2050 Metropolitan Transportation Plan

Technical Report | Environmental Stewardship

December 17, 2025

FINAL

What Is In This Document?

This technical report presents the 2050 MTP environmental stewardship framework. It summarizes existing environmental conditions and data sources, outlines the agency and stakeholder coordination process, defines the screening methods used to assess potential project effects, and describes mitigation strategies for wetlands, emissions, and broader stewardship practices. The technical report concludes with implementation notes for carrying these practices into project development and programming.

Legal Information

The preparation of this report has been financed in part through grants from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

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1 Introduction

As an initial step in the long-range planning process, MetroPlan Orlando established five long-term goals in the 2050 Metropolitan Transportation Plan (MTP) – **Safety, Reliability, Connectivity, Community, and Prosperity** – that together advance the vision for a regional transportation system that safely and reliably moves people and goods through a variety of options that support the region's connectivity, vitality, and economy. The MTP goal of Community is established to enhance the health and vitality of our region's communities and environments**.** In support of the Community goal, MetroPlan Orlando identified the following objectives:

- Provide transportation solutions that contribute to improved public health, including reducing adverse health impacts associated with physical inactivity
- Reduce air quality pollutants and emissions per capita from transportation sources
- Provide transportation solutions that enhance the natural and built environments

Through this goal, environmental stewardship has been incorporated throughout the 2050 MTP, including early review of potential projects for environmental factors, project descriptions and future implementation strategies, and project cost estimations for the cost feasible plan. The 2050 MTP was developed by integrating technical data with public input to create a vision that addresses transportation needs and priorities, with particular focus on safety, health, environment, and the economic well-being of Central Florida. To support the Community goal, MetroPlan Orlando will review potential projects at an early stage for relevant environmental factors.

Central Florida's remarkable and unique natural environment plays a crucial role in fostering economic growth and improving the lifestyles of residents of the MetroPlan Orlando region. The region's abundant natural resources, coupled with its picturesque landscape and dynamic communities, provide a significant competitive edge in the global market. By focusing on maintaining a healthy balance between economic development and environmental stewardship, Central Florida can continue to leverage its natural assets to drive progress while pursuing long-term sustainability and prosperity. Here are some key points highlighting the importance and impact of maintaining this advantage:

- **Economic Benefits:** The natural environment attracts tourists, which boosts local businesses and the hospitality industry. It also supports agriculture, fishing, and other resource-based industries, contributing significantly to the regional economy.
- **Public Health:** Access to natural spaces promotes active lifestyles, reduces stress, and improves overall physical and mental health for residents. Clean air and water are fundamental to maintaining community health standards.
- **Community Well-being:** Active and lively centers foster a sense of community, offering residents various activities and amenities that enhance their quality of life. Well-planned urban areas with green spaces, recreational facilities, and efficient infrastructure contribute to overall community satisfaction.
- **Sustainable Practices:** Encouraging clean industries and managed growth promotes economic development that does not come at the expense of the environment. Sustainable practices help in preserving natural resources for future generations.
- **Environmental Stewardship:** Protecting and preserving the natural environment aligns with broader goals of environmental sustainability and resilience. It encourages responsible use of resources and helps mitigate the impacts of environmental hazards.

2 Existing Conditions

Documenting existing conditions across the MetroPlan Orlando region provided the foundation for the 2050 MTP's Envirionmental Stewardship evaluations, integrating technical data and public input to shape a transportation vision centered on safety, health, environmental stewardship, and economic vitality. MetroPlan Orlando's planning area covered roughly 1.8 million acres in Orange, Osceola, and Seminole Counties. This area includes:

- The City of Orlando and its densely populated urban core
- Adjacent communities such as Apopka, Winter Park, Sanford, Lake Mary, Maitland, Kissimmee, and St. Cloud
- Suburban and smaller municipalities extending from the city primarily along key transportation routes like I-4, Florida's Turnpike (SR 91), US 441, US 192, and various state roads (SR 50, SR 429, SR 417, SR 528, and SR 60)

A review of publicly available GIS layers yielded sixty datasets, organized into ten environmental themes.

- Natural Settings and Features
- Land Uses
- Conservation Lands
- Wetlands
- Floodplains
- Soils
- Special Designation Areas
- Protected Species and Habitats
- Groundwater and Aquifer Recharge Areas
- Contamination

Those datasets provided the factual baseline for project screening and are fully documented under separate cover. Air-quality conditions, summarized in the University of Central Florida (UCF) Ozone Contingency Study, were incorporated as a parallel data stream. This organized and systematic approach provided the 2050 MTP with grounded, accurate, and comprehensive data, thereby supporting informed decision-making that aims to balance transportation infrastructure development with the region's environmental protection and sustainability goals.

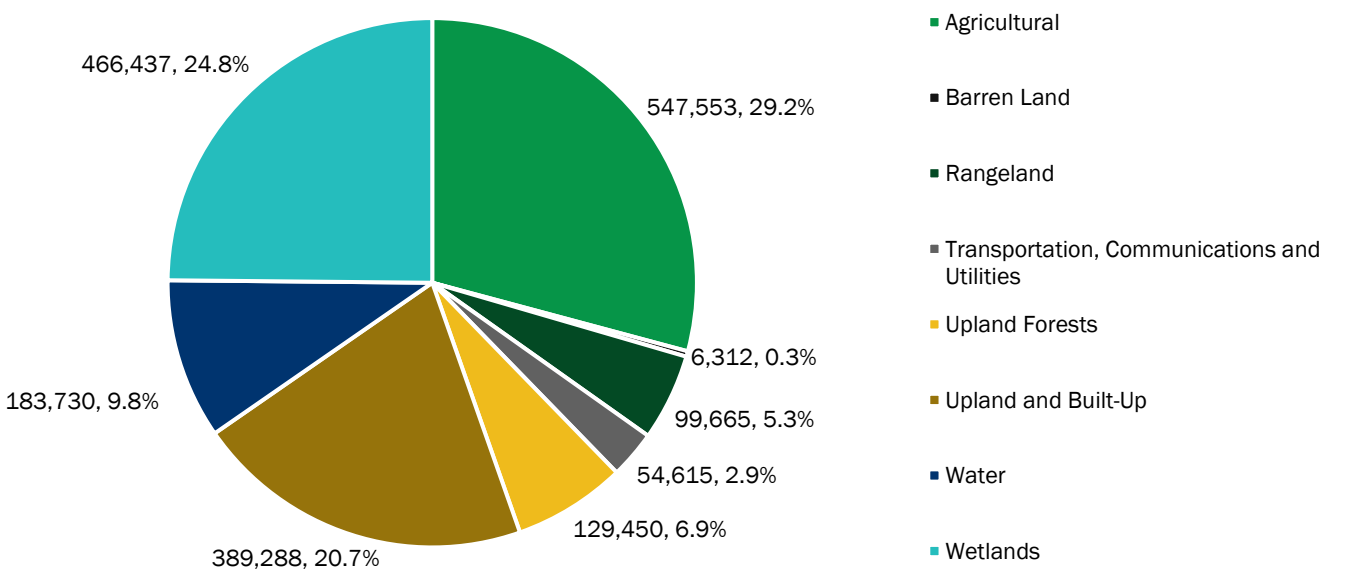
2.1 NATURAL SETTINGS AND FEATURES

The MetroPlan Orlando region lays on a gently tilted platform descending eastward from the Lake Wales and Central Highlands ridges toward the St. Johns and Kissimmee River valleys. Four physiographic provinces—the Osceola Plain, Eastern Valley, Orlando Ridge, and Mount Dora Ridge—shape local topography, soils, and native communities. Elevations range from barely 25 feet above sea level on the Osceola Plain to roughly 175 feet on the ridges, producing a mosaic of pine flatwoods, cypress domes, sandhill scrub, marshes, and prairies. Major waters include the St. Johns and Kissimmee Rivers, Lake Apopka (headwaters of the Ocklawaha River), and the Butler and Kissimmee chains of lakes.

2.2 LAND USES

The Florida Land Use, Cover, and Forms Classification System (FLUCCS) Level I mapping indicated that agriculture occupies 29.2 percent of the land base, wetlands 24.9 percent, urban & built-up areas 20.7 percent, surface water 9.8 percent, upland forest 6.9 percent, rangeland 5.3 percent, and barren or infrastructure land the remainder. Urban land clustered along the I-4 spine and radiate into northwest Orange and western Seminole Counties; large agricultural tracts persist across central and southern Osceola County and the rural fringes of Orange and Seminole. The eight primary classifications that comprise the MetroPlan Orlando planning area are depicted in Figure 2-1.

Figure 2-1 | Land Use/Land Cover Classification Acreage



Sources: SFWMD 2017-2019, SJRWMD, 2014

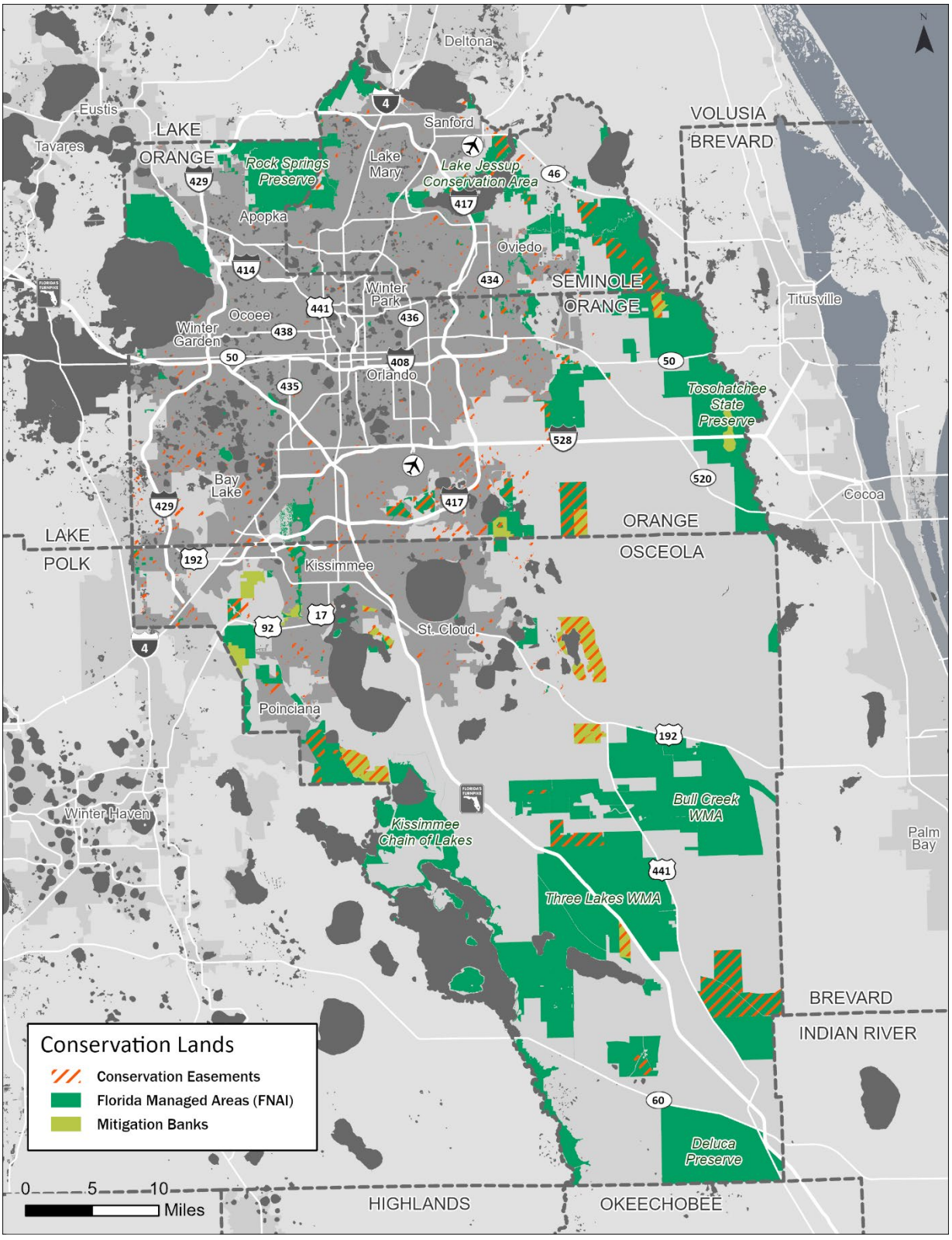
2.3 CONSERVATION LANDS

Roughly 295,000 acres (~16% of the region) are managed for conservation under federal, state, local, or NGO ownership. Signature units include the 28,000-acre Tosohatchee Wildlife Management Area, the 63,000-acre Three Lakes Wildlife Management Area, Rock Springs Run State Reserve, and Lake Jesup Conservation Area. In addition, hundreds of private parcels were encumbered by conservation easements or mitigation-bank covenants, preserving ecological function while remaining in private hands. These holdings, depicted in Figure 2-2, protect headwater wetlands, blackwater streams, longleaf-pine sandhills, and wildlife corridors that thread between South Florida and the Panhandle.

2.4 WETLANDS

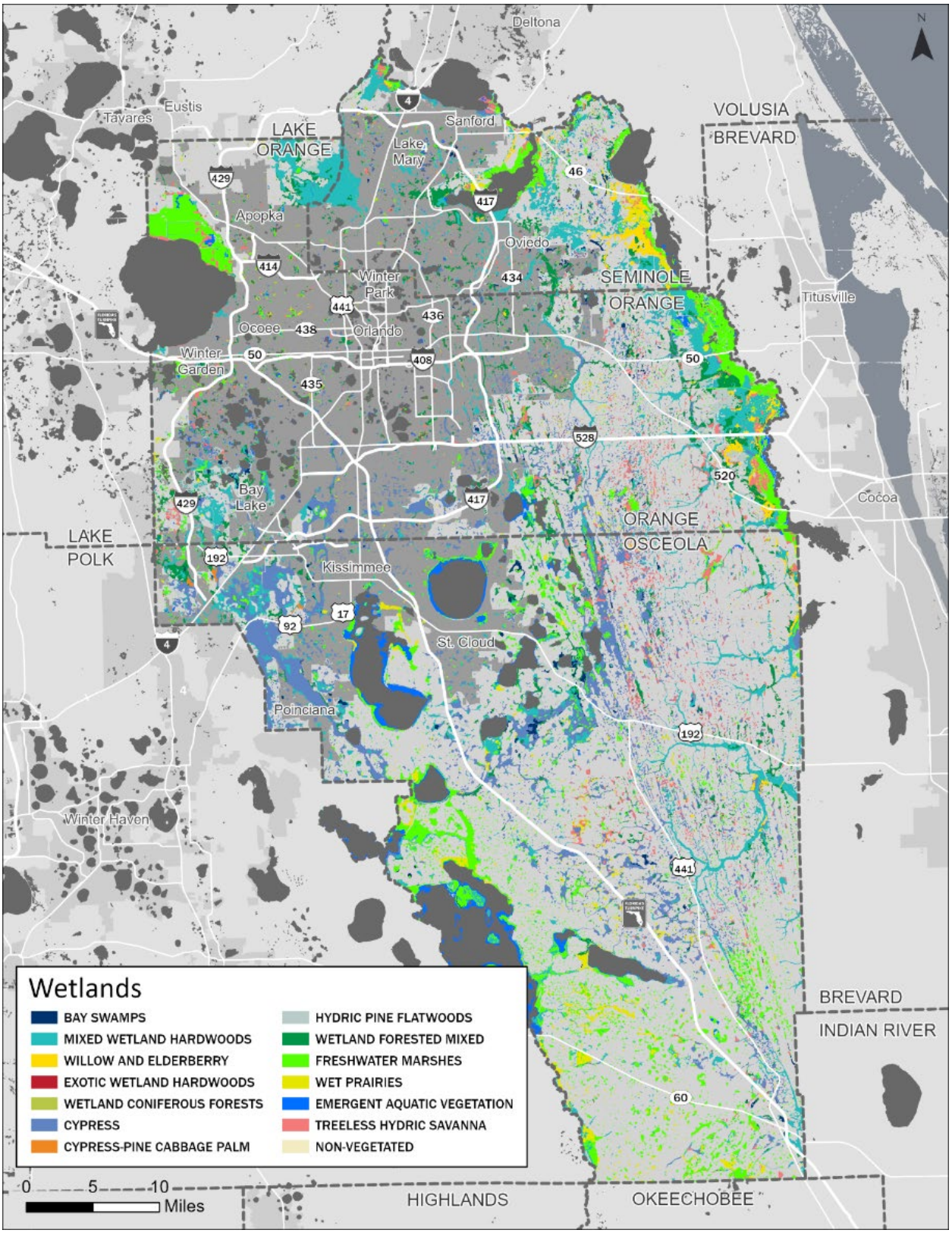
The St. Johns River Water Management District (SJRWMD) and South Florida Water Management District (SFWMD) land-cover layers mapped 466,437 acres of wetlands (~25% of all land) while a United States Fish and Wildlife Service (USFWS) inventory reported a slightly higher figure (~491,000 acres) because of different update schedules between the state and federal agencies. Forested systems make up most of the wetlands: mixed wetland hardwoods and cypress account for more than half the total, followed by wetland-forested mixed, hydric pine flatwoods, freshwater marsh, wet prairie, and treeless hydric savanna. These wetlands, depicted in Figure 2-3, support flood storage, water-quality polishing, aquifer recharge, and critical habitat; consequently, proposed roadway alignments were screened early for avoidance or minimization opportunities.

Figure 2-2 | Conservation Lands within the MetroPlan Orlando Planning Region



Sources: FNAI, 2024; SJRMWD, 2024; SFWMD, 2024; Natural Resources Conservation Service (NRCS), 2024

Figure 2-3 | Wetlands in the MetroPlan Orlando Planning Region



Sources: SFWMD 2017-2019, SJRWMD 2014

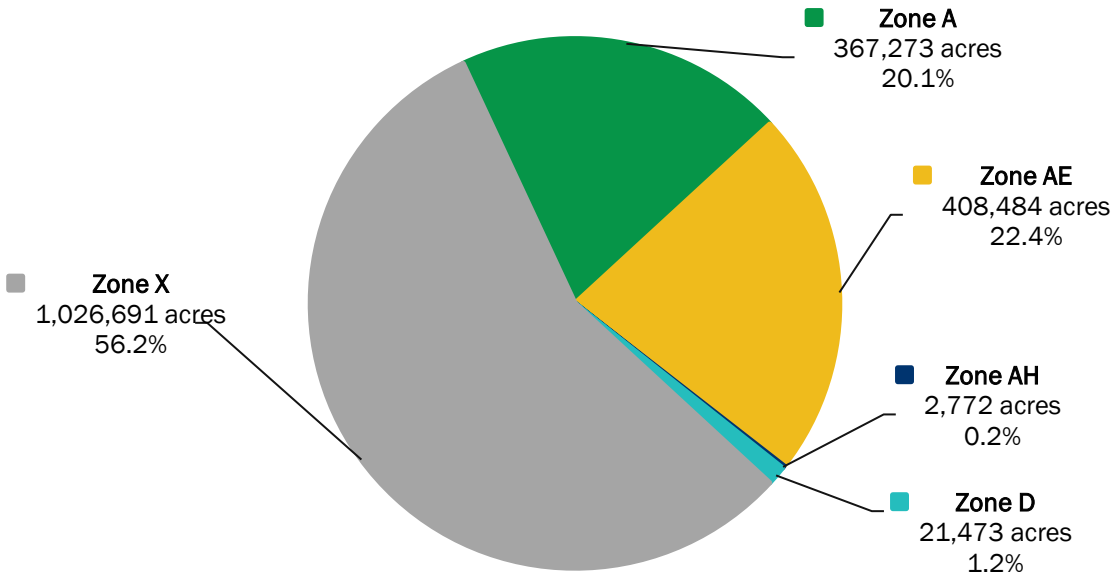
2.5 FLOODPLAINS

Floodplains in Florida are vital because they reduce flood risks, improve water quality, support wildlife habitats, enhance economic and social value by providing stormwater filtration, and are essential for maintaining the overall health and welfare of natural and human systems. Federal Emergency Management Agency (FEMA) floodplain zones can be defined as:

- **Zone A:** Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
- **Zone AE:** The base floodplain where base flood elevations are provided.
- **Zone AH:** Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
- **Zone D:** Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.
- **Zone VE:** Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
- **Zone X:** Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1-square mile.

FEMA Flood Insurance Rate Maps (FIRM) showed that 20 percent of the region falls within high-hazard Zones A, AE, or AH; 26 percent lay in moderate-risk Zone X, and roughly 1 percent are classified Zone D (undetermined). Projects intersecting Zones A or AE triggered more detailed hydraulic modeling and, where appropriate, structure elevation or compensatory storage. See Figure 2-4 for more.

Figure 2-4 | Flood Zones within the MetroPlan Orlando Planning Region



Source: FEMA, 2023

2.6 SOILS

Natural Resource Conservation Services (NRCS) SSURGO identified 188 mapped soil units, most of them well-drained sandy entisols and spodosols typical of marine terraces. Hydric soils cover about 576,600 acres (35 percent), broadly coinciding with mapped wetlands. Nearly 27 percent of soils are designated as prime or unique farmland under the Farmland Protection Policy Act, requiring NRCS coordination before federally funded conversions.

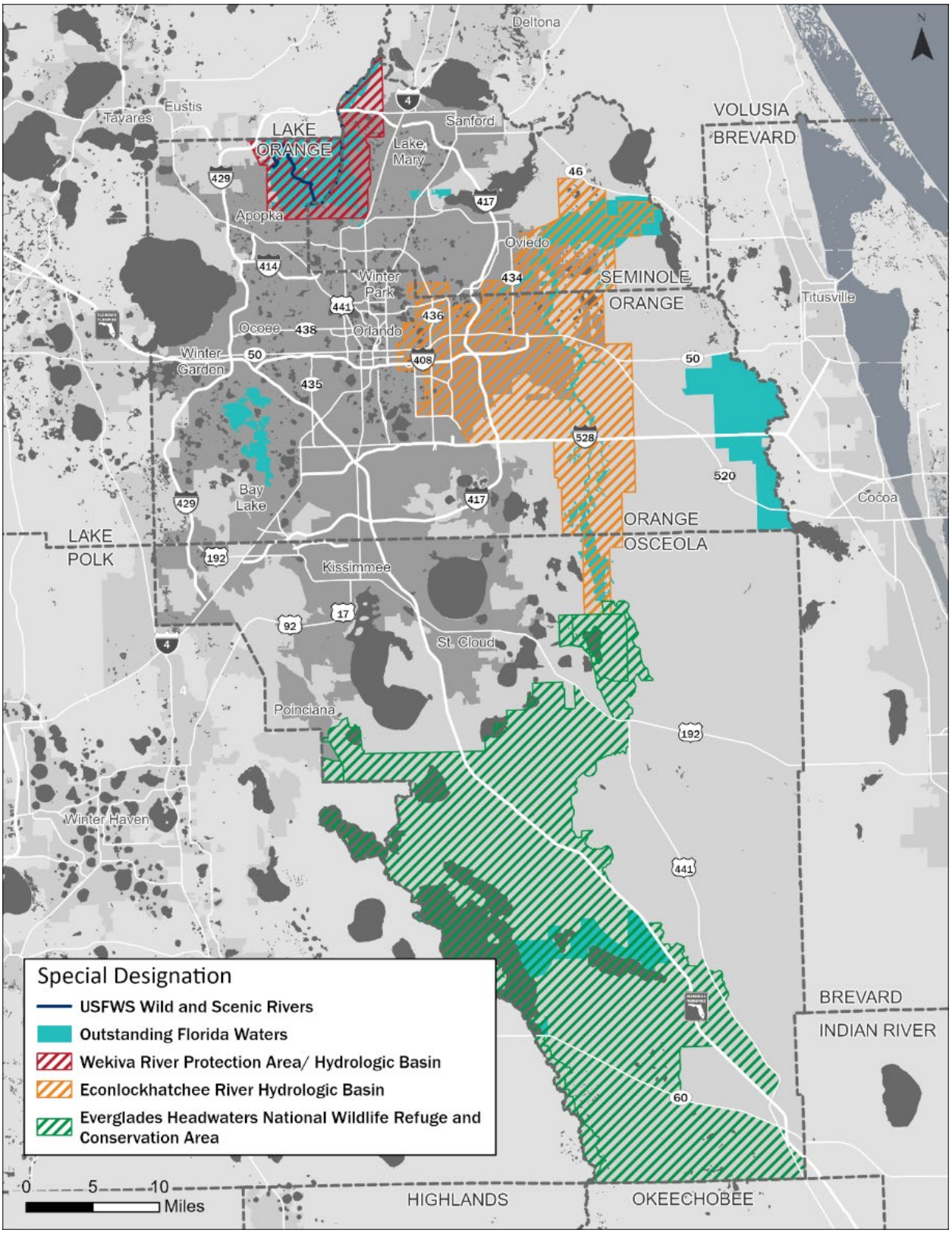
2.7 SPECIAL DESIGNATION AREAS

The Florida Department of Environmental Protection (FDEP) established a special category of waterbodies within the State to be designated as Outstanding Florida Waters (OFWs), which have special protection due to their natural attributes. There are fifteen OFWs within the region including lakes, river segments, and aquatic preserves.

Wild and Scenic Rivers are designated by Congress or through administrative action by the Secretary of the Interior to include a river already protected by a state upon the request of that state's governor. Two rivers in Florida are currently designated as Wild and Scenic Rivers. One of these rivers is the Wekiva River, which is located within the MetroPlan Orlando region. In addition, the Econlockhatchee and Wekiva River Hydrologic Basins have enhanced vegetated areas next to the waterways that act as a transition zone between the aquatic ecosystem and the surrounding land and have additional mitigation obligations. The southern portions of Osceola County overlap the Everglades Headwaters National Wildlife Refuge and Conservation Area. The location of these special designation areas are shown in Figure 2-5.

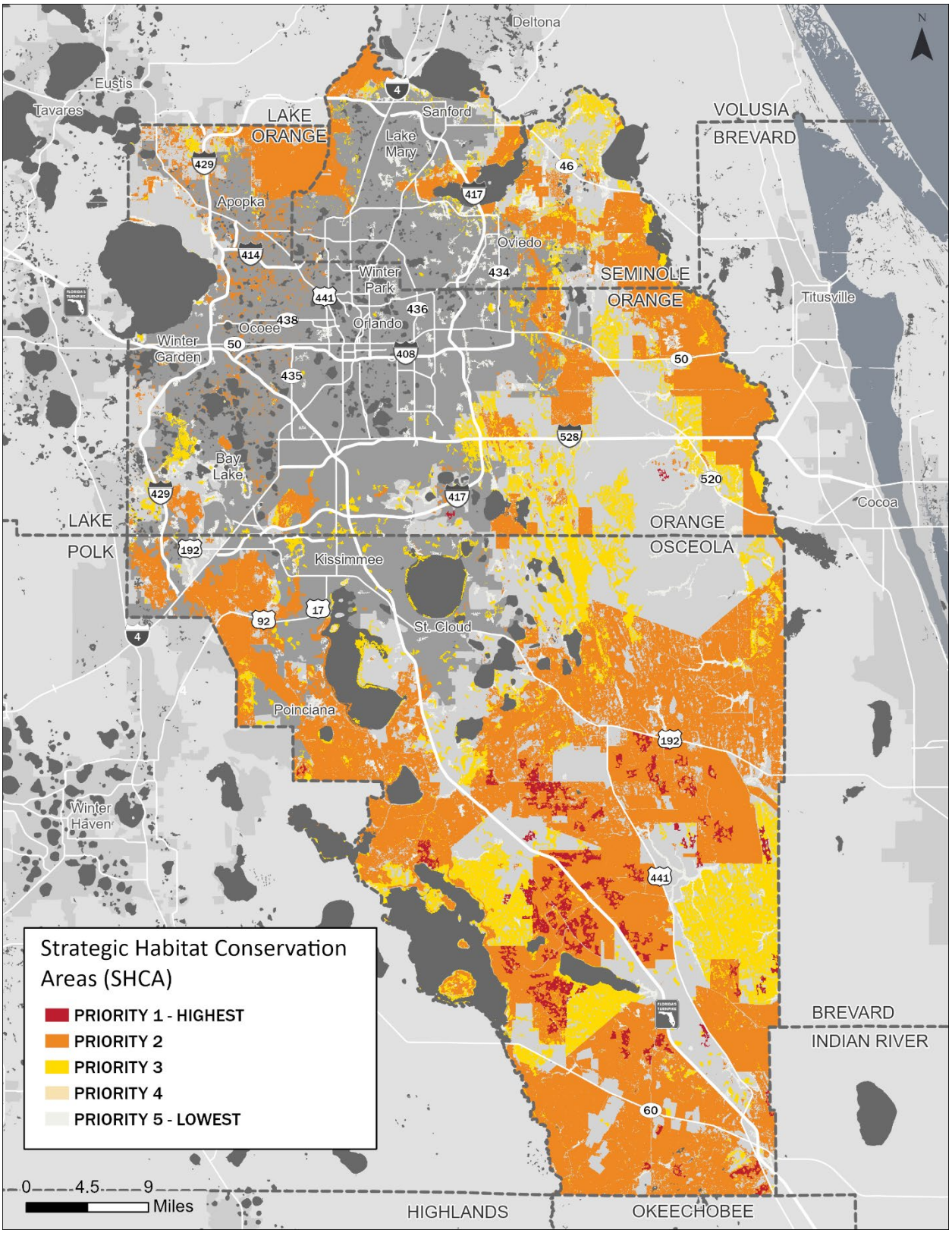
The northern reach of the 17.7-million-acre Florida Wildlife Corridor is located in much of the southern and eastern parts of the region. The Florida Wildlife Corridor is vital for conserving Florida's biodiversity and ecosystem services and connecting South Florida's large national parks and preserves, including the Everglades, with the Ocala and Osceola National Forests, and to those in Northern Florida and Georgia. In addition, one of the region's notable geographical features is the Lake Wales Ridge, which gives way to the Kissimmee and St. Johns River Valleys, providing a rich variety of ecosystems. Southern Osceola County also overlaps the Everglades Headwaters National Wildlife Refuge and Conservation Area. Strategic Habitat Conservation Areas, as shown in Figure 2-6, pinpointed unprotected lands which are essential to sixty-two focal species.

Figure 2-5 | Special Designation Areas in the MetroPlan Orlando Planning Region



Sources: USFWS, 2024; USGS, 2024; SJRWMD, 2024; FDEP, 2024

Figure 2-6 | Strategic Habitat Conservation Areas in the MetroPlan Orlando Planning Region



Source: FNAI, 2016

2.8 PROTECTED SPECIES AND HABITATS

The MetroPlan Orlando region provides habitat for several state and federally protected species, as well as critical habitats and consultation areas. Within the region, there are several federally listed species, including six mammals, eight birds, eight reptiles, two insects, twenty-five flowering plants, and one lichen. There are also designated U.S. Fish and Wildlife Services (USFWS) consultation areas for seven species and critical habitats for two others. The gopher tortoise, sandhill crane, and the black bear are a few of the 147 imperiled species listed on *Florida's Endangered and Threatened Species List* which includes fish, amphibians, reptiles, birds, mammals, and invertebrates. Additionally, 576 plant species are listed on the *Endangered, Threatened and Commercially Exploited Plants of Florida* list.

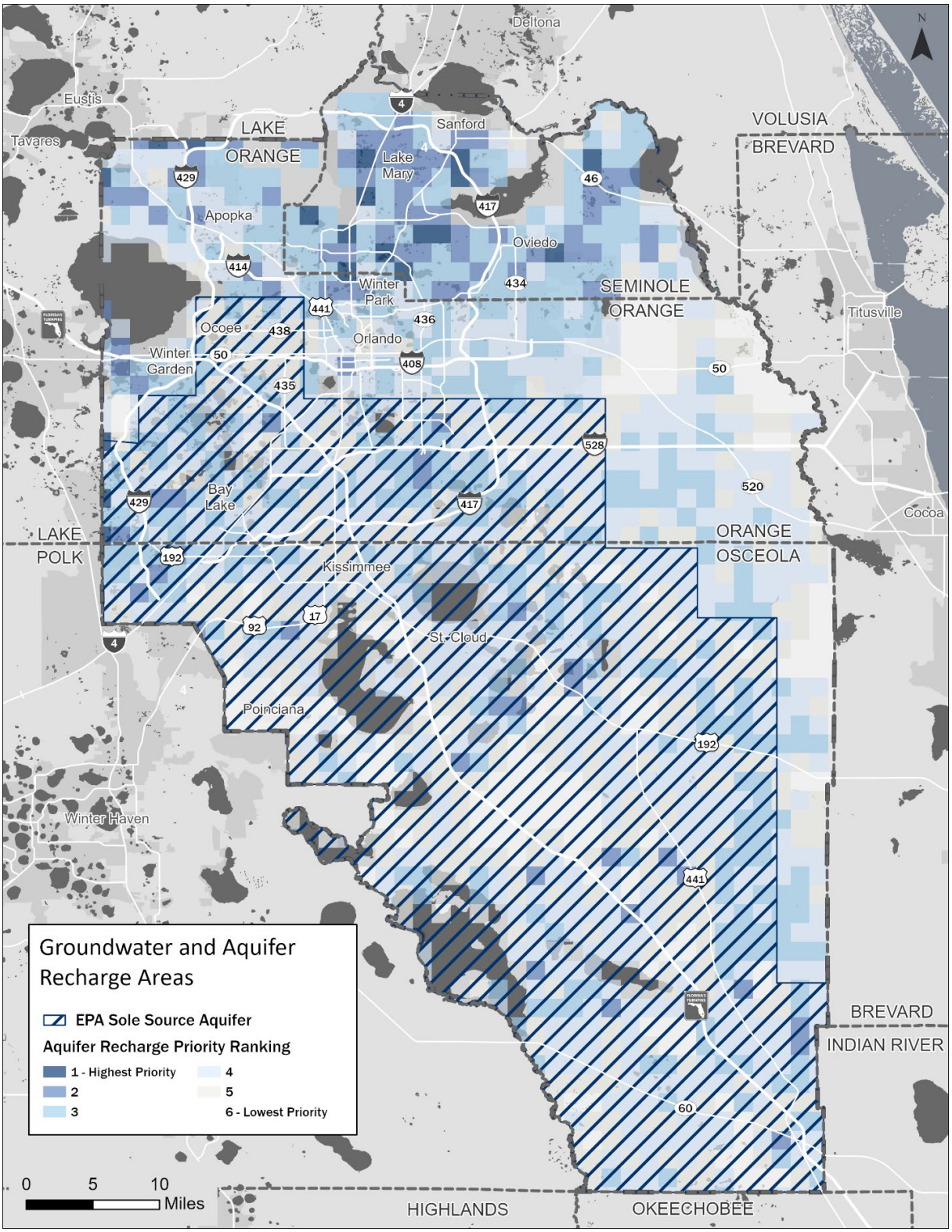
2.9 GROUNDWATER AND AQUIFER RECHARGE AREAS

High recharge zones, depicted in Figure 2-7, are located within and around the Orlando, Lake Wales, and Mount Dora Ridges and feed the Floridan Aquifer, which serves as the region's principal potable-water source. Aquifers are underground layers of water-bearing rock, sand, or gravel that store and transmit groundwater. Recharge zones are the surface areas where rainfall or surface water infiltrates the ground to replenish an aquifer. Protecting these zones is critical, as contamination or excessive conversion to impervious surfaces can reduce water quality and limit the aquifer's ability to supply clean drinking water. Most of Osceola County and southern Orange County lay within the U.S. Environmental Protection Agency (EPA)-designated Biscayne Sole Source Aquifer. A sole source aquifer is an underground water source that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas have no alternative drinking water sources that could physically, legally, and economically supply all those who depend upon the aquifer for drinking water.

2.10 CONTAMINATION

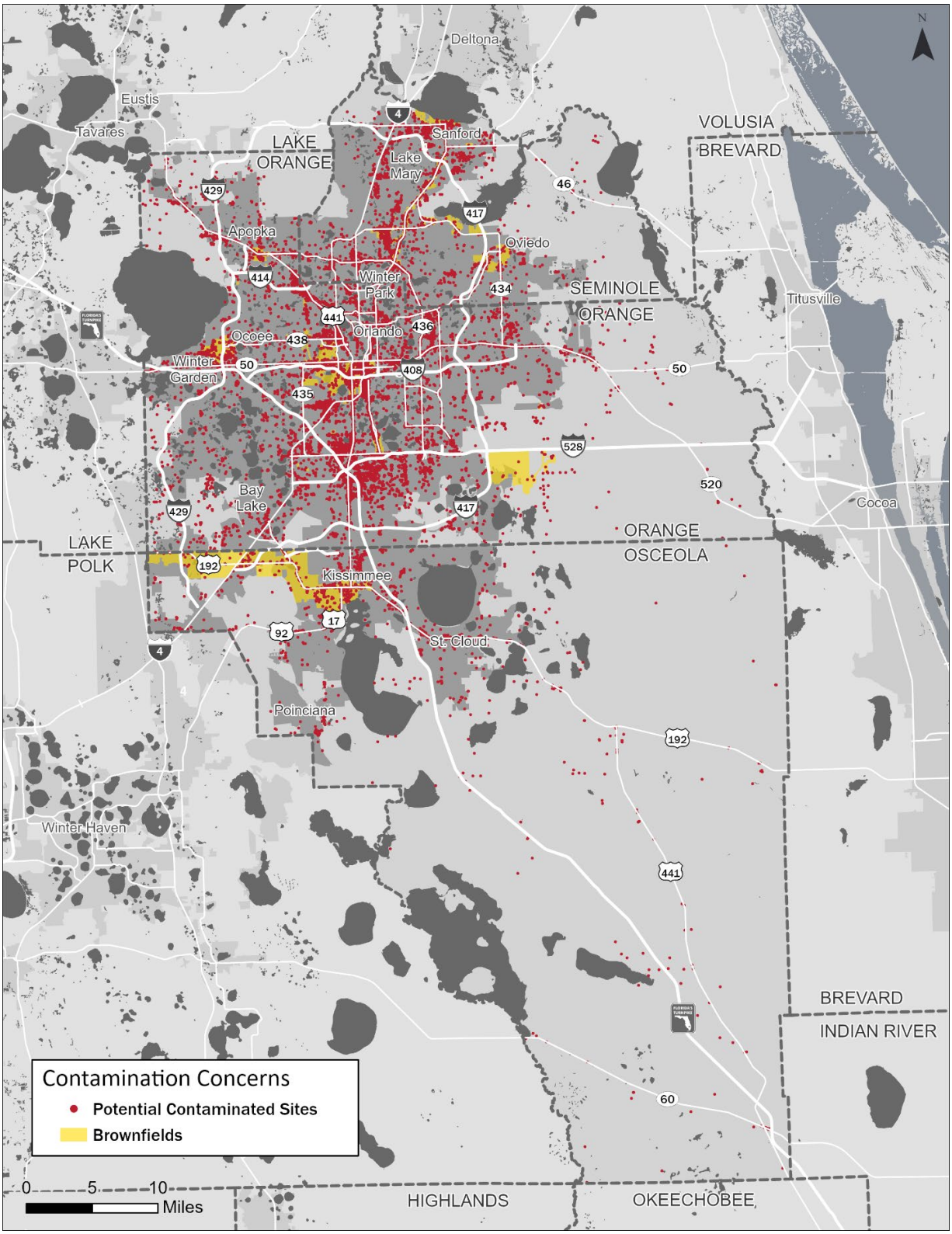
Florida Department of Environmental Protection (FDEP) and United State Environmental Protected Agency (EPA) databases documented numerous regulated facilities—underground-storage-tank sites, Resource Conservation and Recovery Act (RCRA) generators, superfund sites, and solvent-cleanup locations—clustered around urban centers, industrial corridors, military installations, airports, and major arterials. These locations are depicted in Figure 2-8.

Figure 2-7 | Sole Source Aquifer and Recharge Areas in the MetroPlan Planning Region



Sources: FNAI, 2021; EPA, 2019

Figure 2-8 | Potential Contamination Concerns in the MetroPlan Orlando Planning Region



Sources: FDEP, 2024; EPA, 2024

2.11 AIR QUALITY

Our transportation decisions significantly impact the air we breathe. As our region continues to grow, understanding the key sources of air pollution will continue to be essential to maintain and improve our air quality and promote a healthy environment. Air pollution refers to harmful substances released into the atmosphere, affecting human health and the environment.

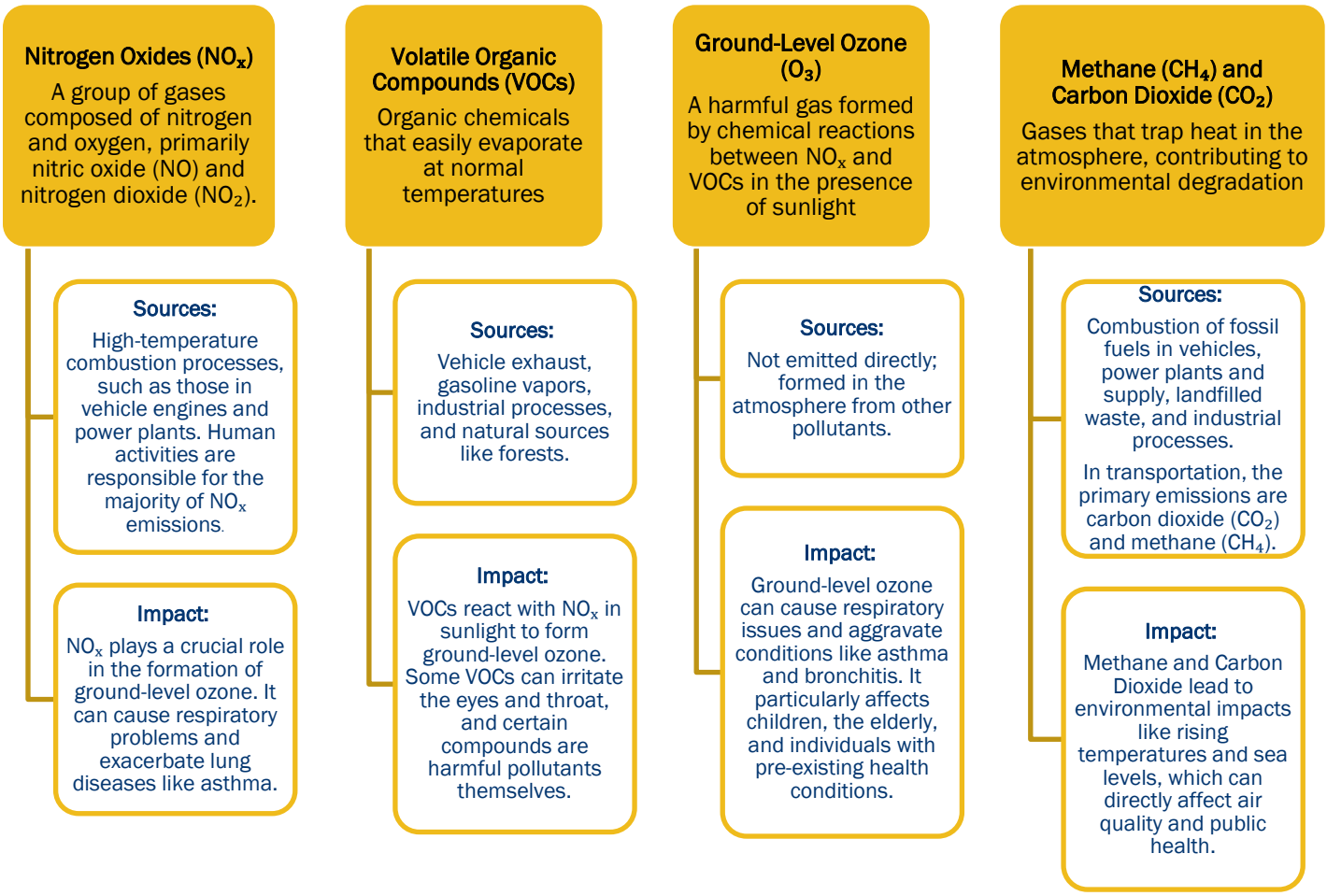
To understand the key sources of air pollution, identify where and when the worst air pollution is happening, and investigate strategies to reduce emissions, MetroPlan Orlando partnered with the University of Central Florida (UCF) to prepare an Ozone Contingency Study. This Ozone Contingency Study was guided by the three primary goals referenced in Figure 2-9.

Figure 2-9 | Ozone Contingency Study Goals

2.12 KEY SOURCES OF AIR POLLUTANTS

The study determined that in Central Florida, emissions from vehicles — including cars, trucks, and boats — are major contributors to air pollution, posing potential health risks to residents and visitors. Key pollutants and their sources are also depicted in Figure 2-10.

Figure 2-10 | Key Air Pollutants and their Sources



2.13 WHERE AND WHEN AIR POLLUTION OCCURS

The analysis revealed volatile organic compound emissions were widely distributed across the region, with the highest levels in areas with dense vegetation like rural areas and preservation lands. Orange County had the highest nitrogen oxide emissions due to its extensive road network and large metropolitan area, while Osceola County led in volatile organic compound emissions because of its large, vegetated areas. Nitrogen oxide emissions concentrated along major roadways, particularly:

- I-4
- US 17
- Florida's Turnpike (SR 91)
- SR 417
- SR 434
- SR 436
- SR 50
- US 92

The results from the emission modeling also showed that nitrogen oxide and volatile organic compound emissions peaked during rush hours. Overall emissions decreased across the study area from 2011 to 2017 during peak times and non-peak times. However, the region will begin to near non-attainment thresholds for ozone and rising emissions from vehicles, and approaching these thresholds underlines the significance of proactive planning.

3 Environmental Coordination Process

MetroPlan Orlando pursued a comprehensive coordination process throughout the development of the MTP that involved seeking input from a wide range of stakeholders, including federal and state agencies, and non-governmental organizations (NGOs). The goal of the coordination process was to identify and address key regional environmental issues through the development of avoidance or mitigation strategies. Three coordination meetings were held focusing on wetlands, protected species, and wildlife. Below are the meetings that were conducted with the agencies and NGOs:

3.1 WETLANDS AND REGULATORY COORDINATION MEETING – AUGUST 30, 2024

- U.S. Army Corps of Engineers (USACE)
- Natural Resources Conservation Service (NRCS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Federal Highway Administration (FHWA)
- St Johns River Water Management District
- South Florida Water Management District

Agencies reported scarce mitigation credits in several basins and advised early planning to secure them. They reiterated a mitigation hierarchy that favors bank credits over in-lieu-fee or permittee-responsible options, noting out-of-basin purchases can double costs. Ongoing litigation on the state's Section 404 program adds uncertainty, so expanding existing corridors is generally preferred, and forthcoming "critical wetlands" inventories should guide avoidance during corridor selection.

3.2 PROTECTED SPECIES COORDINATION MEETING – AUGUST 29, 2024

- National Marine Fisheries
- U.S. Fish and Wildlife Service
- U.S. Federal Highway Administration
- Florida Department of Transportation
- Florida Fish and Wildlife Conservation Commission

The group confirmed that data sources for species reviews and asked that early coordination route through a single contact point, especially for projects near the Florida Wildlife Corridor. The only species proposed for new federal listing is the tri-colored bat. Discussion stressed adding wildlife crossings where roads bisect conservation lands and prioritizing habitat protection along the Kissimmee Chain of Lakes to stay ahead of growth pressures.

3.3 NON-GOVERNMENTAL ORGANIZATIONS COORDINATION MEETING – AUGUST 29, 2024

- East Central Florida Regional Planning Council
- Florida Audubon Society
- The Nature Conservancy

Participants highlighted four needs for the 2050 MTP: expand high-capacity transit and alternative-fuel options to curb pollution, protect wildlife movement corridors during project development, address rising wetland-mitigation costs and limited credit supply, and leverage the new state stormwater rule plus forthcoming rainfall-modeling data to link nature-based water treatment with flood resilience.

4 Wetlands Assessment & Land Suitability Analysis

To determine appropriate wetland mitigation strategies for the region, it is necessary to understand the extent that wetlands may be impacted by future transportation projects. Preliminary impacts were estimated by overlaying an assumed project footprint, as determined based on the proposed project work type, on the most current, available geographic information systems (GIS) spatial wetland dataset developed by state planning agencies. This assessment was conducted to evaluate proposed projects for wetland impacts and used to estimate the cost of potential wetland mitigation required for these projects.

4.1 WETLANDS ASSESSMENT METHODOLOGY

This assessment used GIS data of the potential project footprints and a buffer area at a set distance based on the type of transportation improvement. Table 4-1 lists the project buffer for the proposed improvements that were used in the High-level Wetland Assessment. The wetland impacts in acres were then estimated from the GIS analysis of the project footprint buffer. The projects were then separated by their locations within the St. Johns River Water Management District (SJRWMD) and South Florida Water Management District (SFWMD) jurisdictional boundaries. Based on the total length of the evaluated projects and the 2024 wetland mitigation costs, an average mitigation cost per mile of project was calculated to apply to transportation projects included in the 2050 MTP.

Table 4-1 | Project Buffer Distance and Proposed Improvement Types

Project Buffer Distance	Proposed Improvement Types
50-foot	Sidewalk, shared-use paths, trails, on street bike facility, trail bridge/tunnel, pedestrian hybrid beacon
100-foot	Context-based design projects, drainage improvements, intersection improvements, 2 to 4 lane widenings, capacity & safety, geometric improvements, urban interchange, transit center, park and ride facility, new 2 and 4 lane roadways
200-foot	2 to 6 lane widenings, 4 to 6 lane widenings
500-foot	6 to 8 lane (interstate) widenings, widenings to 10 lanes, 4 to 8 lane widenings, new commuter rail corridor
No buffer	Resurface& restripe, intersection crossing improvement, access management, signal improvements, communication, ITS, intersection TSMO, roadway lighting, enhanced service area, on-demand zones, extension of rail service, various transit routes, priority bus corridor, bus rapid transit corridors, rectangular rapid flashing beacon

4.2 WETLANDS ASSESSMENT RESULTS

The results of the analysis conducted determined the average wetland mitigation cost is estimated to be $207,325 per mile, based on the over 2,900 projects within the MetroPlan Orlando region. The results of this assessment are summarized in Table 4-2.

Table 4-2 | Summary of Estimate of Wetland Impacts Per Mile by SJRWMD and SFWMD

Water Management District	Miles	Average Wetland Mitigation Cost Per Credit	Estimated of Wetland Impacts (Acres)	Total Estimated Cost of Wetland Mitigation	Cost Per Mile Estimate
SJRWMD	2,520	$157,000	2,009	$315,383,875	$125,130
SFWMD	1,490	$177,500	2,908	$516,087,121	$346,366.
Total	**4,010**	***$173,044**	**4,917**	**$831,470,996**	****$207,326**

**Average cost of wetland mitigation for the entire MetroPlan Orlando planning region.*
***Average cost of wetland mitigation per mile for all projects in the MetroPlan Orlando planning region*

4.3 LAND SUITABILITY ANALYSIS

A comprehensive land suitability analysis of the MetroPlan Orlando region was conducted to identify areas most suitable for wetland mitigation purposes. The analysis divided the MetroPlan Orlando region into a grid, and ranked each cell as high (3), moderate (2), or low (1) suitability for wetland mitigation. This analysis was based on several environmental factors:

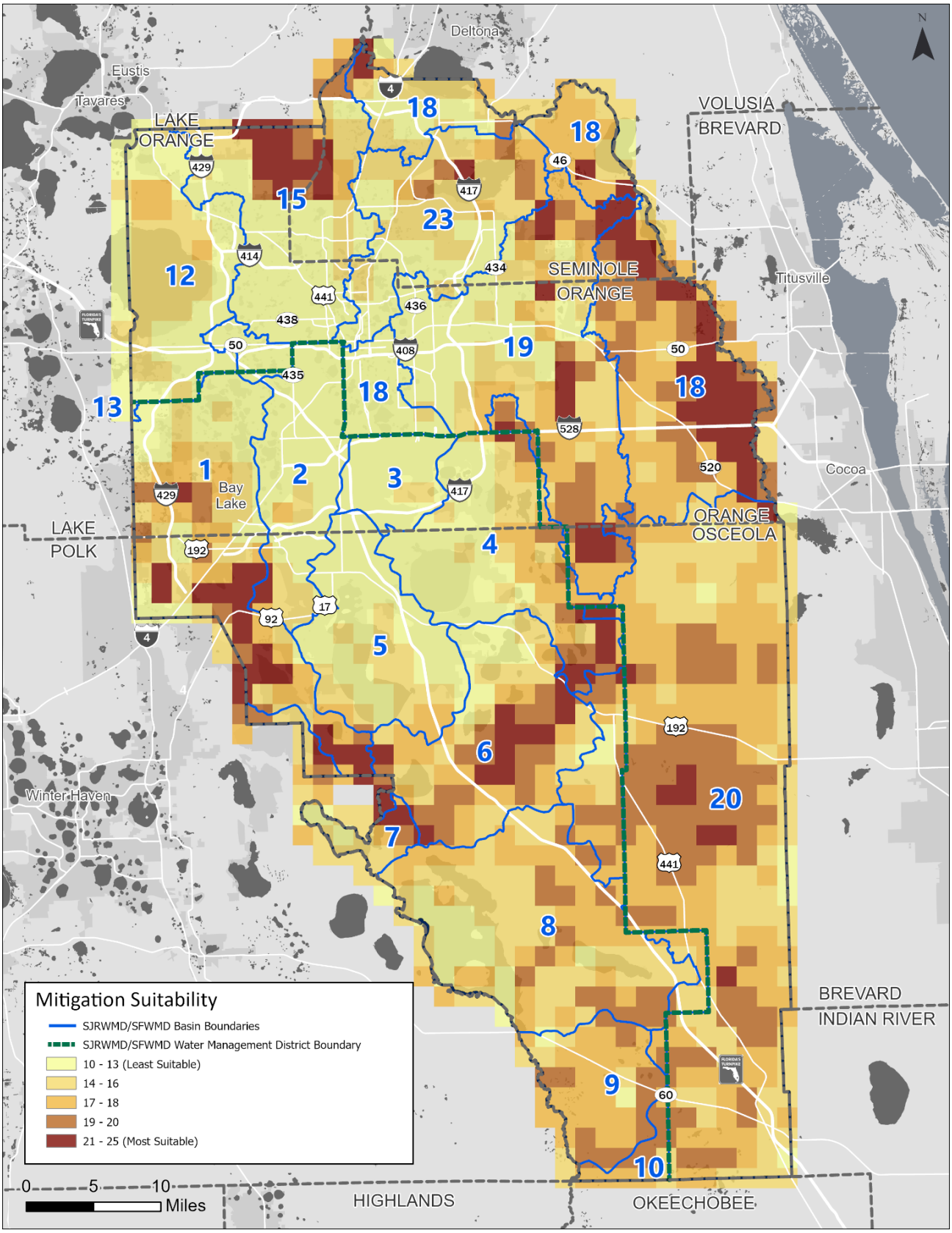
- Mitigation Need;
- Habitat Connectivity;
- Watershed Protection;
- Floodplains;
- Wetlands;
- Conservation Priority;
- Protected Species Habitat;
- Florida Forever Board of Trustees Acquisition Projects;
- Aquifer Recharge; and
- Habitats.

Each environmental factor was ranked for each cell in the grid. At the end of the analysis the scores of each cell analysis were added up to obtain an overall suitability score between 10 and 30, as shown on Figure 5-1.

4.4 LAND SUITABILITY ANALYSIS RESULTS

The analysis revealed that approximately 442,080 acres of land within the study area is very highly or highly suitable for mitigation. Another 469,440 acres of the study area was rated as being moderately suitable. Altogether, potentially suitable mitigation land accounts for just over half of the MetroPlan region. The mitigation suitability results can be seen on Figure 4-1. Notably, these identified areas include basis currently experience a shortage of credits, such as SJRWMD basins 19 and 23, and SFWMD basin 1.

Figure 4-1 | Mitigation Suitability Analysis



Source: Wetland Mitigation Strategy Technical Memorandum 2024

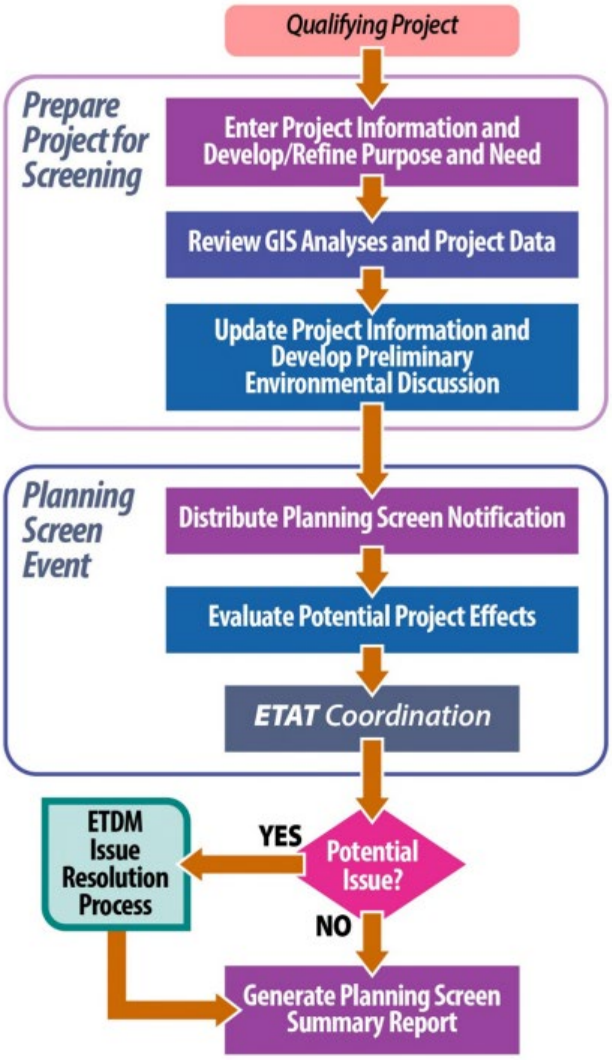
5 Efficient Transportation Decision Making Process

FDOT's Efficient Transportation Decision Making (ETDM) process was used to screen eligible projects for environmental reviews. ETDM is carried out with the Environmental Screening Tool (EST), a mapping tool that provides information about proposed transportation projects and their potential environmental impacts.

The ETDM process consists of two stages of screening: Planning Screen and Programming Screen. Qualifying projects under review at the long-range planning process phase would begin with a Planning Screen, and are identified based on criteria including project type, transportation system designation, potential funding source (federal, state, or local), and responsible agency. The ETDM screening process includes Geographic Information System (GIS) analyses using the data sets included in the EST, such as wetlands, floodplains, protected species and their habitat, contaminated sites, historical and archeological resources, and more. An overview of the ETDM Planning Screen Process is shown on Figure 5-1.

Projects that do not require ETDM screening at this time will still be reviewed for any potential environmental impacts if/when the project moves into a formal planning or design phase.

Figure 5-1 | Overview of ETDM Planning Screen Process



Source: FDOT, ETDM Manual

For the purpose of the 2050 MTP development, projects that qualify for an ETDM screening but have not previously been screened, will be prepared for a Planning Screen. The 2050 MTP planning screening process includes the following steps:

- **Identify Qualifying Projects:** The 2050 MTP candidate projects were screened to determine if they qualify for the preliminary ETDM screening process. Example qualifying projects include widening or new roadway projects.
- **Further Refine List of Qualifying Projects:** The list of qualifying projects was refined based on their funding source and phase of development. Only projects with the upcoming PD&E Study phase were considered for screening.
- **Utilize the ETDM Environmental Screening Tool**: Approximately 20 near term projects were screened using the ETDM Environmental Screening Tool. This is to identify potential environmental impacts comprehensively.
- **Identify Potential Environmental Impacts**: Once projects are screened, a Preliminary Environmental Discussion document will be developed to identify potential environmental impacts.
- **Schedule for Screening**: A timeline was created for when these projects should undergo the formal ETDM process, which includes state and federal regulatory agencies initial comments on these projects.

The Preliminary Environmental Screening documents for the 20 projects undergoing the pre-screening ETDM, in addition to a project release schedule that identifies the projects, type of screening, and the anticipated screening release date for each project are included in the Environmental Stewardship Technical Report, published under a separate cover.

5.1 QUALIFYING PROJECTS & PRELIMINARY SCREENING RESULTS

The EST includes an Area of Interest (AOI) tool that allows the user to conduct the GIS analysis of projects to determine potential environmental impacts without sending projects to the Environmental Technical Advisory Team (ETAT) agencies for review. An initial screening of the qualifying projects will be conducted using the AOI tool along with the most current publicly available GIS data from the regulatory agencies to determine if there are any fatal flaws or significant environmental impacts.

For each qualifying project, an estimated buffer width was established based on the planned number of lanes to determine the potential acres of wetlands and surface waters that would be impacted. These general planning buffers were applied to each project based on the improvement type, as described in Table 5-1**.** These same corridor widths will be used to enter qualifying projects into the AOI tool.

Table 5-1 | Assumed Corridor Widths for Environmental Screening GIS Analysis

Planned Improvement	Assumed Corridor Width (feet)
Widen or New Alignment to 4 lanes	200
Widen or New Alignment to 6 lanes	250
Widen or New Alignment to 8 lanes	300
Widen or New Alignment to 10 lanes	350
Widen or New Alignment to 12 lanes	400.

Source: ETDM Screening Approach

The information needed to enter qualifying projects into the ETDM Planning Screen was prepared including a project overview, description, purpose and need. The report also included a Preliminary Environmental Discussion (PED) including, but not limited to, social and economic, land use, mobility, aesthetic, relocation, farmlands, cultural and tribal, natural (wetlands, water resources, floodplain, protected species, etc.), physical (noise, air

quality, contamination, etc. and other categories). For more detailed information the project PEDs are found in Appendix A through J.

A schedule is proposed below in Table 5-2, identifying when it may be necessary for the projects which underwent a Preliminary Environmental Screening to undergo the full ETDM Review, as previously described in Section 5. Based upon the project information available to date, its proposed prioritization and cost feasibility status from the 2050 MTP (at its time of adoption), and the assumed project readiness. If/when each project is ready to undergo the ETDM Review, the review will be initiated by the implementing agency.

Table 5-2 | ETDM Review Timeline

Project	County	Planning Period	ETDM Planning Screen Start Year
US 192 from Simpson Road to Partin Settlement Road	Osceola	Plan Period II 2036-2040	2034
Palm Springs Drive from North Street to SR 434	Seminole	Plan Period II 2036-2040	2035
SR 423 / John Young Parkway from SR 408 to Shader Road	Orange	Plan Period III 2041-2050	2039
US 192 from Hoagland Boulevard to John Young Parkway	Osceola	Plan Period III 2041-2050	2040
Lake Mary Blvd at CR 427/Ronald Reagan Boulevard and Sanford Avenue	Seminole	Plan Period III 2041-2050	2041
SR 435 / Kirkman Road at Conroy Road - Pedestrian Bridge	Orange	Plan Period III 2041-2050	2042
SR 435 / Kirkman Road at Conroy Road - Pedestrian Tunnel	Orange	Plan Period III 2041-2050	2042
SR 482 / Sand Lake Road from Chancellor Drive to US 17/92/441 / Orange Blossom Trail	Orange	Plan Period III 2041-2050	2043
US 17/92 / Orlando Avenue at RR Crossing Park Avenue - Pedestrian Bridge	Orange	Plan Period III 2041-2050	2044
US 17/92 / Orlando Avenue at RR Crossing Park Avenue - Pedestrian Tunnel	Orange	Plan Period III 2041-2050	2044
SR 50 / Colonial Drive from Forsyth Road to SR 551 / Goldenrod Road	Orange	Plan Period Not Assigned	2045

6 Mitigation Strategies

Enhancing the natural and built environments and reducing air quality pollutants and emissions from transportation sources are key objectives of the 2050 MTP. The strategies below can be considered to reduce environmental impacts and increase resilience while still supporting our region's mobility needs.

6.1 WETLAND MITIGATION STRATEGIES

Federal and state regulations aim to protect Florida's valuable ecosystems by requiring avoidance and minimization from impacts to wetlands whenever possible. When projects impact wetlands, they must undergo mitigation processes to compensate for the loss, which can significantly influence the overall cost and viability of the projects. The objective is to develop effective mitigation strategies that can be applied throughout the lifespan of the 2050 MTP. Identifying the availability and strategic use of wetland mitigation opportunities early in the project planning process will support sustainable development while protecting vital wetland ecosystems.

The preferred method for mitigating unavoidable wetland impacts is through the purchase of mitigation credits from established mitigation banks. However, the rapid development in the region, coupled with the lengthy permitting process for new mitigation banks, has resulted in a scarcity of available credits in several basins. To address this shortage and facilitate progress on future projects, alternative mitigation strategies must be explored. Wetland mitigation strategies include:

- **Purchase of Mitigation Credits:** Projects that enhance, restore, and/or preserve the designated wetlands that serve to offset wetland impacts.
- **In-Lieu Fee Mitigation:** This involves paying a fee to an approved entity to undertake the necessary mitigation activities.
- **Permittee-Responsible Mitigation:** The permit applicant is responsible for completing the mitigation, either on-site or off-site.
- **Purchase and Donation of Natural Areas**: Acquiring natural areas and donating them to state or federal agencies for conservation.

During development of these Mitigation Strategies, mitigation banks were required to restore wetlands and sell credits within the project's watershed. In July 2025, SB 492 was signed into law which allows for wetland mitigation credits to be used outside of the watersheds in which the impacts occur when it is demonstrated that local credits are not available. A cost multiplier is then applied, which increases the mitigation credit cost based on the distance of the watershed they are used in compared to the location of the impact(s). This new policy does not meaningfully change the strategies presented here beyond the Mitigation Bank Credits being more available, albeit at a higher cost. The alternative strategies can continue to be explored and implemented as needed.

6.1.1 IN-LIEU FEES

The in-lieu-fee program would require a public agency or non-profit organization to sponsor the mitigation. There are no active in-lieu-fee programs in the Central Florida region, and none are proposed as part of the 2050 MTP. As a result, an in-lieu fee program would have to be developed and permitted if no other mitigation strategy is available in the future. The following steps, which are shown for informational purposes, would need to be taken by the lead agency to develop an in-lieu fee mitigation program, if an in-lieu fee program were to be needed:

- Identification of partner organization to act as mitigation sponsors
- Identification of potential mitigation sites
- Development of a Mitigation Plan
- Preliminary coordination with regulatory agencies
- State and federal permitting

Potential partner organizations that could act as mitigation sponsors include local governments and state agencies that own and manage land for conservation, which could include Orange, Osceola, and Seminole Counties; SJRWMD; SFWMD; the Florida Fish and Wildlife Conservation Commission (FWC); or the Florida Forest Service (FFS). Other potential sponsors include non-governmental conservation organizations such as The Nature Conservancy, the Trust for Public Lands, or the Audubon Society.

Once a partner is engaged, the next step would be to identify potential mitigation sites. Suitable sites may be assessed using a set of criteria or characteristics that include, but are not limited to, sponsor's priorities, mitigation area's size, contribution to regional connectivity, uniqueness, presence of target habitats, rare or endangered species or potential utilization, and potential for enhancement or restoration among others. Once a site has been selected, a preliminary Mitigation Plan/Mitigation Bank Prospectus is developed and presented to state and federal agencies to confirm that the mitigation plans are viable and yield the desired mitigation credits. This mitigation option can be structured as a Regional Off-Site Mitigation Area (ROMA) administered by a water management district, DEP, or a local government, with crediting established through state and federal permits.

6.1.2 PERMITTEE-RESPONSIBLE MITIGATION

When mitigation bank credits or in-lieu fee options are unavailable, permittee-responsible mitigation (PRM) may be an option. The following text is provided for informational purposes should this strategy be pursued in the future. The sponsor would restore, enhance, establish, or preserve aquatic resources on- or off-site within the same watershed and retain responsibility for implementation and long-term success. Periodic monitoring reports would be required until performance standards are met, as verified by the U.S. Army Corps of Engineers. Florida's mitigation statute further emphasizes that compensatory projects should prioritize the restoration and enhancement of degraded ecosystems and the preservation of uplands and wetlands rather than creating new wetlands.

PRM places long-term obligations on the permittee, so careful site selection and design would be essential and would need to consider the following:

- **Site selection** that expands existing conservation lands or improves watershed function.
- **Native plant community restoration** and low-chemical maintenance consistent with wildlife-friendly practices.
- **Long-term protection** through conservation easements and a monitoring and management plan with clear success criteria.

Early coordination with the USACE, Florida's water management districts, and local governments would help to clarify expectations for performance standards, monitoring, and financial assurances. Properly executed, PRM can restore degraded wetlands and support regional conservation goals while compensating for project impacts.

6.1.3 PURCHASE AND DONATION OF NATURAL AREAS

Another potential mitigation strategy to pursue in the future is the purchase and donation of high-value conservation lands as an alternative where credit supply is limited and PRM is impractical. The following text is provided for informational purposes should this strategy be pursued in the future. Priority areas for this strategy would need to be placed on parcels that buffer existing preserves, protect headwaters or recharge areas, connect fragmented habitats, or provide other environmental value. Title transfer to a public agency or land trust would include perpetual conservation restrictions and a stewardship plan. Mitigation crediting would follow applicable state and federal permit conditions. Florida policy emphasizes the restoration and enhancement of degraded ecosystems and the preservation of uplands and wetlands as intact ecosystems rather than creating new wetlands.

6.2 EMISSION REDUCTION STRATEGIES

The UCF Ozone Contingency Study identified several key pathways for reducing transportation-related emissions in Central Florida, addressing regulatory and complementary strategies. These strategies, while outside of MetroPlan Orlando's service offerings, are listed here as tools for decision-making partners to consider.

6.2.1 HIGH-IMPACT APPROACHES

High-impact regulatory approaches included:

- **Inspection and maintenance (I/M) program:** A region wide I/M program would require motorists to pass periodic tailpipe tests before renewing registration.
- **Vehicle emission standards and retrofit requirements:** Stricter standards, such as mandating catalytic converters on small off-road engines and tightening new-vehicle certification levels,

6.2.2 COMPLEMENTARY INITIATIVES

The complementary initiatives identified included:

- ***Active transportation infrastructure:*** Adding sidewalks, protected bike lanes, and end-of-trip facilities can be delivered through routine road resurfacing programs, keeping capital costs low. Emission benefits, about 270 tonnes of NOx per

year, are smaller than those achieved through regulation, but projects score very high on feasibility, improve public health, and help short local trips shift away from cars almost immediately after construction.

- ***Electric-vehicle (EV) support:*** Streamlining permits for private chargers, reserving curb space for public chargers, and offering limited-time financial incentives together remove an estimated 380 tonnes of NOx annually. The cost to local agencies is modest because investments focus on expedited review processes and selected municipal pilot sites. Long-term benefits depend on the pace at which the regional power grid adds low-carbon generation; however, near-term feasibility is high, and early adoption accelerates market momentum.
- ***Public transit*** **improvements:** Deploying smaller, cleaner buses on suburban routes, adding express service to major corridors, and upgrading stops can reduce roughly 380 tonnes of NOx each year while shrinking per-capita travel costs. Fleet purchases and facility upgrades are capital-intensive, but federal formula grants and competitive programs often cover a share of the expense., Institutional capacity already exists within existing agency bus service operations to phase in cleaner vehicles as part of regular fleet replacement schedules, giving this strategy both high feasibility and steady year-over-year impact.

The effective implementation of these strategies must consider their costs, feasibility, and overall impact. Some strategies, such as active transportation and EV infrastructure, can be initiated more rapidly, while others require more extensive preparation and community engagement. The implementation of these strategies would enable the development of interventions that balance mobility demands with environmental and health goals.

6.3 HABITAT AND ECOSYSTEM STRATEGIES

Local governments, transportation operators, and other transportation maintaining agencies can implement additional strategies to promote environmental stewardship and mitigate impacts on the region's environmental resources. These strategies arose throughout the Environmental Coordination Process and included promoting habitat connectivity, wildlife-friendly native landscapes, and nature-based stormwater practices. These strategies should be considered on a case-by-case basis and coordinated with state and local partners.

6.3.1 MAINTAIN AND RESTORE HABITAT CONNECTIVITY

Project development should consider habitat and wildlife movement corridors early through the environmental screening process, and strategies can be incorporated early into the planning process to mitigate potential impacts, if applicable. Where roads intersect important habitats, additional evaluations should be included to consider wildlife crossings and directional fencing, so appropriate structures are proactively included within project plans. Alignment choices, context-sensitive access, vegetated buffers, and careful site selection of stormwater facilities can also reduce habitat fragmentation. Additional coordination with resource agencies and land managers would also minimize or avoid conflicts with prescribed fire and other management needs.

6.3.2 SUPPORT CENTRAL FLORIDA'S NATIVE ECOSYSTEMS THROUGH WILDLIFE-FRIENDLY LANDSCAPES.

Healthy native plant communities are the foundation of Central Florida's biodiversity. FWC emphasizes that native plants are adapted to local soils and climate, and they support the complex insect communities that feed birds, mammals and other wildlife, and impacts should be avoided or mitigated. Mitigation strategies, if impacts are unavoidable, could include using transportation rights of way as significant opportunities to enhance native ecosystems. Roadside planting, medians, and stormwater areas may be planted with locally adapted native species while avoiding invasive species. Maintenance practices may allow flowering and seed set, and herbicide use may be limited to targeted applications to invasive species. Plant palettes may provide forage across seasons, and safe habitat features can be retained where appropriate. Partnerships with counties, cities, nurseries, and community groups may expand native plant use on state and local roads.

6.3.3 INCORPORATE NATURE-BASED STORMWATER MANAGEMENT

Central Florida's high rainfall and sandy soils offer opportunities to manage stormwater in ways that emulate natural systems, and several strategies are available to enhance stormwater management. Maintaining agencies of transportation facilities should integrate nature-based green stormwater infrastructure where site conditions allow. Examples include swales, rain gardens, shallow wetland shelves, tree canopy, and permeable surfaces.

These practices keep stormwater run-off near its source to reduce pollutant loads, improve groundwater recharge, and add small habitat patches. Designs can integrate native vegetation, limit fertilizers and pesticides, and align with landscape maintenance to support long-term performance and complement connectivity goals.

7 Conclusion

By integrating robust data collection on existing conditions, coordinating closely with environmental stakeholders and agencies, and employing forward-thinking strategies, this plan sets a blueprint for responsible infrastructure development through 2050. The plan provides a framework for responsible infrastructure development through 2050, centered around a few key themes:

Protecting Air Quality: Central Florida's proximity to federal non-attainment thresholds, combined with rising vehicle and boat emissions, underscores the need for continued vigilance and proactive planning. Through regulatory measures, complementary initiatives, and the development of new technologies, the region can continue making tangible strides in reducing transportation-related emissions.

Preserving Critical Resources: The region's vast wetland systems, diverse wildlife habitats, and ecologically important corridors are integral to water quality, flood protection, recreation, and biodiversity. Tools such as comprehensive suitability analyses for wetland mitigation and collaborative partnerships with resource agencies have been instrumental in identifying how best to avoid, minimize, or mitigate impacts.

Coordinated Environmental Approach: The systematic gathering and usage of environmental data allows for transportation projects to be planned with the most accurate, up-to-date information. Comprehensive coordination with state and federal agencies, NGOs, and local stakeholders further supports an inclusive and science-based approach.

These efforts culminate in a visionary plan that respects the balance between economic growth and environmental preservation. By maintaining a collaborative spirit, focusing on informed decision making, and deploying adaptive, cost-effective solutions, the region will remain poised to address evolving mobility demands while safeguarding Central Florida's rich natural assets.

In this way, the 2050 Metropolitan Transportation Plan supports a future in which thriving communities, healthy ecosystems, and a robust economy all coexist in harmony—further solidifying Central Florida as a national leader in sustainable, forward-looking transportation planning.

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