, the District solicited public input regarding the selection of priority sub-basins within each watershed including water resource areas of concern via online surveys. This public input was a major component in the prioritization process. Scoring was based on survey priority rank responses where basins receiving the highest priority votes for their watershed were awarded the highest points.

Consideration of Proposed Projects

The availability of proposed projects within sub-basins was also considered in the prioritization process. The District requested and reviewed information on current and future projects related to water quality improvement, habitat restoration, and water supply from the public, local governments, and utility companies. Scoring was based on project status where basins including shovel-ready projects received the highest points.

Water Quality Criteria

GIS Layers Assessed: FDEP Statewide Basin Management Action Plan (BMAP) General Areas, FDEP Waters Not Attaining Standards (WNAS), FDEP Alternative Restoration Plans, FDEP Total Maximum Daily Load (TMDL), EPA Established Total Maximum Daily Load (TMDL), NWFWMD Drinking Water Facilities, NWFWD Locally Provided Water Infrastructure, NWFWMD Treatment and Pump Stations, FDEM Storm Surge Zones Tiled, FEMA Flood Special Hazard Area

Analysis Process:

GIS layers depicting the features BMAP area, WNAS, Alternative Restoration Plans, FL TMDL, EPA TMDL, and Storm Surge Zones were overlayed on the District HUC-10 layer and inspected to verify what basins contain each target feature. All basins containing the targeted feature were then awarded points for that parameter.

The FEMA Flood Special Hazard layer was queried to isolate areas susceptible to a 1% chance of annual flooding. The new layer was then spatially isolated to the District HUC-10 basin layer. The sub-basins

were then evaluated for total acreage and percent of the sub-basin represented by floodplain and scored using a four-quartile system.

The NWFWMD Drinking Water Facilities, Locally Provided Water Infrastructure, and Treatment and Pump Stations (critical assets) were spatially isolated to the FEMA Flood Special Hazard layer then spatially joined to the District HUC 10 layer. The count of each identified critical asset in the FEMA Flood Special Hazard Layer was then summed per sub-basin and scored using a using a four-quartile system.
Scores for all water quality fields were then summed to create the sub-basins overall water quality score.

Water Supply Criteria
GIS Layers Assessed: NWFWMD Planning Region 2, NWFWMD Water Resource Caution Areas, NWFWMD Areas of Resource Concern, FGS Potentiometric Surface Map, Census Bureau 2010 and 2020 Census Block Points

Analysis Process:
GIS layers depicting the features NWFWMD Planning Region 2, Water Resource Caution Areas, Areas of Resource Concern, and FGS Potentiometric Surface Map were overlayed on the District HUC-10 layer and inspected to verify what basins contain the target feature. The FGS Potentiometric Surface Map was analyzed by identifying all sub-basins intersecting and located south of the zero-contour line. All basins containing the targeted feature were then awarded points for that parameter.

The 2010 and 2020 Census Block points were both joined to the District HUC-10 layer and exported to excel. The difference in population and the percent change from 2010 to 2020 was then calculated and sorted from largest to smallest. Each sub-basin was then scored individually for both parameters where 1 equals the smallest amount of population or percent of population change. The two scores were then averaged together and re-scored using a 1-to-10-point scale where 1 represents the lowest 10% of the averaged population score. Additionally, an estimated future population change was also conducted by analyzing BEBR data. The 2020 Census Block Points were joined with the District counties layer and exported. All exported points were then sorted by county and summed. The percent of the county population was calculated for each point's unique ID number. The determined percentage was then multiplied by the estimated 2045 BEBR County Population Estimate to give each point its estimated 2045 estimated population. Using the points' unique ID number, each point was matched to its sub-basin using the previous join to the District HUC-10 layer. The populations for each sub-basin were then summed. The future estimated population was then assessed using the same process as the one described above for the other population analyses. The sum of both scores was then averaged.
Scores for all water supply fields were then summed to create the sub-basins overall water supply score.

Natural Areas Criteria
GIS Layers Assessed: NWFWMD 2010 Land Use, NWFWMD 2022 Land Use

Analysis Process:
All 6000 level Florida Land Cover Classification System (FLUCCS) codes were isolated for the 2010 and 2022 layers. Both revised layers were then isolated to the District HUC-10 basins. The natural areas exported were then summed by sub-basin. The total acreage difference and percent acreage change was then calculated for each sub-basin and scored on a 1 to point 10 scale where 1 represents the least amount of natural area change. The two scores for each sub-basin were then added together.

Table A.1 GIS Layers Assessed Reference Table

Layer Name	Year Data Updated	Location
FDEP Statewide Basin Management Action Plan (BMAP) General Areas	2025	Statewide Basin Management Action Plan (BMAP) General Areas | Florida Department of Environmental Protection Geospatial Open Data
FDEP Waters Not Attaining Standards (WNAS)	2025	Waters Not Attaining Standards (WNAS) | Florida Department of Environmental Protection Geospatial Open Data
FDEP Alternative Restoration Plans	2025	Alternative Restoration Plans | Florida Department of Environmental Protection Geospatial Open Data
FDEP Total Maximum Daily Load (TMDL)	2025	Florida Total Maximum Daily Load (TMDL) | Florida Department of Environmental Protection Geospatial Open Data
EPA Established Total Maximum Daily Load (TMDL)	2025	EPA Established Total Maximum Daily Loads (TMDLs) | Florida Department of Environmental Protection Geospatial Open Data
NWFWMD Drinking Water Facilities (Isolated from parent data set by District)	2024	Critical Infrastructure | Florida Department of Environmental Protection Geospatial Open Data
NWFWD Locally Provided Water Infrastructure (Isolated from parent data set by District))	2024	Critical Infrastructure | Florida Department of Environmental Protection Geospatial Open Data
NWFWMD Treatment and Pump Stations (Isolated from parent data set by District)	2024	Critical Infrastructure | Florida Department of Environmental Protection Geospatial Open Data
FDEM Storm Surge Zones Tiled	2022	Storm Surge Zones | Florida State Emergency Response Team
FEMA Flood Special Hazard Area	2024	FEMA Flood Zones | Florida Department of Environmental Protection - MapDirect
NWFWMD Planning Regions	2023	Water Supply Planning Regions | NWFWMD - Open Data
NWFWMD Water Resource Caution Areas	2023	Water Resource Caution Area | NWFWMD - Open Data

NWFWMD Areas of Resource Concern	2023	Resource Concern Area | NWFWMD - Open Data
FGS Potentiometric Surface Map (Isolated from parent data set by District)	2025	Upper Floridan Aquifer Potentiometric Surface | Florida Department of Environmental Protection Geospatial Open Data
US Census Bureau 2010 Block Points	2025	USA Census BlockGroup Points - Overview
US Census Bureau 2022 Block Points	2025	USA Census Block Points - Overview
NWFWMD 2010 Land Use	2024	District Land Use 2010 | NWFWMD - Open Data
NWFWMD 2022 Land Use	2024	NWFWMD 2022 Land Use | Florida Department of Environmental Protection Geospatial Open Data