

ALTERNATIVES CORRIDOR EVALUATION REPORT

Northeast Connector Expressway – Phase 1
From Cyrils Drive to Nova Road (CR 532)
Project Development and Environment Study

Central Florida Expressway Authority



**CENTRAL
FLORIDA
EXPRESSWAY
AUTHORITY**



CFX Project No.: 599-228
Contract No.: 001546

December 2020

**Alternatives Corridor Evaluation Report
Northeast Connector Expressway – Phase 1**

TABLE OF CONTENTS

1.0	Introduction	1-1
1.1	Purpose of Alternatives Corridor Evaluation Report	1-1
1.2	Project Description	1-1
1.3	Project Background	1-3
1.3.1	Northeast District Conceptual Master Plan	1-3
1.3.2	OCX Master Plan 2040.....	1-7
1.3.3	East Central Florida Corridor Task Force Final Report.....	1-9
1.3.4	North Ranch Sector Plan	1-11
1.3.5	Northeast Connector Expressway CF&M Study.....	1-13
1.4	Related Studies and Projects	1-15
1.4.1	Osceola Parkway Extension PD&E Study.....	1-16
1.4.2	Osceola / Brevard County Connectors CF&M Study.....	1-16
2.0	Purpose and Need	2-1
2.1	Project Status	2-1
2.2	System Linkage and Regional Connectivity.....	2-2
2.3	Capacity.....	2-2
2.4	Transportation Demand.....	2-3
2.5	Social Demands and Economic Development.....	2-3
2.6	Modal Interrelationships.....	2-4
2.7	Safety.....	2-4
3.0	Corridor Development.....	3-1
3.1	Corridor A.....	3-1
3.2	Corridor B.....	3-1
4.0	Corridor Evaluation	4-1
4.1	Purpose and Need Evaluation.....	4-1
4.2	Environmental Evaluation.....	4-3
4.2.1	Social and Economic Resources	4-3
4.2.2	Cultural Resources.....	4-5
4.2.3	Natural Resources.....	4-6
4.2.3.1	Wetlands, Surface Waters, and Scrub Habitat.....	4-6
4.2.3.2	Floodplains.....	4-9

4.2.3.3	Listed Species	4-9
4.2.3.4	Prime Farmland.....	4-10
4.2.4	Physical Resources	4-13
4.3	Engineering Evaluation	4-15
4.3.1	Geotechnical Considerations.....	4-15
4.3.2	Cost.....	4-17
5.0	Recommendations	5-1

LIST OF FIGURES

Figure	Title	Page
Figure 1.1.1:	Project Study Area	1-2
Figure 1.3.1:	Northeast District Street Framework.....	1-4
Figure 1.3.2:	Northeast District Staging Plan.....	1-6
Figure 1.3.3:	OCX Master Plan Studies.....	1-8
Figure 1.3.4:	Recommended New North-South Corridors.....	1-10
Figure 1.3.5:	North Ranch Sector Plan – Land Use Framework	1-12
Figure 1.3.6:	CF&M Corridors Recommended for Further Consideration	1-14
Figure 1.3.7:	CF&M Typical Section.....	1-15
Figure 1.4.1:	OPE Preferred Alternative	1-17
Figure 1.4.2:	New Recommended East-West Corridors	1-18
Figure 1.4.3:	Osceola / Brevard County Connectors CF&M Study Area	1-19
Figure 3.0.1:	Initial Corridors	3-2
Figure 4.1.1:	Northeast District Corridor Overlay	4-2
Figure 4.2.1:	Parcel Ownership.....	4-4
Figure 4.2.2:	Unrecorded Historic Resources (Canals).....	4-7
Figure 4.2.3:	Wetlands and Scrub Habitat	4-8
Figure 4.2.4:	Floodplains and Canals	4-11
Figure 4.2.5:	Prime NRCS Farmland	4-12
Figure 4.2.6:	Potential Contamination Sites	4-14
Figure 4.3.1:	Organic Soils (muck).....	4-16

LIST OF TABLES

Table	Title	Page
Table 4.2.1:	Social and Economic Resources Matrix.....	4-3
Table 4.2.2:	Cultural Resources Matrix	4-6
Table 4.2.3:	Wetlands and Surface Waters Matrix.....	4-6
Table 4.2.4:	Floodplain and Canal Comparison.....	4-9
Table 4.2.5:	Listed Species Likelihood of Occurrence.....	4-9
Table 5.0.1:	Corridor Evaluation Matrix	5-1

1.0 Introduction

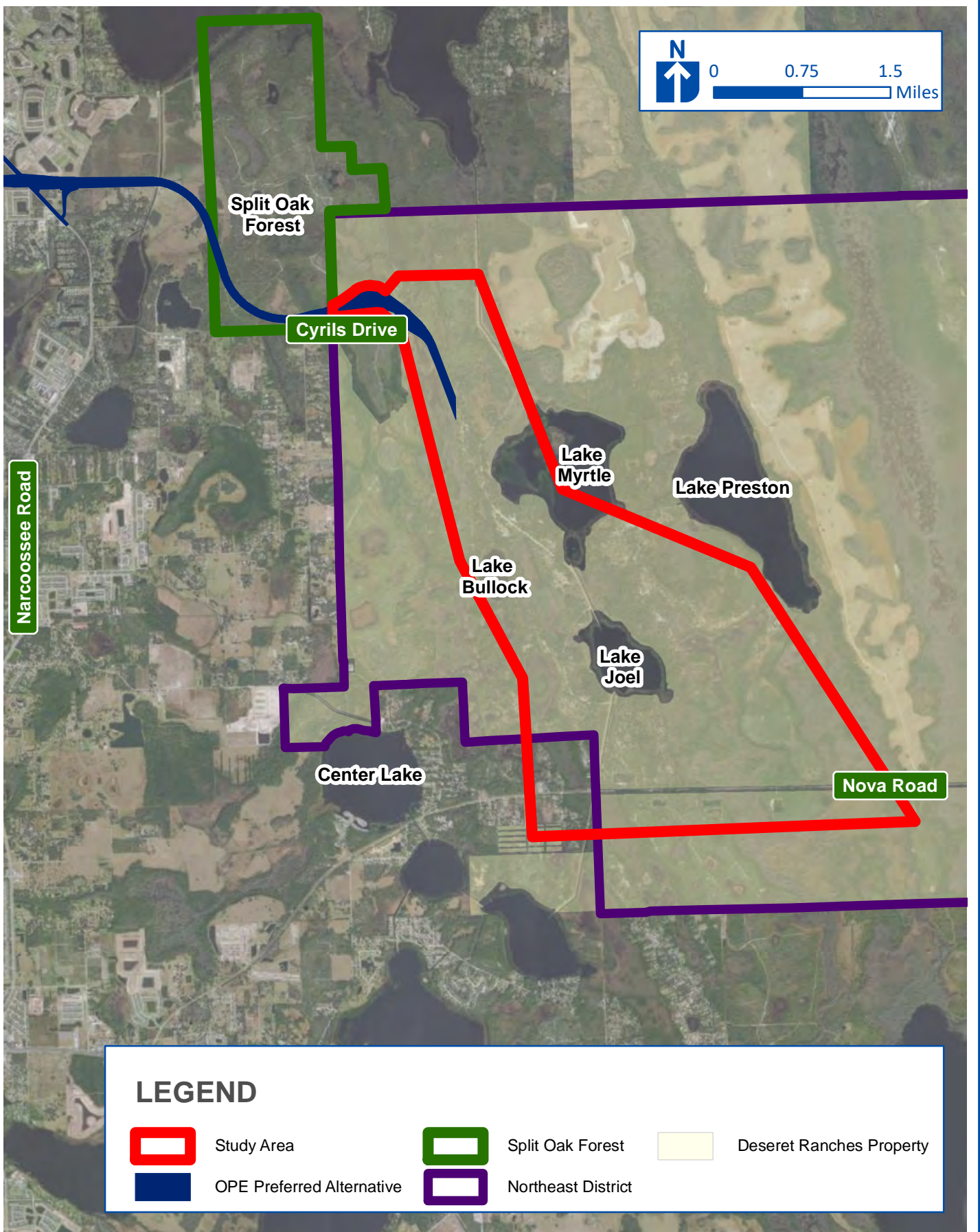
1.1 Purpose of Alternatives Corridor Evaluation Report

The Alternative Corridor Evaluation (ACE) process is used to identify, evaluate, and eliminate corridors prior to the detailed alternatives development phase. The results of the ACE are documented in the Alternatives Corridor Evaluation Report (ACER). The ACER is used in the National Environmental Policy Act (NEPA) process to support a decision to eliminate corridors from further study that are not feasible, have disproportionate and/or significant impacts, or do not meet the purpose and need of the project.

1.2 Project Description

The Central Florida Expressway Authority (CFX) is studying a new expressway connection between Cyrils Drive and Nova Road in Osceola County. The study area begins at the terminus of the planned Osceola Parkway Extension (OPE) near Cyrils Drive and extends to Nova Road, a distance of approximately 4.3 miles. The study area is located primarily on Deseret Ranches property. Figure 1.1.1 shows the Northeast Connector Expressway – Phase 1 study area.

The goal of the Northeast Connector Expressway is to enhance north-south mobility and provide connections between existing and future east-west corridors in the study area. The Northeast Connector Expressway will link the planned OPE, which is based on an approved Project Development and Environment (PD&E) Study, with the planned Osceola / Brevard County Connectors, which is currently in the planning phase. These connections will promote regional connectivity, provide for transit opportunities, and enhance mobility in Osceola County. The link between the planned OPE and Osceola / Brevard County Connectors will also provide a seamless limited access, high-speed connection from the Orlando International Airport (OIA) to I-95 in Brevard County. In the interim, before the Osceola / Brevard County Connectors is constructed, the Northeast Connector Expressway will extend the limited access connection from Cyrils Drive to Nova Road, a major county road. This connection will be vital to providing a limited access, north-south facility within the Northeast District, a large master-planned development in northeast Osceola County owned by Deseret Ranches.



1.3 Project Background

The Northeast Connector Expressway has been considered in numerous previous studies.

The most relevant studies to this project include:

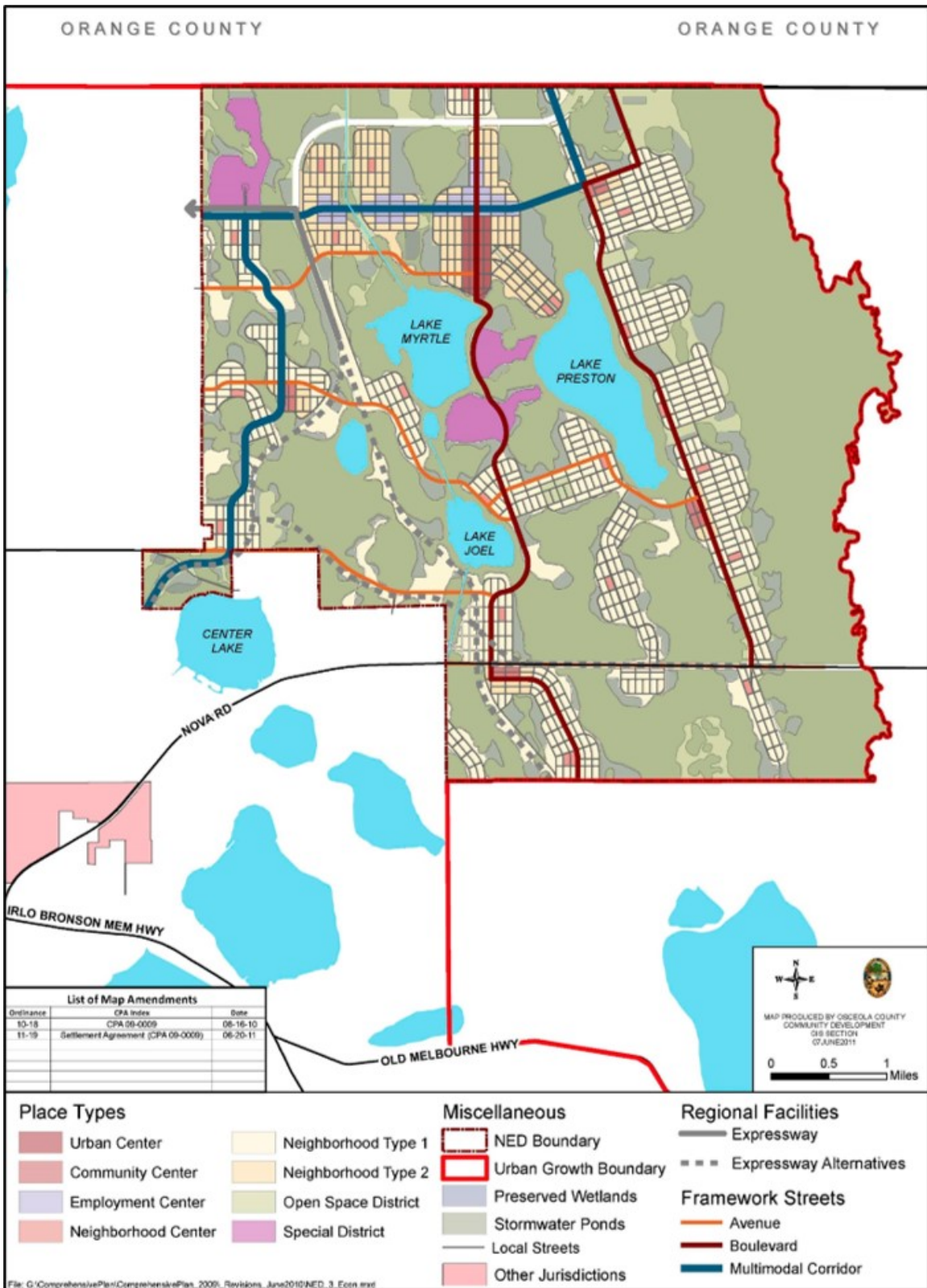
- Northeast District Conceptual Master Plan, 2010;
- Osceola County Expressway Authority (OCX) Master Plan 2040, 2013;
- East Central Florida Corridor Task Force Final Report, 2014;
- North Ranch Sector Plan, 2015; and
- Northeast Connector Expressway Concept, Feasibility, and Mobility Study, 2018.

1.3.1 Northeast District Conceptual Master Plan

The Northeast District planning area is comprised of approximately 17,150 acres of undeveloped land south of the Osceola / Orange County line, from the Econlockhatchee Swamp in the east to Outback Road in the west, then south to approximately one mile south of Nova Road. This development plan was created to facilitate adequate employment opportunities and communities within Osceola County and the expanded Orlando metropolitan area. The Northeast District Conceptual Master Plan states that the plan was developed to achieve smart growth within the planning area in Osceola County. The plan creates a range of housing and employment opportunities as well as an integrated transit system that will reduce vehicle miles traveled and connect neighborhoods to the commercial districts while reducing urban sprawl. The Northeast District Conceptual Master Plan layout and street framework is shown in Figure 1.3.1 and includes:

- 29,320 residential dwelling units;
- 8,540,000 square feet of commercial/office/industrial;
- 1,995,000 square feet of institutional/civic; and
- 5,000 hotel rooms.

Figure 1.3.1: Northeast District Street Framework



Source: Northeast District Element, August 2010

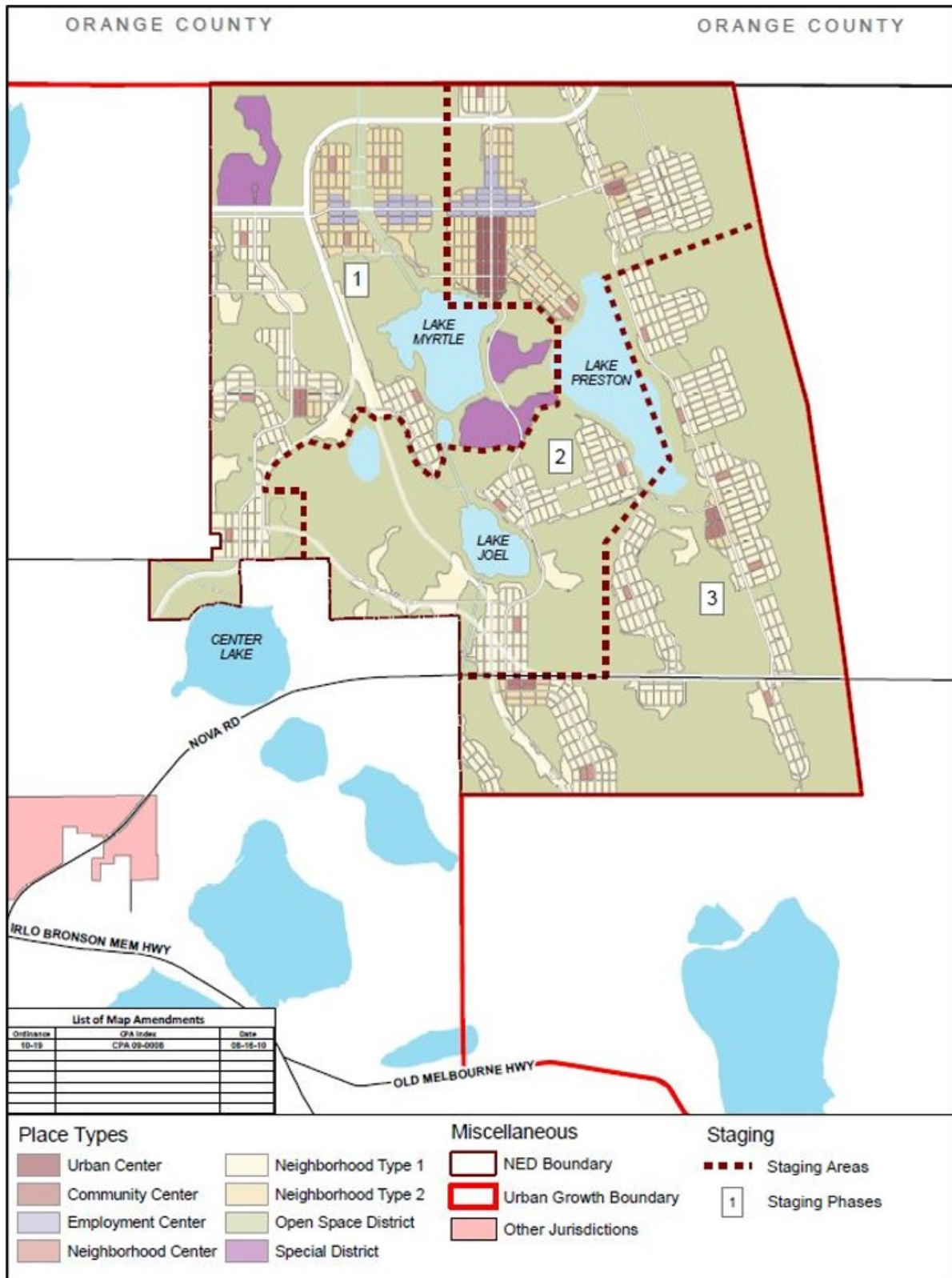
Development within the Northeast District will be constructed in phases. Three phases of development are anticipated as shown in Figure 1.3.2. Phases will be based upon specific measures relating to the creation of jobs, efficient land use, and investments in transportation infrastructure, rather than specific time periods. The first phase entails a reconfiguration of the previously approved plan for Osceola County Mixed Use District 8. The second phase of development begins when 4,000 jobs have been created and 7,000 residential units have been constructed in the Phase 1 area. Furthermore, the OPE and Southport Connector Expressway¹ must be under construction prior to Phase 2 activities proceeding. Phase 3 development may begin once 14,000 cumulative jobs have been created and 14,000 cumulative residential units have been constructed in Phases 1 and 2. Furthermore, Phase 3 cannot begin until the segment of OPE that enters the Northeast District has been completed and the Southport Connector is under construction or vice versa.

Framework streets, such as multimodal corridors, boulevards, and avenues, will be constructed to coincide with the transportation needs created by neighborhoods and centers to form a larger grid allowing for multiple travel paths and regional connectivity among core areas, as seen in Figure 1.3.1. Framework streets within the planning area will function as complete streets, therefore establishing walkable, transit-ready urban areas.

The Osceola County Board of County Commissioners approved the Northeast District Conceptual Master Plan at the August 16, 2010 hearing. Negotiations with the Department of Community Affairs resulted in the Board of County Commissioners issuing the Stipulated Settlement Agreement on June 21, 2011, which amended the Northeast Conceptual Master Plan as well as the Future Land Use Element, the Potable Water Element, the Intergovernmental Coordination Element, the Public Schools Facility Element, and the Transportation Element.

¹ The Southport Connector Expressway from US 192 to the Northeast District as shown in the Northeast District Conceptual Master Plan is now referred to as the Northeast Connector Expressway.

Figure 1.3.2: Northeast District Staging Plan



Source: Northeast District Element, August 2010

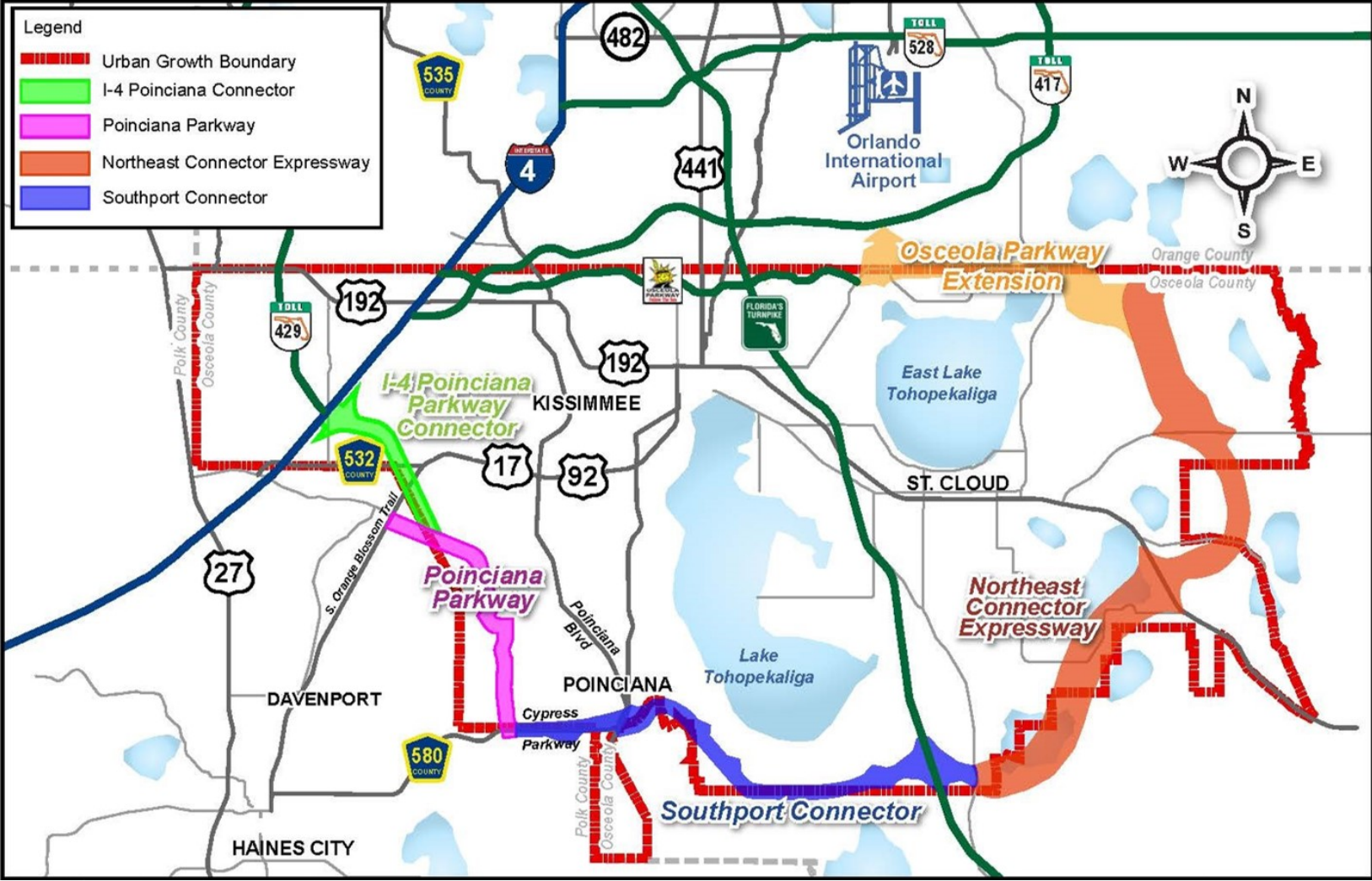
1.3.2 OCX Master Plan 2040

In response to Osceola County's expanding transportation needs, OCX was formed in 2010 and created its first long-range plan in 2012. The final OCX Master Plan 2040 was published in August 2013 and was structured on a series of expressways that form an interior ring of the county's urban growth boundary as shown in Figure 1.3.3. The intent of the expressway system was to connect existing and emerging cities and centers. There are four corridors described in the master plan:

1. Poinciana Parkway (10 miles);
2. Osceola Parkway Extension (9 miles);
3. Southport Connector Expressway (13 miles); and
4. Northeast Connector Expressway (25 miles).

The Northeast Connector Expressway was intended to connect the Southport Connector Expressway at Canoe Creek Road northeast to the Osceola / Orange County line. Potential corridors were originally studied by the Orlando-Orange County Expressway Authority (now referred to as CFX) in 2006 and then further expanded through a feasibility study conducted by Osceola County in 2009 and 2010. Two corridors were adopted as part of the 2011 Osceola County Comprehensive Plan.

Figure 1.3.3: OCX Master Plan Studies



Source: OCX Master Plan 2040, August 2013

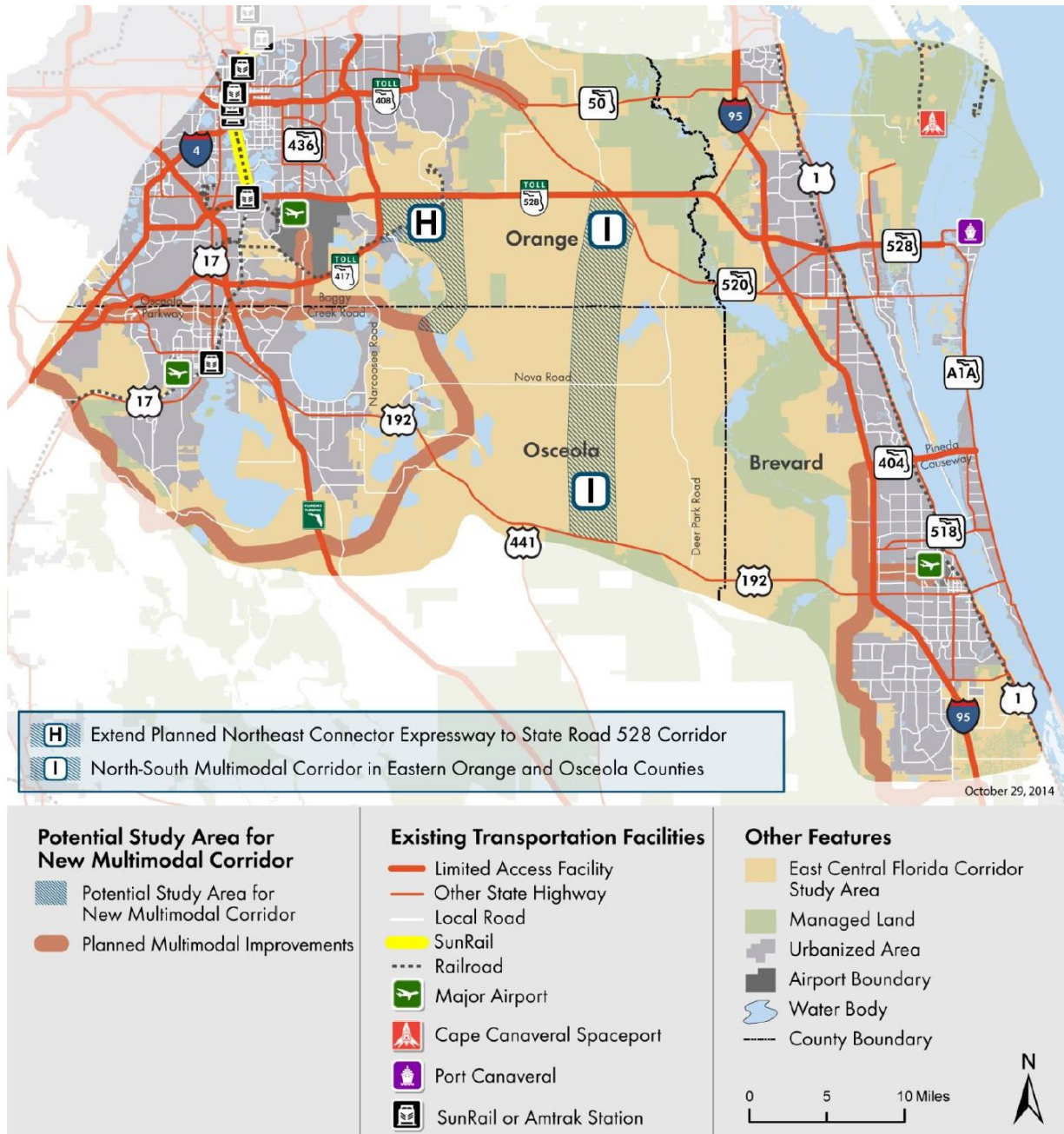
1.3.3 East Central Florida Corridor Task Force Final Report

The East Central Florida Corridor Task Force (Task Force) was created in 2013 through Executive Order 13-319 to develop consensus recommendations for future transportation corridor planning in portions of Brevard, Orange, and Osceola Counties. The Task Force findings as it relates to this study area include:

- The population of the three counties is projected to nearly double from 2 to 3.8 million residents during the next 50 years.
- Multiple trends point to significant increases in demand for travel between the three counties during the next 50 years, including:
 - Planned development of mixed-use centers on the eastern edge of existing concentration of urban development in Orange and Osceola Counties;
 - Ongoing development under Florida’s sector planning law of a long-term master plan for 133,000 acres in eastern Osceola County (North Ranch Sector Plan); and
 - The emergence of life sciences and related technology – based clusters in central Orlando, Innovation Way, Lake Nona, Cape Canaveral, and Melbourne.
- The Task Force noted concerns about the region’s ability to achieve economic opportunities and to support growing populations related to planned growth resulting from limited options for both east-west and north-south travel. Of particular concern was the ability to support effective evacuation and response during extreme weather events and other emergencies, especially to and from Brevard County. Limitations include:
 - Of the three east-west highway connections between the three counties (SR 520, SR 528, and SR 50), only SR 528 is a high-speed, high-capacity corridor.
 - Only one east-west highway connection (US 192) exists between Orange, Osceola, and southern Brevard County.

In 2014, the Task Force submitted a Final Report to Governor Scott recommending 21 guiding principles for planning the future east central Florida’s transportation corridors, including nine transportation corridors for further study. Five of those emphasize multimodal improvements to existing corridors and four recommend new study areas for new or significantly upgraded corridors. Of the four new corridors, two were east-west corridors and two were north-south. The recommended north-south corridors are shown in Figure 1.3.4. Corridor I was designed to serve the planned population areas within the North Ranch and establish connectivity to other regional destinations and east-west corridors. The Task Force report also recommended continuing the Northeast Connector Expressway project development process.

Figure 1.3.4: Recommended New North-South Corridors



Source: East Central Florida Corridor Task Force Final Report, December 2014

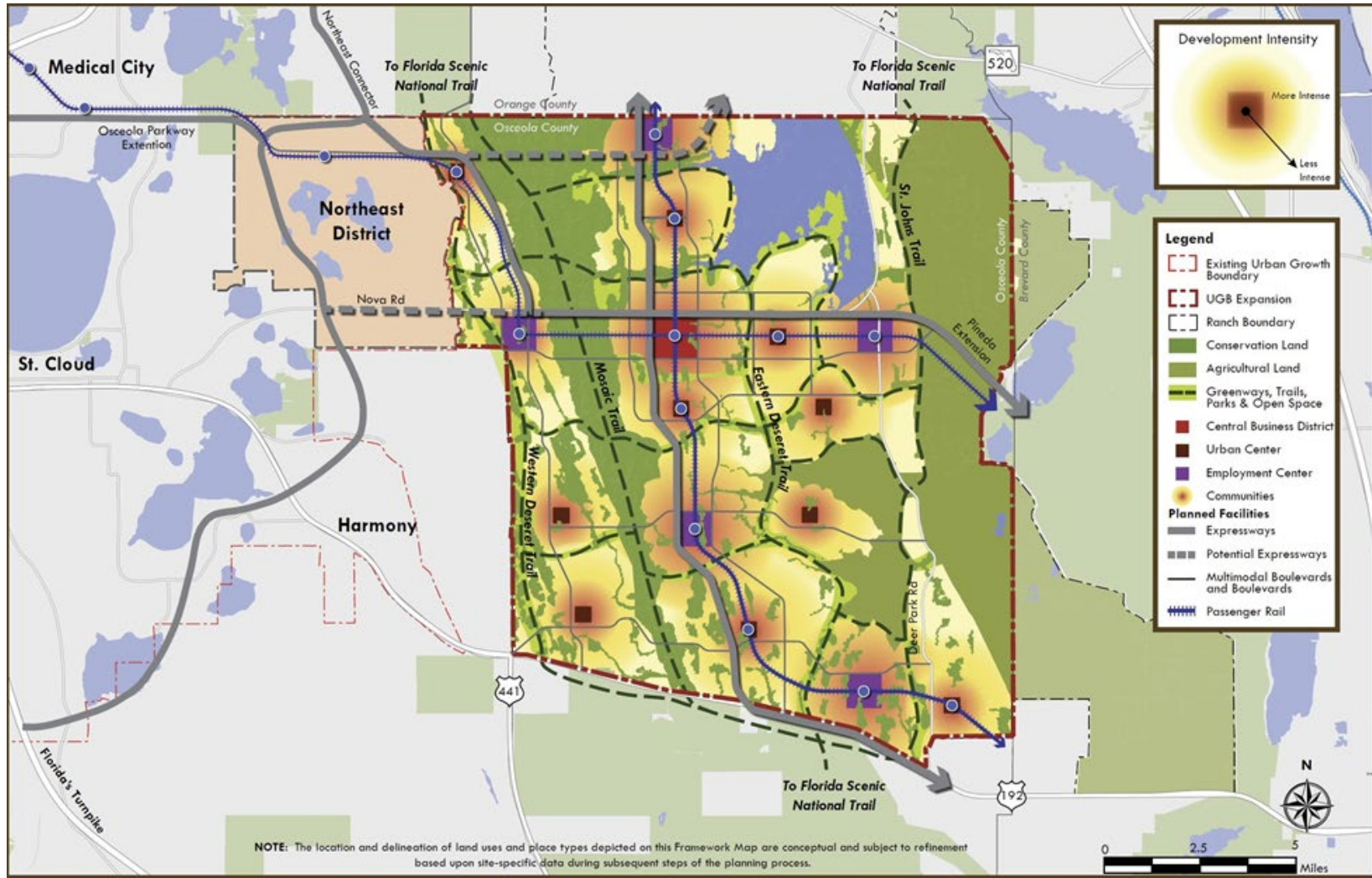
1.3.4 North Ranch Sector Plan

The North Ranch extends from US 192 north to the Osceola / Orange County boundary and from US 441 east to the Osceola / Brevard County boundary as shown in Figure 1.3.5. The North Ranch encompasses approximately 133,000 acres, the equivalent of two cities the size of Orlando and is adjacent to the previously described Northeast District.

The North Ranch Sector Plan was prepared jointly by Osceola County and Farmland Reserve Inc. (a subsidiary of Deseret Ranches) to plan for regionally significant economic opportunities and job centers, close transportation corridor gaps, and preserve environmental systems and agricultural lands while minimizing public infrastructure investment. The sector plan also intends to stimulate job opportunities and development between Central Florida and the Space Coast as well as reserve acreage for a higher education campus such as a college or university. The sector plan assumes that 182,600 residential units and 83,360,010 square feet of commercial property will be developed by 2080.

New and improved existing transportation corridors identified by the East Central Florida Task Force were promoted and encouraged in the sector plan. These corridors will enhance travel to and from Northern Brevard County and north-south travel between Orange and Osceola Counties. The limited access facilities will be located on the edges of centers and neighborhoods to minimize the amount of disruption caused by their presence. In conservation lands, limited access facilities and fixed transit will be co-located to the highest extent possible in order to minimize their footprint in these areas. Deseret Ranches and Osceola County will work with state and regional agencies to facilitate the development of these corridors. The sector plan was adopted in 2015 by the Osceola County Board of County Commissioners.

Figure 1.3.5: North Ranch Sector Plan – Land Use Framework



Source: North Ranch Sector Plan Open House, September 2014

1.3.5 Northeast Connector Expressway CF&M Study

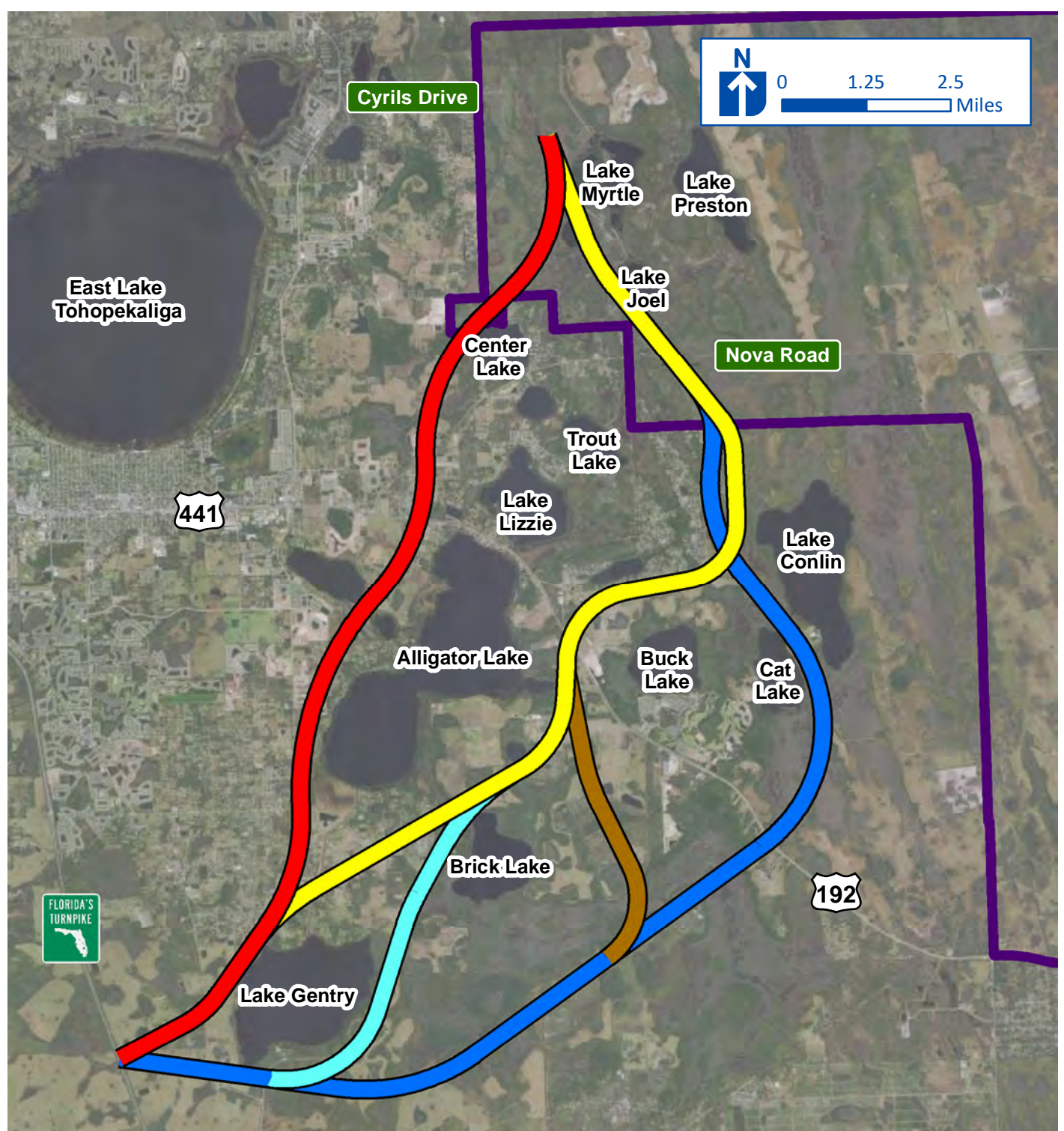
The Northeast Connector Expressway is proposed to extend from the planned Southport Connector Expressway at Florida’s Turnpike to the planned Osceola Parkway Extension south of the Osceola / Orange County line. The Concept, Feasibility, and Mobility (CF&M) Study Report for the Northeast Connector Expressway was completed in 2018. The CF&M report addressed the purpose and need for the project, existing conditions within the study area, traffic considerations, design criteria, mobility alternatives evaluation, anticipated impacts to the natural, human, and physical environment, and stakeholder involvement. The study also evaluated the project’s feasibility and viability. The established purpose and need for the project was to provide system linkage, provide regional connectivity and mobility, meet social and economic needs, provide additional transportation capacity, achieve consistency with transportation plans, provide multimodal opportunities, and improve safety and evacuation support.

Several mobility alternatives were considered for the Northeast Connector Expressway to address growth in the area and potential impacts on the existing condition. These alternatives included the No-Build Alternative, transportation systems management and operations (TSM&O) alternative, mass transit technology and intermodal facilities, and tolled limited access alternatives. Under the No-Build Alternative scenario, roadways located within the study area would not be improved and will operate at a volume-to-capacity ratio of greater than one, signifying that the demand exceeds the roadway capacity and significant congestion will occur. Therefore, the No-Build Alternative does not address the project’s purpose and need.







The TSM&O Alternative is similar to the No-Build Alternative but includes intersection improvements. This alternative does provide enough capacity to meet the design year traffic needs, but this alternative does not fulfill the purpose and need for the project and therefore, TSM&O alternatives were not further evaluated in the study.

Mass transit technology and intermodal facilities were considered for this project; however, due to lack of high-density development in the study area, mass transit options are not warranted in Osceola County at this time.

The tolled limited access alternatives feature a typical section that can accommodate technological advancements in transportation such as automated vehicles. The tolled limited access alternative was considered for further study. Five corridor alternatives were developed for the tolled limited access alternative as shown in Figure 1.3.6. The red and yellow corridors below are applicable to this project because they join the OPE segment emanating from Cyrils Drive.

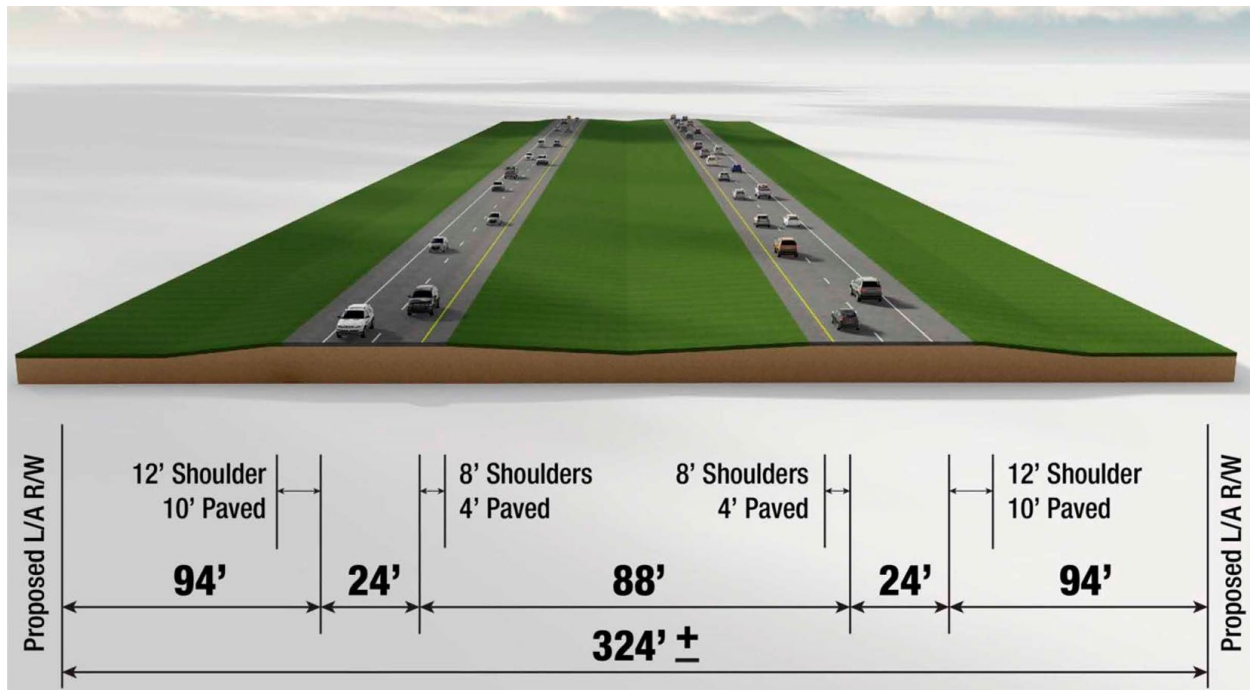


LEGEND

	Corridor A - Red		Corridor C - Cyan		Corridor F - Blue
	Corridor B - Yellow		Corridor D - Brown		Northeast District

A standard typical section was applied to each corridor. The proposed typical section consists of two 12-foot wide travel lanes in each direction separated by an 88-foot median and eight-foot inside shoulders and 12-foot outside shoulders. The minimum right-of-way footprint for the corridor is 324 feet as shown in Figure 1.3.7.

Figure 1.3.7: CF&M Typical Section



Source: Northeast Connector Expressway CF&M Report, June 2018

Right-of-way needs for each corridor alternative range from 1,349 acres to 1,758 acres and the corridor will impact ponds and lakes, residential areas, and existing utilities. The project costs for the different alternatives vary from 1.2 to 1.4 billion in 2017 dollars. There were no “fatal flaws” identified for the project, which is therefore considered feasible from an engineering standpoint. However, at the time of the study (2018), the Northeast Connector Expressway was determined not to be viable, as it would not meet the required toll revenue of 50% of the project cost over 30 years. The project was therefore not advanced to the PD&E phase.

1.4 Related Studies and Projects

Two projects are related to the Northeast Connector Expressway – Phase I project that were not described in Section 1.3: the Osceola Parkway Extension PD&E Study and the Osceola / Brevard County Connectors CF&M Study.

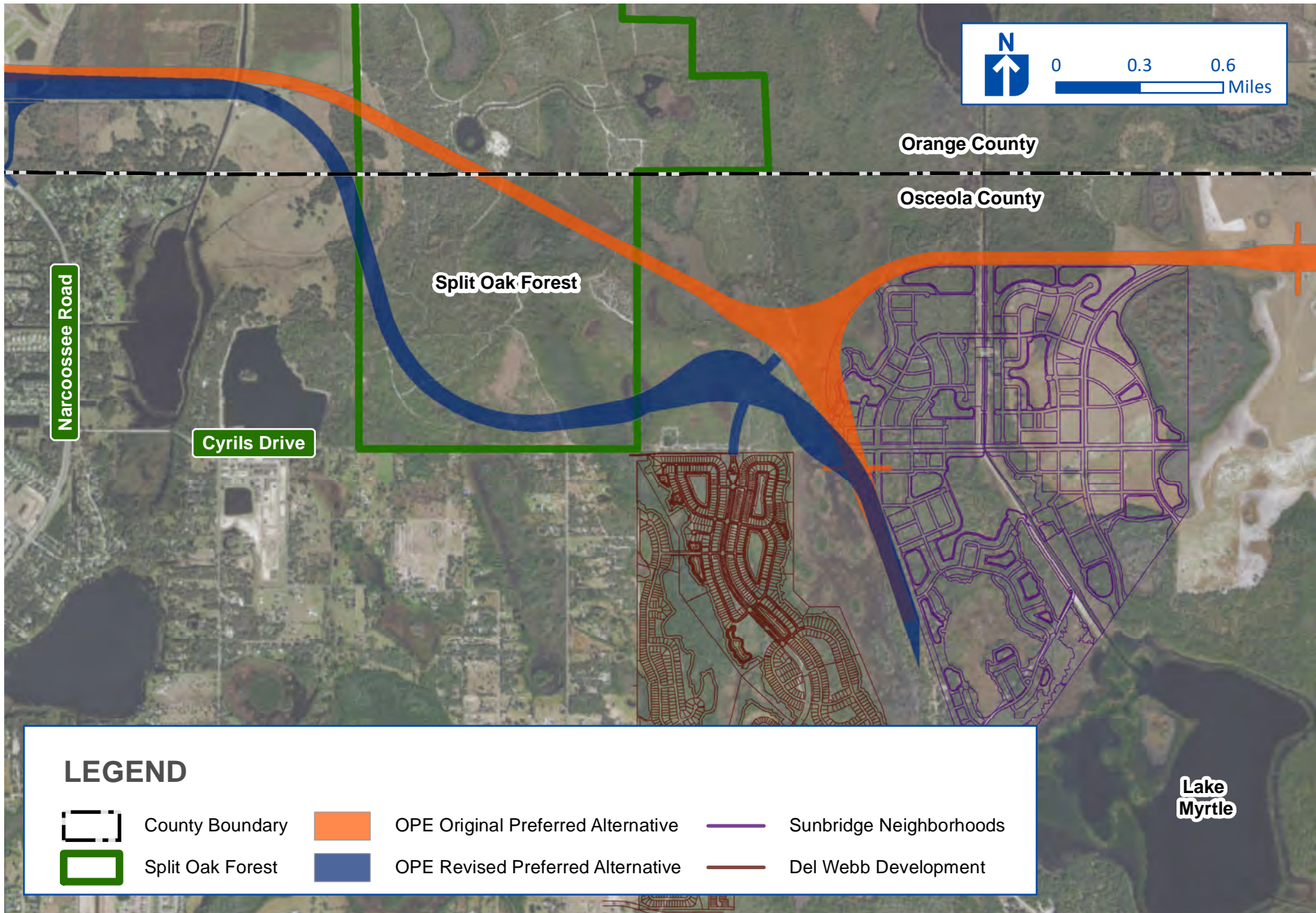
1.4.1 Osceola Parkway Extension PD&E Study

The Osceola Parkway Extension PD&E Study was completed in May 2017 by OCX and Florida’s Turnpike. The OPE study evaluated the engineering and environmental effects associated with providing a new limited access roadway from west of Boggy Creek Road to the proposed Northeast Connector Expressway, as well as an expressway connection to SR 417 in the vicinity of the Boggy Creek Road interchange with SR 417. The Preferred Alternative for the eastern section of the project impacted Split Oak Forest in both Orange and Osceola Counties, resulting in a bisection of the park and significant environmental impacts. This alternative also included a two-mile extension east of the proposed interchange with the Northeast Connector Expressway, as shown in Figure 1.4.1.

CFX performed a re-evaluation of the OPE PD&E study which was completed in January 2020. The re-evaluation study area extended from SR 417 near Boggy Creek Road in Orange County to Cyrils Drive in Osceola County. A new Preferred Alternative was developed for the project which minimized impacts to Split Oak Forest. The new concept impacts a small portion of the Osceola County segment of the park, as shown in Figure 1.4.1. The revised Preferred Alternative also converted the previous system-to-system interchange to a local access interchange at Cyrils Drive, resulting in a smaller interchange footprint. The southern terminus of the OPE is the northern terminus for this project.

1.4.2 Osceola / Brevard County Connectors CF&M Study

In March 2020, CFX began the Osceola / Brevard County Connectors CF&M Study. The study will develop and evaluate transportation alternatives from Osceola County to Brevard County with the goal of connecting to I-95. Two corridors, as recommended by the East Central Florida Corridor Task Force, are being analyzed. The Task Force’s Corridor D would connect northeast Osceola County to northern Brevard County, while Corridor F would connect northeast Osceola County to central / southern Brevard County, as shown in Figure 1.4.2. The study will determine if the yet-to-be-identified alternatives are feasible from an engineering and environmental standpoint.



LEGEND







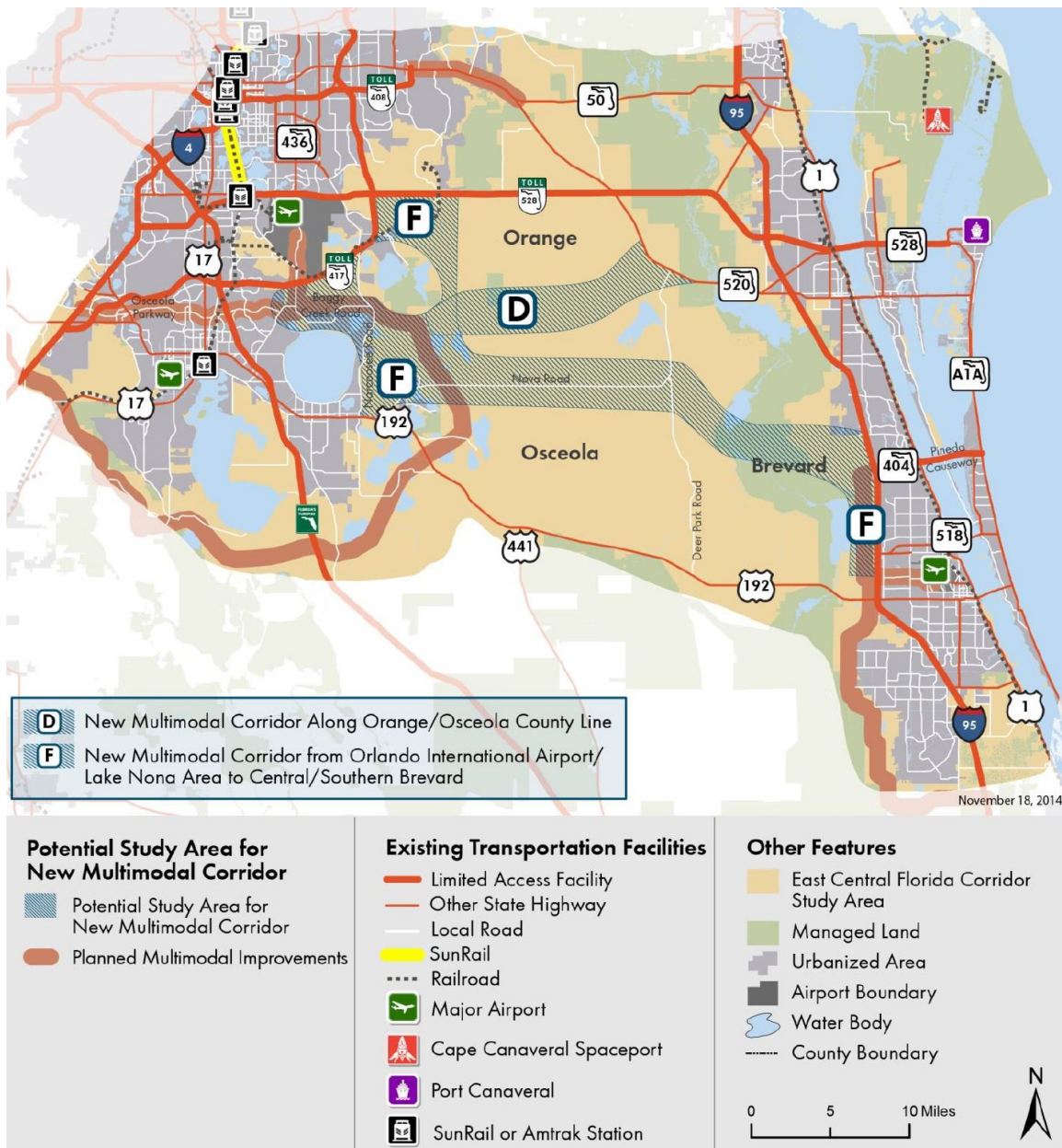
	County Boundary		OPE Original Preferred Alternative		Sunbridge Neighborhoods
	Split Oak Forest		OPE Revised Preferred Alternative		Del Webb Development

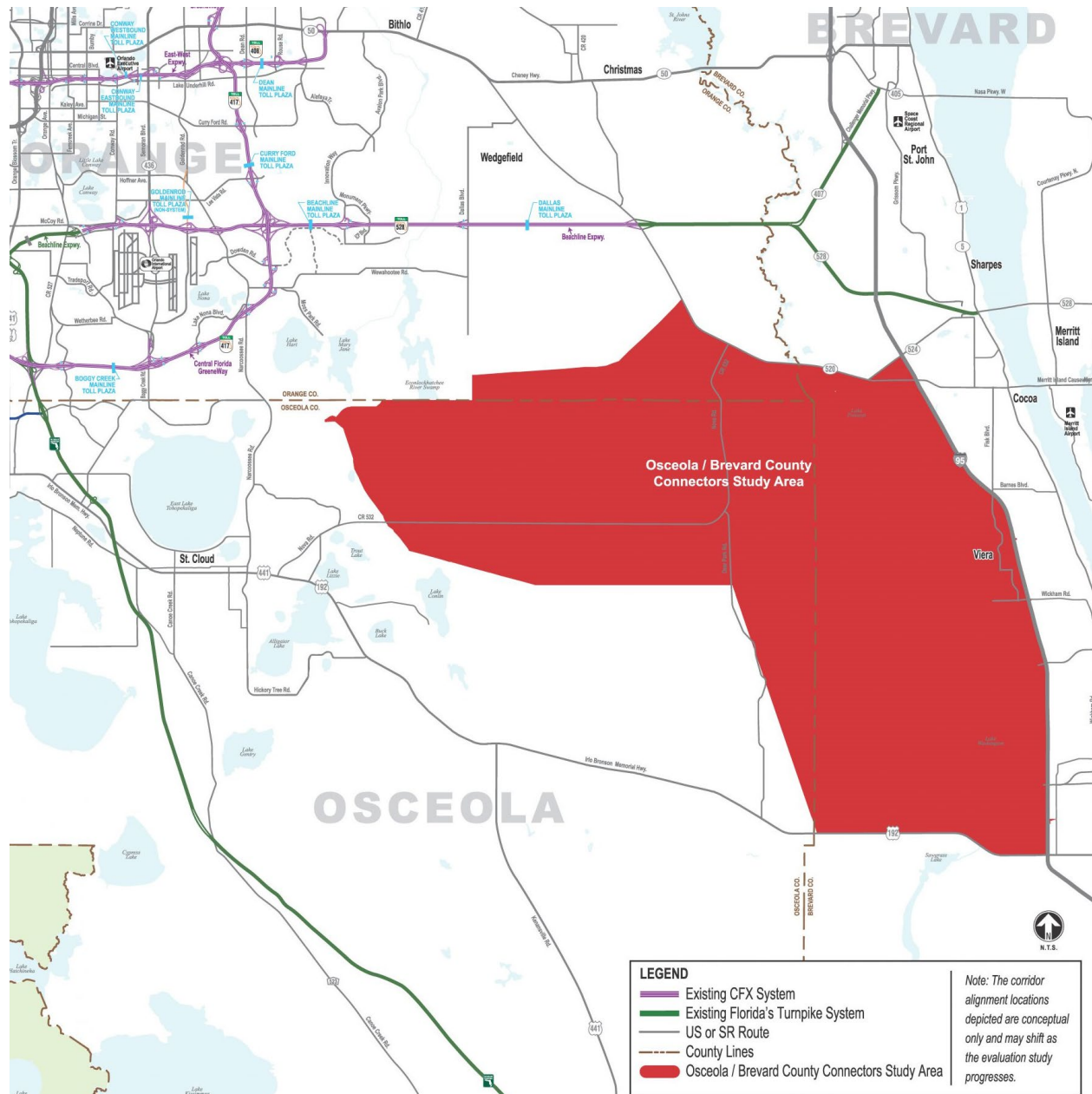
Figure 1.4.2: New Recommended East-West Corridors



Source: Source: East Central Florida Corridor Task Force Final Report, December 2014

The study area is bound by the planned OPE to the west and I-95 to the east, a distance of approximately 30 miles. The northern study area boundary, starting on the west, extends along the Osceola and Orange County line, then enters Orange County to intersect with SR 520, west of Nova Road. The southern boundary, starting on the west, runs approximately 2.5 miles south of existing Nova Road eastward to Deer Park Road for approximately 15 miles before it turns south to US 192. The Osceola / Brevard County Connectors CF&M study area is shown in Figure 1.4.3.

Figure 1.4.3: Osceola / Brevard County Connectors CF&M Study Area



Source: <https://www.cfxway.com/agency-information/plans-studies/project-studies/osceola-brevard-county-connector/>, October 2020

The study is expected to be completed in August 2021. If a corridor or corridors are found to be feasible, they could then proceed to a PD&E Study to further refine and evaluate alternative alignments.

2.0 Purpose and Need

The purpose of the Northeast Connector Expressway is to enhance north-south mobility and provide connections between existing and future east-west corridors in the study area. The Northeast Connector Expressway will link the planned OPE with the planned Osceola / Brevard County Connectors. These connections will promote regional connectivity, provide for transit opportunities, and enhance mobility in Osceola County and the entire Central Florida region. The link between the planned OPE and Osceola / Brevard County Connectors will also provide a seamless limited access, high-speed connection from the OIA to I-95 in Brevard County.

The need for the project is to provide system linkage and regional connectivity, meet social and economic needs, provide additional transportation capacity, achieve consistency with transportation plans, provide multimodal opportunities, and improve safety and evacuation routes. Additionally, the East Central Florida Corridor Task Force Report recommended continuing the project development process for the Northeast Connector Expressway. The following sections describe the need for the project in more detail.

2.1 Project Status

As described in Section 1.3.2, OCX included the Northeast Connector Expressway in their Master Plan 2040. As part of an interlocal agreement, CFX incorporated portions of the OCX Master Plan 2040 into CFX's Visioning + 2040 Master Plan. As part of this interlocal agreement, CFX conducted CF&M Studies for four transportation corridors to determine if they are viable and fundable in accordance with CFX policies and procedures. One of the corridors was the Northeast Connector Expressway as described in Section 1.3.5. The CF&M Study evaluated numerous corridor alternatives and ultimately determined that there were no fatal flaws, but the project was not considered financially viable (toll revenue over 30 years did not cover at least 50% of project costs). The CFX Board approved the findings of the Northeast Connector Expressway CF&M Study at the March 8, 2018 board meeting but decided not to advance the project to the next study phase at that time.

At the June 11, 2020 CFX board meeting, the board authorized the initiation of the Northeast Connector Expressway – Phase 1 PD&E Study. The proposed project is consistent with multiple planning documents, including:

- OCX Master Plan 2040;
- CFX Visioning + 2040 Master Plan;
- CFX Five Year Work Program – Fiscal Year 2020 – 2024 (termed Osceola Parkway Extension – Cyrils Drive to Nova Road PD&E Study);

- MetroPlan Orlando 2040 Long Range Transportation Plan (LRTP);
- East Central Florida Corridor Task Force Final Report;
- Osceola County Northeast District Conceptual Master Plan;
- Osceola County North Ranch Sector Plan; and
- Osceola County 2040 Comprehensive Plan.

2.2 System Linkage and Regional Connectivity

System linkage indicates how well the project fits into the area’s existing and future transportation system. The Northeast Connector Expressway – Phase 1 is an important limited access high-speed toll facility segment that is designed to serve Osceola County’s urban growth area. Together, the OPE, the Northeast Connector Expressway, the Southport Connector Expressway, and the Poinciana Parkway Extension / I-4 Connector are a significant part of the CFX Visioning + 2040 Master Plan. The proposed expressway system connects high-density residential and commercial areas to the regional limited access network (I-4 and Florida’s Turnpike) and the existing CFX expressway system (SR 417, SR 528, and SR 429).

Florida’s Strategic Intermodal System (SIS) is a statewide network of high-priority transportation facilities, including highways, freight rail lines, airports, seaports, and other key intermodal facilities. Near the study area, there are no existing SIS corridors. Access to SIS facilities from the Northeast District and adjacent areas is provided through a network of county roads. The Northeast Connector Expressway – Phase 1 project would provide a key connector linking the Northeast District to other residential and commercial areas and major roadway facilities.

The Northeast Connector Expressway – Phase 1 segment will also provide a vital north-south connection between the planned OPE and the planned Osceola / Brevard County Connectors. These connections will promote regional connectivity, provide for transit opportunities, and enhance mobility in Osceola County and the entire Central Florida region. The link between the planned OPE and Osceola / Brevard County Connectors will also provide a seamless limited access, high-speed connection from the OIA to I-95 in Brevard County.

2.3 Capacity

The Northeast Connector Expressway – Phase 1 project is needed to meet additional roadway capacity needs in the study area and distribute local and regional trips.

2.4 Transportation Demand

The East Central Florida Corridor Task Force recommended a north-south multimodal corridor (Corridor D) to serve the planned population areas within the North Ranch and establish connectivity to other regional destinations and east-west corridors. The current roadway network serving the Northeast District cannot adequately accommodate the anticipated increase in residential units or commercial properties. Portions of the Northeast District are already under construction including, the Del Webb Sunbridge development, which will include more than 1,350 homes at its completion. Two other Sunbridge neighborhoods are also in the planning / permitting phase and are expected to begin construction shortly.

2.5 Social Demands and Economic Development

In August 2017, Fishkind and Associates (FKA) developed socioeconomic data for the CF&M Studies for the 2015 base year and 2025, 2035, and 2045 forecast years for the pertinent traffic analysis zones (TAZs). The study area for the FKA analysis includes all of Osceola County and the southern portion of Orange County. This section provides an overview of the population, employment, and economic characteristics of Osceola County.

According to the FKA report, Osceola County represents the tenth fastest-growing county in Florida from 2000 to 2015 with a population increase of 150,000 people. The University of Florida's Bureau of Economic and Business Research (BEBR) and FKA's population forecast for Osceola County anticipate that the population will almost double from 2015 to 2045, from a population in the low 300,000's to a population in the low 600,000's, depending on the model being utilized. Similarly, employment in Osceola County is anticipated to double between 2015 and 2045 from 115,035 to 227,612.

Employment / Population (E/P) ratios are a function of the economic linkages from community to community and the pace at which economic development occurs. According to the FKA report, the Osceola County E/P ratios indicate that Osceola County functions economically as a "bedroom" community for Orange County. By 2045, employment in Orange County and Osceola County is expected to increase by almost 66 percent and 36 percent, respectively.

There are currently 46 approved Developments of Regional Impact (DRI) in Osceola County. FKA estimates that the unbuilt residential and commercial holding capacity of the 46 DRIs within Osceola County total the following: 67,789 residential units, 31.6 million square feet of commercial space and 30,235 hotel rooms. The information in the Socioeconomic Data Forecast Analysis supports the Northeast District Conceptual Master Plan and Osceola

County future land use map showing a significant increase in residential and commercial development in the study area.

Based on the anticipated population and employment growth in Osceola County, the Northeast Connector Expressway – Phase 1 project is needed to provide a reliable transportation option.

2.6 Modal Interrelationships

Osceola County’s Northeast District Conceptual Master Plan created a Multimodal Transit District. Development in the area will follow principles of smart growth and seek to reduce automobile use by enabling multimodal travel. The design will place transit stations within the dense central core with multimodal access via pedestrian and bicycle trails. A significant portion of residents will have pedestrian or bicycle trail access to the transit station in the central core.

The Northeast Connector Expressway – Phase 1 project will connect the Northeast District Multimodal Transit District to OPE and therefore also provide connections to the OIA and Lake Nona / Medical City. The connector will also tie into the planned Osceola / Brevard County Connectors, which will provide connections to I-95.

CFX has established a multimodal policy to fund or partner on multimodal initiatives where revenue generated from the investment equals the project cost or where toll user benefits are equal to or exceed the project cost. Opportunities to provide multimodal improvements will be considered as part of the alternatives developed to address the purpose and need for this project.

2.7 Safety

The Northeast Connector Expressway – Phase 1 project will provide an enhanced evacuation route during emergency evacuations. As noted above, the East Central Florida Corridor Task Force expressed concern over the region’s ability to support effective evacuation and response during extreme weather events and other emergencies.

The Florida Division of Emergency Management identified I-4, Florida’s Turnpike, and SR 417 as significant evacuation routes in the region. Nova Road is also a critical evacuation route in the study area. The Northeast Connector Expressway – Phase 1 project would provide an indirect connection to SR 417 via the proposed OPE and a direct connection to Nova Road. Therefore, the Northeast Connector Expressway will enhance emergency evacuation in the study area.

3.0 Corridor Development

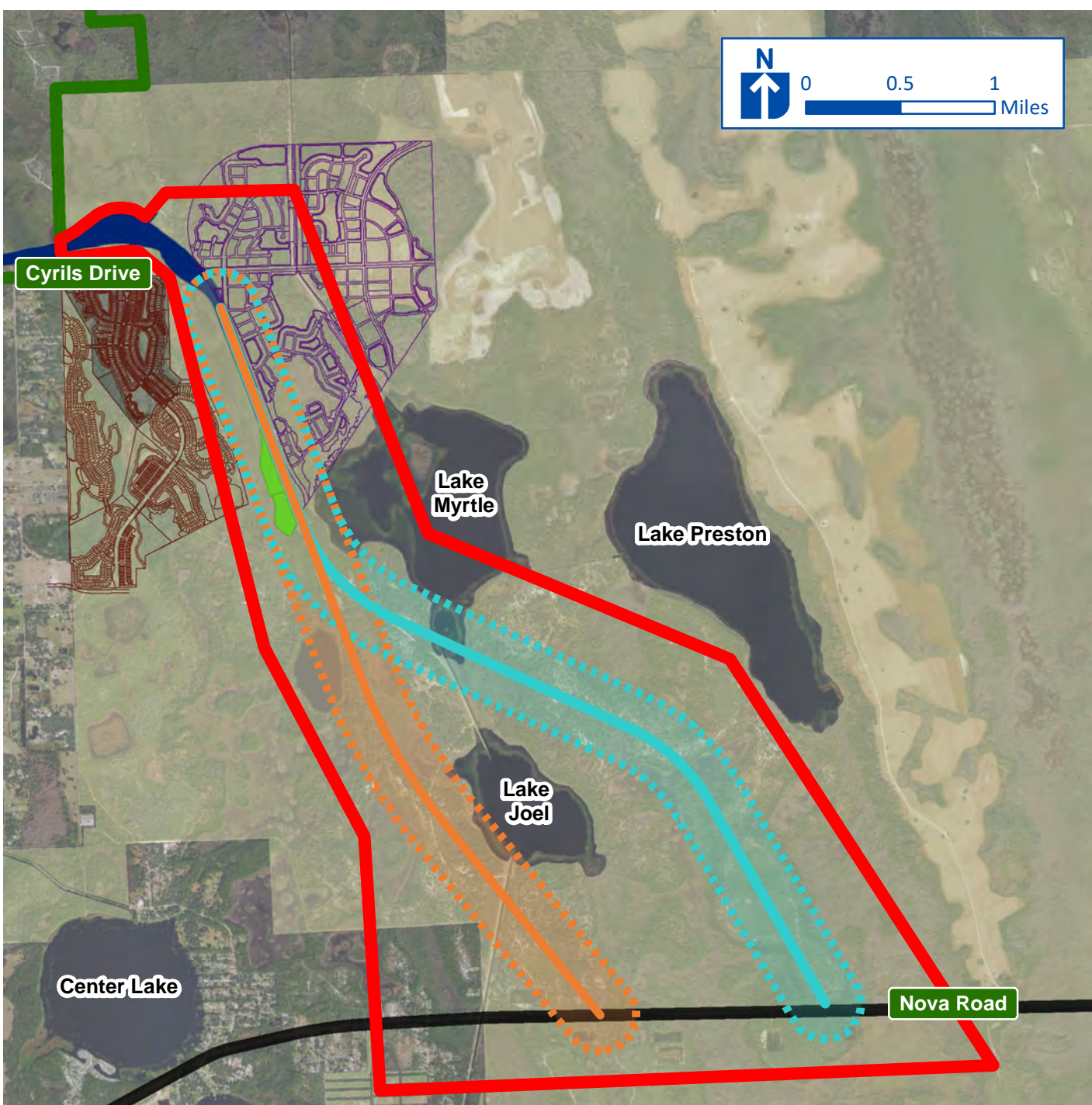
Preliminary corridor options were developed for the proposed Northeast Connector Expressway – Phase 1 segment. These corridors were developed to maximize the upland in the study area and, where possible, be consistent with local plans. Each corridor is 2,000 feet wide for the purpose of assessing the potential social, cultural, natural, and physical impacts for each option. Two corridors were developed for the project and are described below and shown in Figure 3.0.1.

3.1 Corridor A











Corridor A was developed to be consistent with the Northeast District Conceptual Master Plan. The centerline of the corridor follows the general alignment of the expressway presented in the Northeast District Street Framework (shown in Figure 1.3.1). This corridor begins at the southern terminus of the proposed OPE and continues at a slightly southeasterly direction until just north of Lake Joel, where the corridor turns more easterly until it terminates at Nova Road.

3.2 Corridor B

Corridor B follows the same alignment as Corridor A until just north of Lake Bullock. The alignment location in this part of the corridor avoids the utility site planned by Tavistock on the west side of the corridor and by the planned Sunbridge neighborhoods on the east. Near Lake Bullock, Corridor B turns more easterly until it aligns with Lake Joel, and then shifts to a less drastic southeasterly heading until it terminates at Nova Road. The corridor was developed to “meander” between the environmental constraints of Lake Myrtle and Lake Joel while utilizing as much of the upland property as possible.



LEGEND

	Study Area		OPE Preferred Alternative		Sunbridge Neighborhoods
	Corridor A		Split Oak Forest		Del Webb Development
	Corridor B		Deseret Ranches Property		
	Nova Road		Tavistock Utility Site		

4.0 Corridor Evaluation

The corridor evaluation considered a number of factors including an assessment of purpose and need compliance, and social, cultural, natural, and physical impacts. The purpose of this task is to eliminate all inferior or suboptimal corridor alternatives.

4.1 Purpose and Need Evaluation

A screening to assess how well each alternative corridor satisfies the established project's purpose and need was conducted. Each corridor alternative needs to provide enhanced north-south mobility and connectivity to existing and future east-west corridors as compared to the No-Build Alternative. In addition, each corridor was evaluated against the project need categories described in Section 2 of this report:

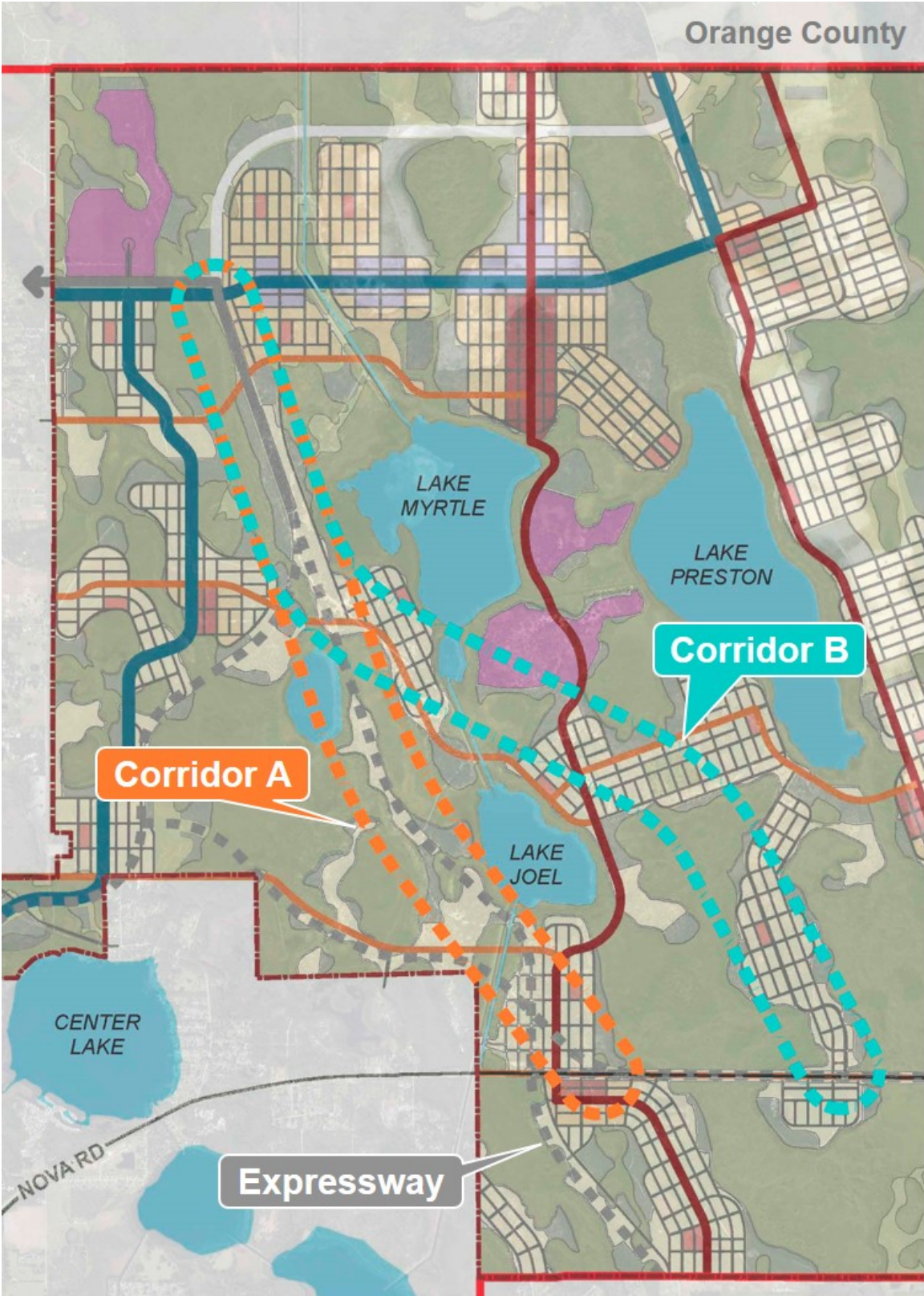
- Project Status;
- System Linkage and Regional Connectivity;
- Capacity;
- Transportation Demand;
- Social Demands and Economic Development;
- Modal Interrelationships; and
- Safety.

Both corridors meet the project's purpose, which is to enhance north-south mobility and provide connections between existing and future east-west corridors. Corridors A and B both connect the planned OPE with the planned Osceola / Brevard County Connectors and Nova Road, which addresses the purpose of the project.

Project status considers whether the project has planning consistency. Corridor A is consistent with the expressway location approved in the Northeast District Conceptual Master Plan and Corridor B is not, as shown in Figure 4.1.1. Corridor B crosses a part of the special district as well as three neighborhoods shown in the conceptual master plan. Traversing through multiple neighborhoods and the special district indicates that Corridor B is not consistent with the locally approved master plan and therefore does not adequately address project status.

Similarly, Corridor A supports the residential and commercial development approved in the Northeast District Conceptual Master Plan. Corridor B supports development on the Northeast District property, but not in the configuration approved by Osceola County and the Department of Community Affairs. Therefore, Corridor A better addresses the need of social demands and economic development.

Figure 4.1.1: Northeast District Corridor Overlay



Both Corridors A and B support system linkage and regional connectivity, capacity, transportation demand, enhanced multimodal opportunities, and improve safety through improved emergency evacuation routes.

Overall, Corridor A is the most consistent with the established purpose and need for the project.

4.2 Environmental Evaluation

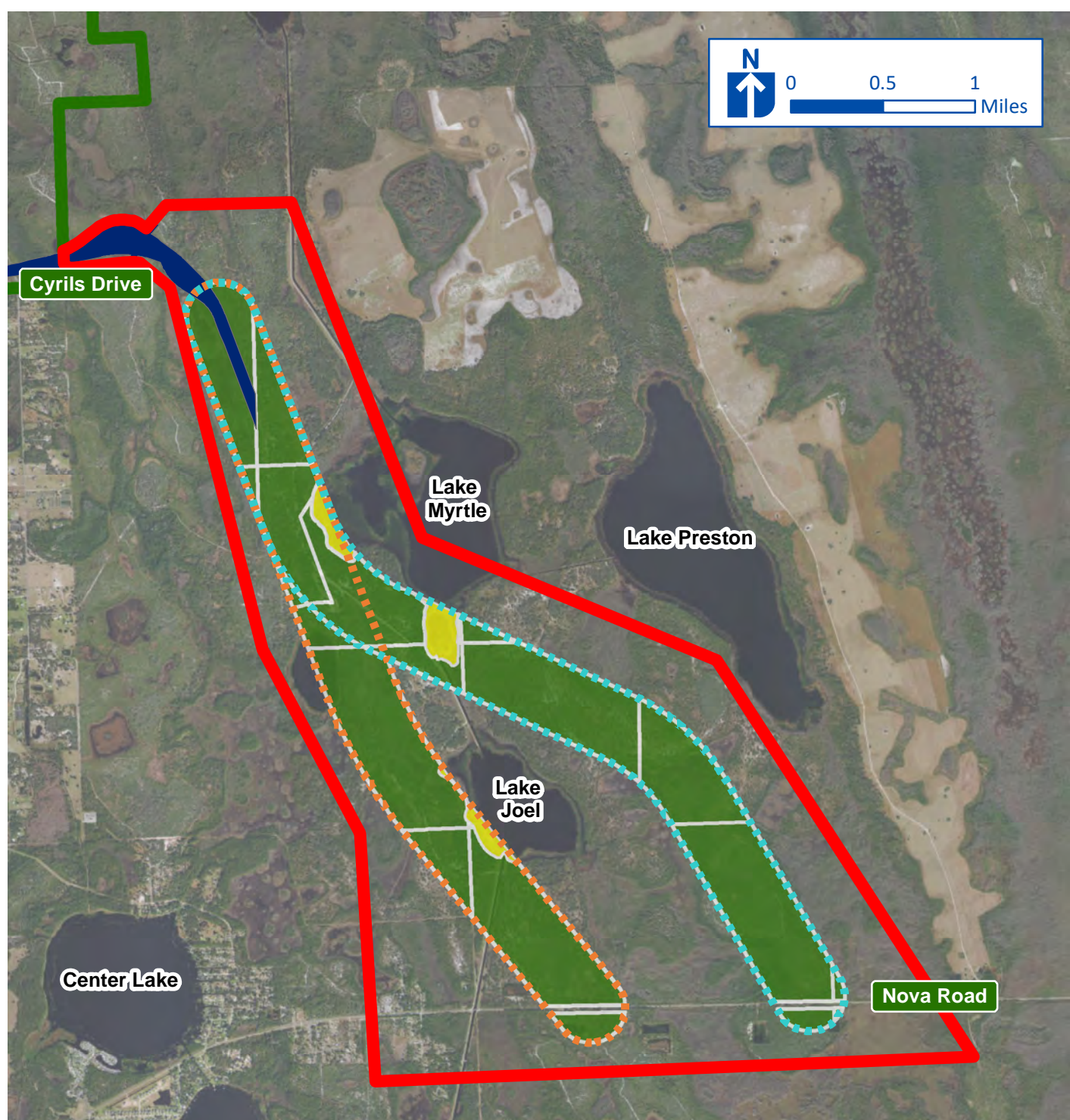
The potential environmental impact assessment is based on desktop analysis and available Geographic Information System (GIS) data. A more thorough environmental assessment with fieldwork will be completed once a preferred corridor is selected.

4.2.1 Social and Economic Resources








The potential social and economic impacts of both corridors are similar due to the nature of the land use and the limited number of property owners in the corridor. The current land use in the study area is primarily grazing land. The majority of the study area property is owned by Deseret Ranches. The Board of Trustees of the Internal Improvement Trust Fund (TIITF) is the only other property owner in either corridor. The TIITF owns the land for the canals that cross the property. Corridor A results in a total of 12 parcel impacts: 10 owned by subsidiaries of Deseret Ranches and two owned by TIITF as shown in Figure 4.2.1. Corridor B results in a total of 14 parcel impacts: 13 owned by subsidiaries of Deseret Ranches and one owned by TIITF. According to the Osceola County property appraiser, there are no buildings / structures located within either corridor. Table 4.2.1 provides a summary of the social and economic resources for the corridor alternatives.

Table 4.2.1: Social and Economic Resources Matrix

Criteria	Corridor A	Corridor B
Total Parcels in the Corridor	12	14
Number of Owners in the Corridor	2	2
Total Acreage per Corridor	1,113 acres	1,315 acres
Number of Buildings	0	0



LEGEND

	Study Area		OPE Preferred Alternative	Parcel Ownership	
	Corridor A		Split Oak Forest		Farmland Reserve Inc.
	Corridor B		TIITF		

As mentioned previously, Corridor A is consistent with the Northeast District Conceptual Master Plan; whereas Corridor B is consistent solely in the area where the two corridors overlap. Meetings were held with Deseret Ranches and Tavistock Development Company in October 2020 to discuss the project and both entities expressed a strong desire for Corridor A to move forward as the preferred corridor.

4.2.2 Cultural Resources

A cultural resource desktop analysis of Corridor A and Corridor B was prepared in September 2020. The purpose of the desktop analysis was to identify the cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP).

A review of the Florida Master Site File (FMSF) database updated in July 2020 indicates that four previous cultural resource surveys have been conducted within the study area; however, the area remains largely unsurveyed for cultural resources. Of the previous surveys, one archaeological survey of the Sunbridge Permit Area 3 recorded one cultural resource (8OS02933) within the current study area. Resource 8OS02933 is a twentieth-century historic artifact scatter that was determined ineligible for listing in the NRHP by the State Historic Preservation Officer (SHPO) on April 1, 2019.

The Osceola County Property Appraiser’s database was reviewed to identify parcels containing unrecorded structures of historic age. This search identified no parcels or structures within the current study area with an “actual year” built date earlier than 1976. There are, however, three segments of an unrecorded historic canal traversing the study area.

The potential for prehistoric sites to be identified within the project area was assessed based on an examination of environmental variables (soil drainage, access to streams and wetlands and marine resources, relative elevation), as well as the results of previously conducted surveys. Due to the variation in soil drainage and proximity to freshwater, the probability for unrecorded prehistoric sites within the study area ranges from low to high. The highest probability for prehistoric sites is in elevated well-drained landforms near freshwater or marine resources. Areas of moderate probability have less well-drained soils or are situated at a greater distance from freshwater or marine resources. Low probability areas generally include those portions of the study area that contain very poorly drained soils or significant levels of subsurface disturbance (e.g., buried utility lines or drainage features).

The desktop analysis for the two corridors found that the historic and archaeological potential for both alternatives is the same, as shown in Table 4.2.2.

Table 4.2.2: Cultural Resources Matrix

Corridor	Previous Surveys	Recorded Resources	Historic Parcels	Historic Linear Resources
A	4	1	0	1
B	4	1	0	1

The one recorded resource (8OS02933) is located in an area where the two corridors overlap, just west of Lake Myrtle. Figure 4.2.2 shows the location of the historic linear resources (unrecorded historic canals). Corridor A impacts the canal south of Lake Joel, while Corridor B impacts the canal south of Lake Myrtle.

4.2.3 Natural Resources

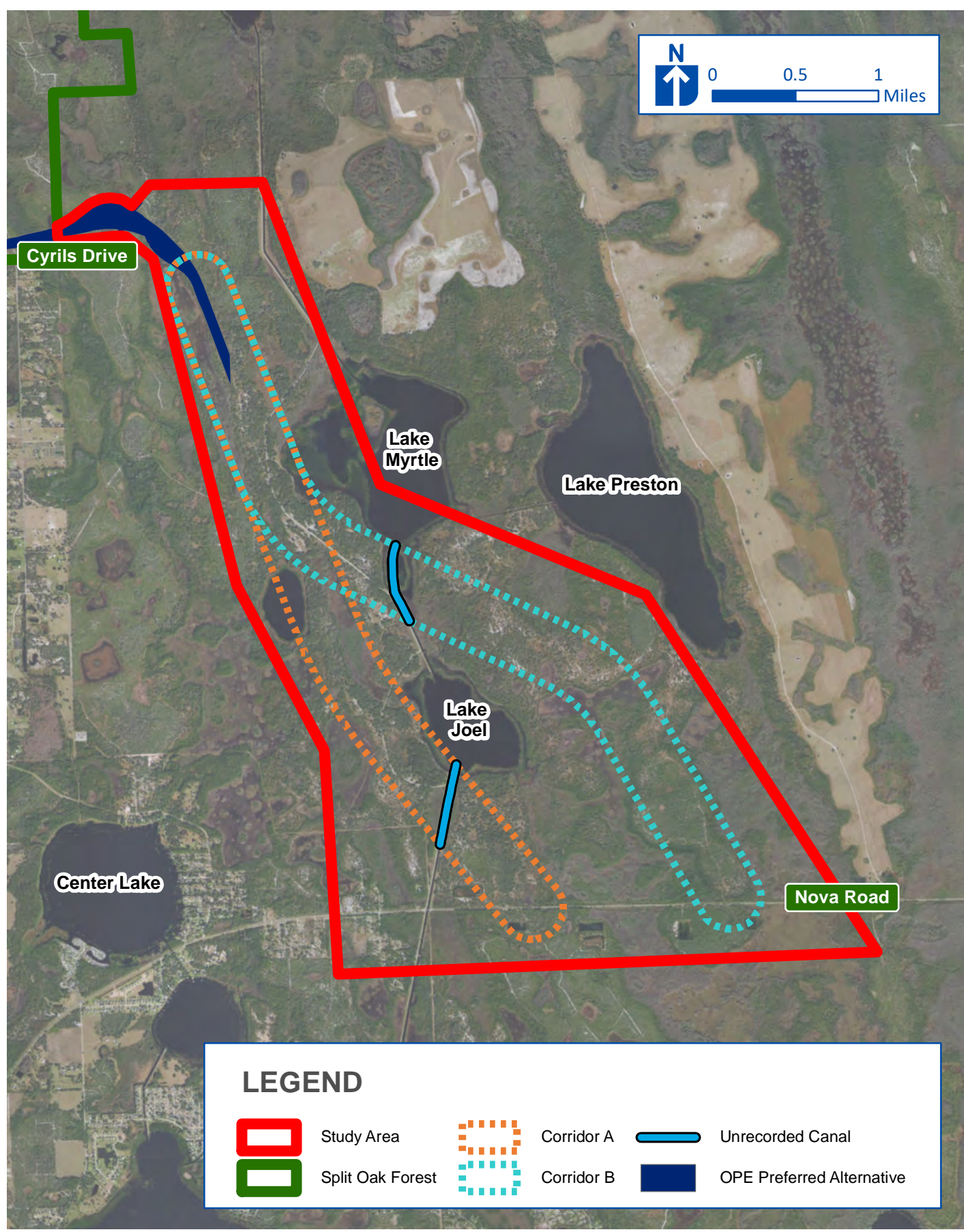
4.2.3.1 Wetlands, Surface Waters, and Scrub Habitat

A preliminary calculation of the wetlands, surface waters, and scrub habitat were performed for each corridor based on the South Florida Water Management District (SFWMD) existing land features and photo interpretation of Florida Department of Transportation (FDOT) aerials from 2018. The analysis showed that Corridor A has approximately 50 acres less wetlands and scrub habitat in the corridor than Corridor B, as shown in Table 4.2.3. Corridor A does include approximately 27 acres more surface water than Corridor B. Figure 4.2.3 shows the wetlands and scrub habitat within the corridors.







Table 4.2.3: Wetlands and Surface Waters Matrix

Criteria	Corridor A	Corridor B
Total Wetlands (acres)	329.5	379.6
<i>Herbaceous Wetlands</i>	<i>219.5</i>	<i>222.8</i>
<i>Forested Wetlands</i>	<i>110.0</i>	<i>156.8</i>
Surface Waters (acres)	44.9	18.1
Scrub Habitat (acres)*	37.4	87.1

* Note that during a field review on November 17, 2020, no high-quality scrub habitat was found in either project corridor.

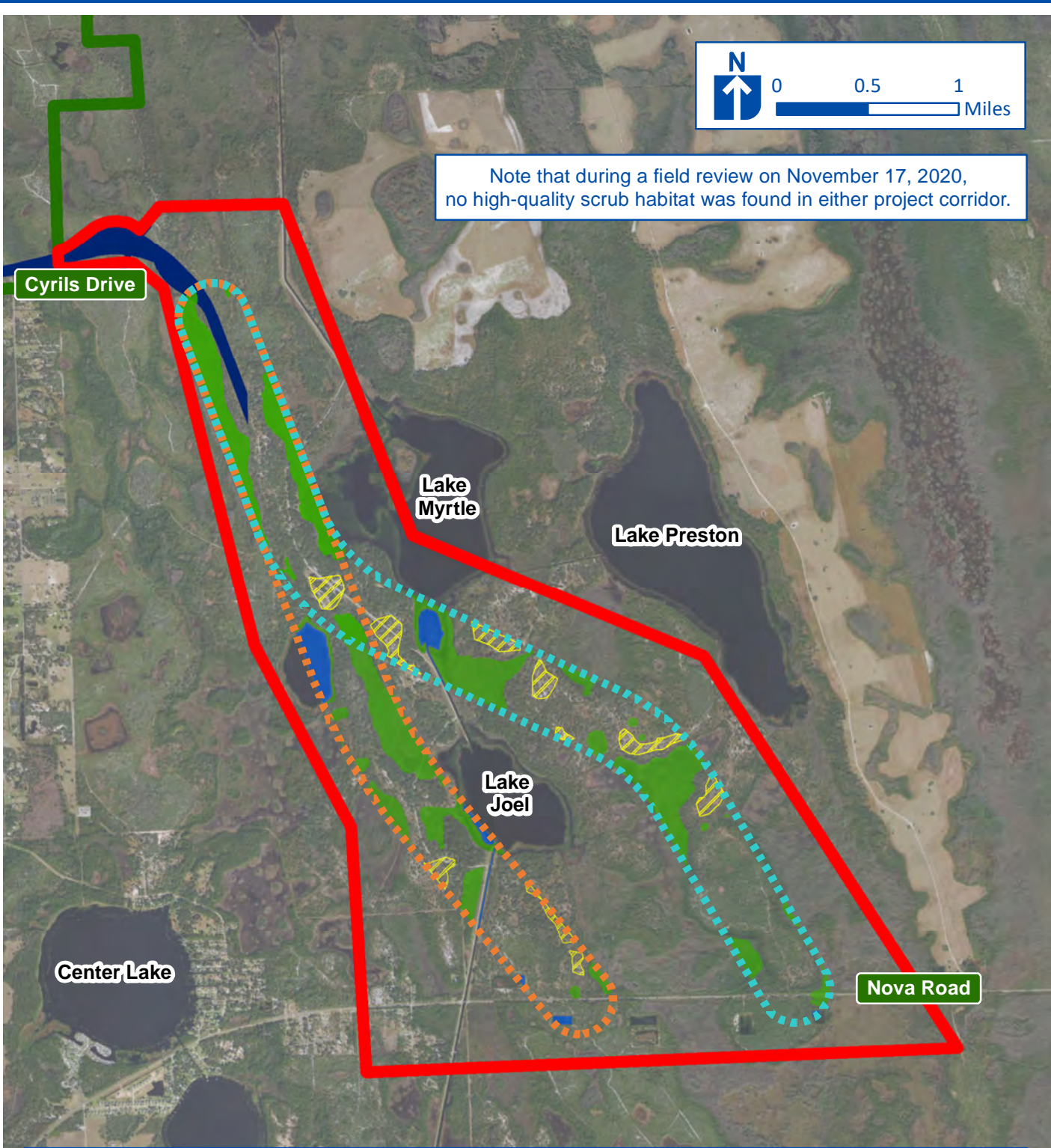


LEGEND









	Study Area		Corridor A		Unrecorded Canal
	Split Oak Forest		Corridor B		OPE Preferred Alternative



Note that during a field review on November 17, 2020, no high-quality scrub habitat was found in either project corridor.



LEGEND

	Study Area		Corridor A		Surface Waters		Scrub Habitat
	Split Oak Forest		Corridor B		Wetlands		OPE Preferred Alternative

4.2.3.2 Floodplains

A preliminary calculation of the floodplains was performed for each corridor using the Federal Emergency Management (FEMA) Digital Flood Insurance Rate Map (DFIRM). Both corridors have a similar quantity of 100-year floodplains within the corridor and are shown in Figure 4.2.4. In addition, three canal segments cross or intersect Corridor A and two canal segments cross Corridor B as shown in Table 4.2.4.

Table 4.2.4: Floodplain and Canal Comparison

Criteria	Corridor A	Corridor B
100-Year Floodplains (acres)	49.6	47.2
Number of Canal Crossings	3	2

4.2.3.3 Listed Species

A preliminary field review of Corridor A and Corridor B was conducted on November 17, 2020. The purpose of this field review was to evaluate general habitat types and to evaluate the corridors for potential involvement with threatened or endangered species. Both corridors are dominated by oak hammocks, pine flatwoods, wetland marsh, and cypress systems. The US Fish and Wildlife Service’s Environmental Conservation Online System (ECOS) provided the list of potentially occurring federally protected species shown in Table 4.2.5. Table 4.2.5 also includes potentially occurring species which are state-listed or included in Florida’s Imperiled Species Management Plan (2016 and amended December 2018). Due to the similarity of habitat types found within Corridor A and Corridor B, the likelihood of occurrence for each of the listed species is identical.

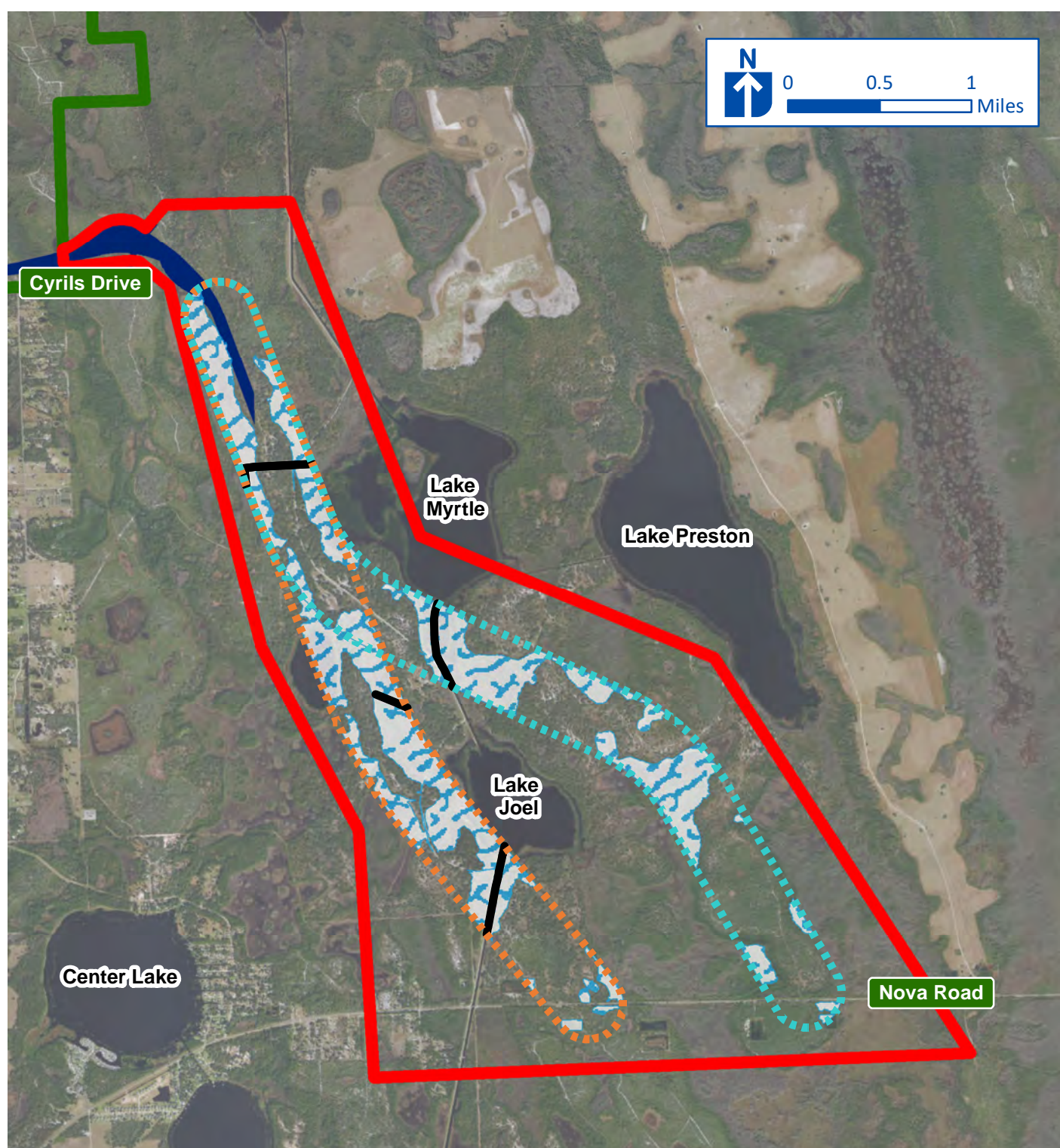
Table 4.2.5: Listed Species Likelihood of Occurrence

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence	
				Corridor A	Corridor B
<i>Mammals</i>					
Florida Panther	<i>Puma concolor coryi</i>	<i>E</i>	<i>E</i>	Low	Low
Florida Black Bear	<i>Ursus americanus floridanus</i>	<i>N</i>	<i>N*</i>	Moderate	Moderate
<i>Reptiles</i>					
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	<i>T</i>	<i>T</i>	High	High
Blue-Tailed Mole Skink	<i>Plestiodon egregious lividus</i>	<i>T</i>	<i>T</i>	Low	Low
Sand Skink	<i>Neoseps reynoldsi</i>	<i>T</i>	<i>T</i>	Low	Low

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence	
				Corridor A	Corridor B
American Alligator	<i>Alligator mississippiensis</i>	<i>T(S/A)</i>	<i>N</i>	High	High
Gopher Tortoise	<i>Gopherus polyphemus</i>	<i>C</i>	<i>T</i>	High	High
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	<i>N</i>	<i>T</i>	High	High
Birds					
Everglade Snail Kite	<i>Rostrhamus sociabilis plumbeus</i>	<i>E</i>	<i>E</i>	Moderate	Moderate
Red-Cockaded Woodpecker	<i>Picoides borealis</i>	<i>E</i>	<i>E</i>	Low	Low
Wood Stork	<i>Mycteria americana</i>	<i>T</i>	<i>T</i>	High	High
Audubon's Crested Caracara	<i>Polyborus plancus audubonii</i>	<i>T</i>	<i>T</i>	Low	Low
Florida Scrub-Jay	<i>Aphelocoma coerulescens</i>	<i>T</i>	<i>T</i>	Low	Low
Southeastern American Kestrel	<i>Falco sparverius paulus</i>	<i>N</i>	<i>T</i>	Moderate	Moderate
Florida Sandhill Crane	<i>Grus canadensis pratensis</i>	<i>N</i>	<i>T</i>	High	High
Florida Burrowing Owl	<i>Athene cunicularia floridana</i>	<i>N</i>	<i>T</i>	Low	Low
Little Blue Heron	<i>Egretta caerulea</i>	<i>N</i>	<i>T</i>	High	High
Tricolored Heron	<i>Egretta tricolor</i>	<i>N</i>	<i>T</i>	High	High
Roseate Spoonbill	<i>Ajaia ajaja</i>	<i>N</i>	<i>T</i>	Moderate	Moderate
Bald Eagle	<i>Haliaeetus leucocephalus</i>	<i>N**</i>	<i>N**</i>	Moderate	Moderate
E= Endangered; T=Threatened; T(S/A)=Threatened due to Similarity of Appearance; SSC=Species of Special Concern; C – Candidate Species; N=Not Listed; *The Florida black bear is still protected under Florida Black Bear Conservation Rule 68A-4.009 (F.A.C.) and the FWC Florida Black Bear Management Plan **The Bald eagle is still protected under the <i>Bald and Golden Eagle Protection Act</i> , <i>Migratory Bird Treaty Act</i> and FWC Management Plan regulations					

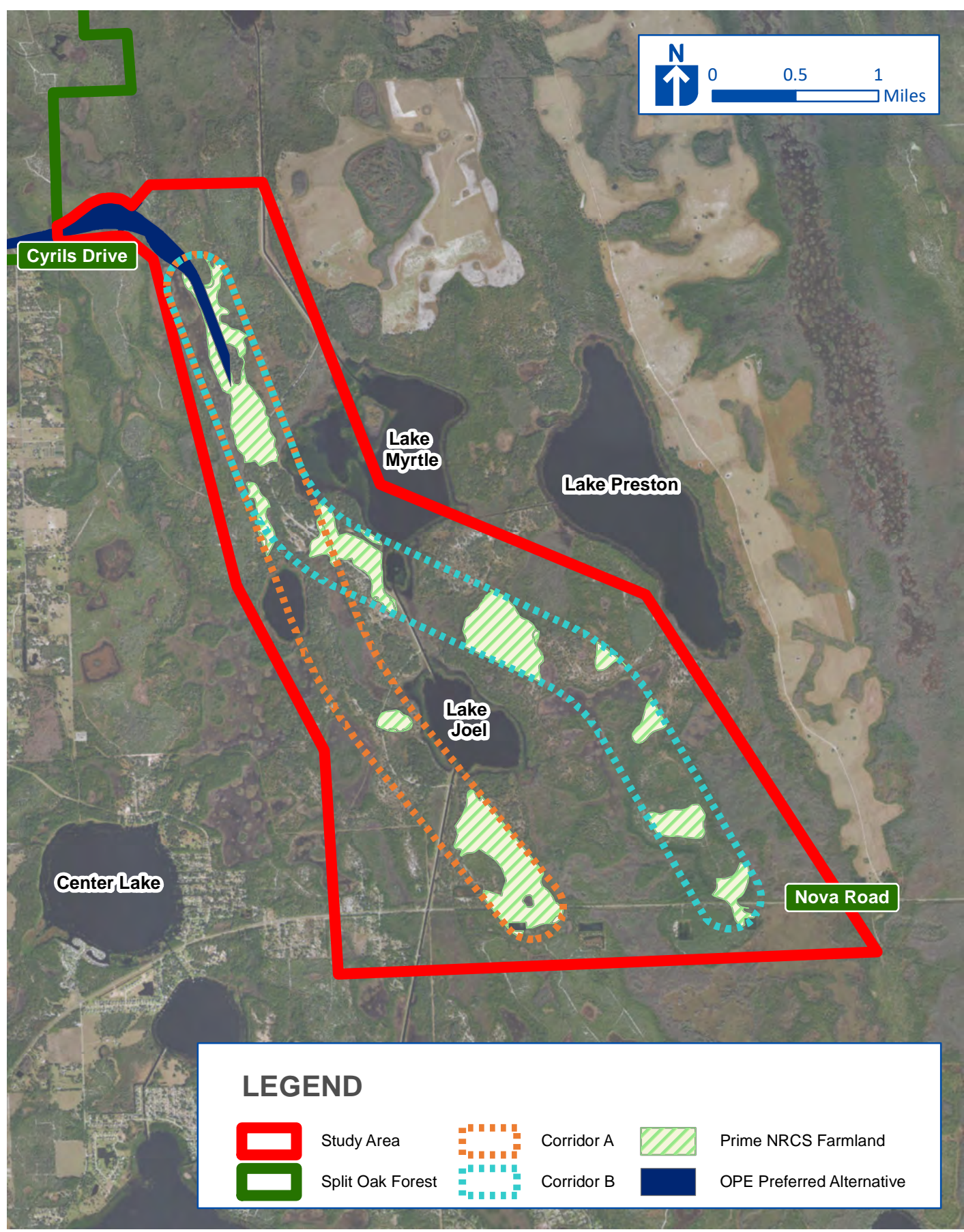
4.2.3.4 Prime Farmland

A preliminary calculation of the prime farmland as classified by the Natural Resources Conservation Service (NRCS) was performed for each corridor. The analysis showed that Corridor A has approximately 315 acres of prime farmland and Corridor B has approximately 390 acres of prime farmland as shown in Figure 4.2.5. The majority of the prime farmland is categorized as either unimproved pastures or woodland pastures.









LEGEND

	Study Area		Corridor A		100-year Floodplain		Canal
	Split Oak Forest		Corridor B		OPE Preferred Alternative		



LEGEND

	Study Area		Corridor A		Prime NRCS Farmland
	Split Oak Forest		Corridor B		OPE Preferred Alternative

4.2.4 Physical Resources

A desktop contamination screening was performed for the corridors using aerial photography, a Google Earth railroad map layer, and the Florida Department of Environmental Protection's (FDEP's) Map Direct website. The following contamination concerns exist within the study area and are shown on Figure 4.2.6:

- Cattle ranching;
- A fishing camp; and
- Two petroleum tanks.

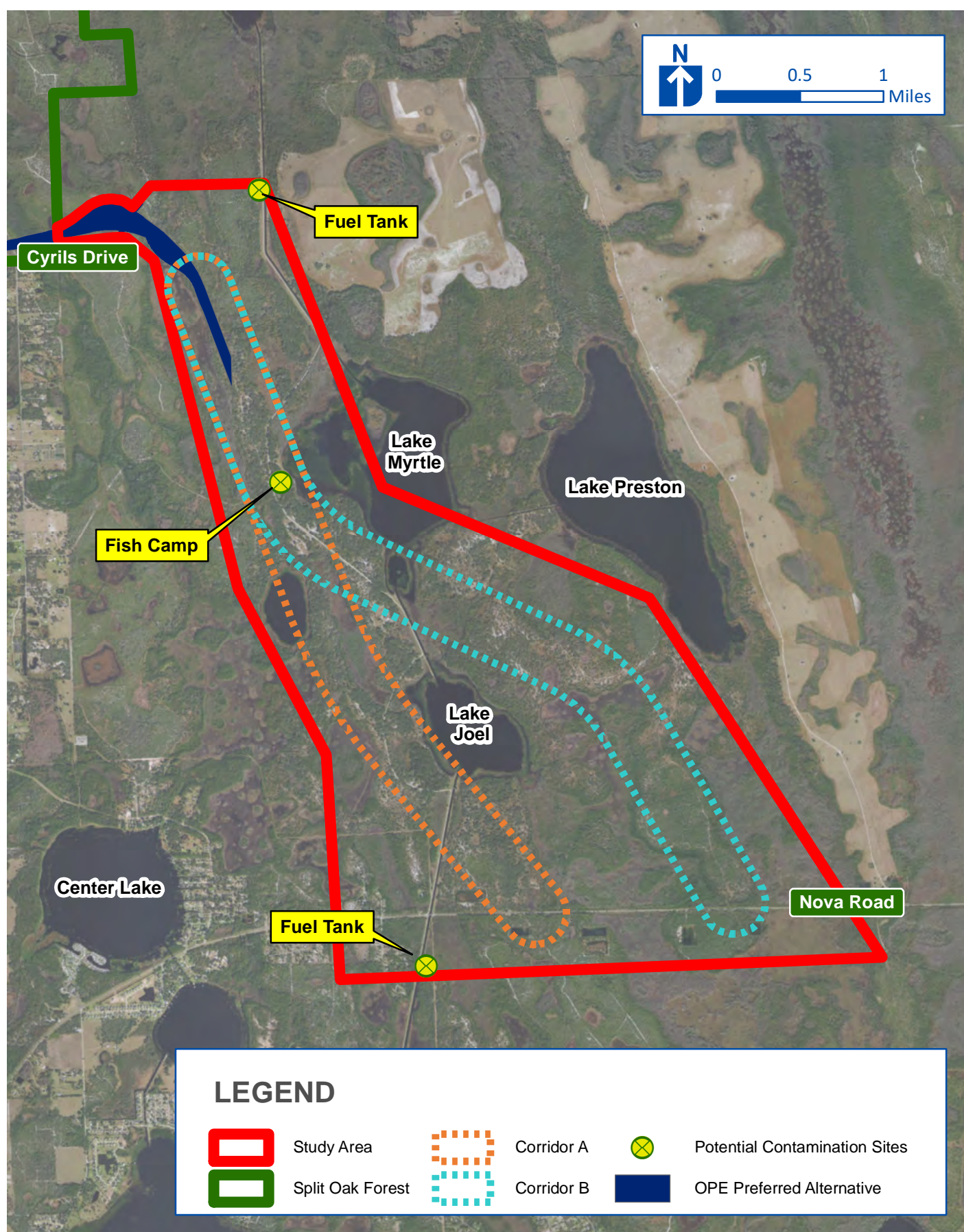
No superfund sites were identified within one mile of the study area. The potential contamination concerns located within the two corridors are identical and include:

- Cattle ranching; and
- A fishing camp.

The predominant indicators of potential contamination in the corridors are the fishing camp, with a potential for fuel tanks, and current or historical cattle ranching activities. Cattle ranching operations may have incorporated cattle dip vats and cattle pens / barns where pesticides were applied (arsenic).

Petroleum storage tanks are prone to leakage and spills, causing contaminated soil and / or groundwater. The presence of petroleum contamination can impact highway construction activities such as soil excavation and dewatering. Construction in petroleum-impacted areas typically has to be performed by a Contamination and Remediation (CAR) contractor and project costs increase due to the requirement for special handling and treatment of contaminated material. The presence of non-petroleum contaminated environmental media (soil, groundwater, surface water, and sediment) can also have a significant negative impact on the cost and schedule to complete a roadway construction project.

The sites and land uses listed above will be further evaluated during the contamination screening evaluation to assess their impact on alignment alternative(s) once a corridor is selected.



LEGEND

- Study Area
- Split Oak Forest
- Corridor A
- Corridor B
- X Potential Contamination Sites
- OPE Preferred Alternative

4.3 Engineering Evaluation

Detailed engineering analysis will be performed once a corridor is selected and alignment alternative(s) are developed.

4.3.1 Geotechnical Considerations

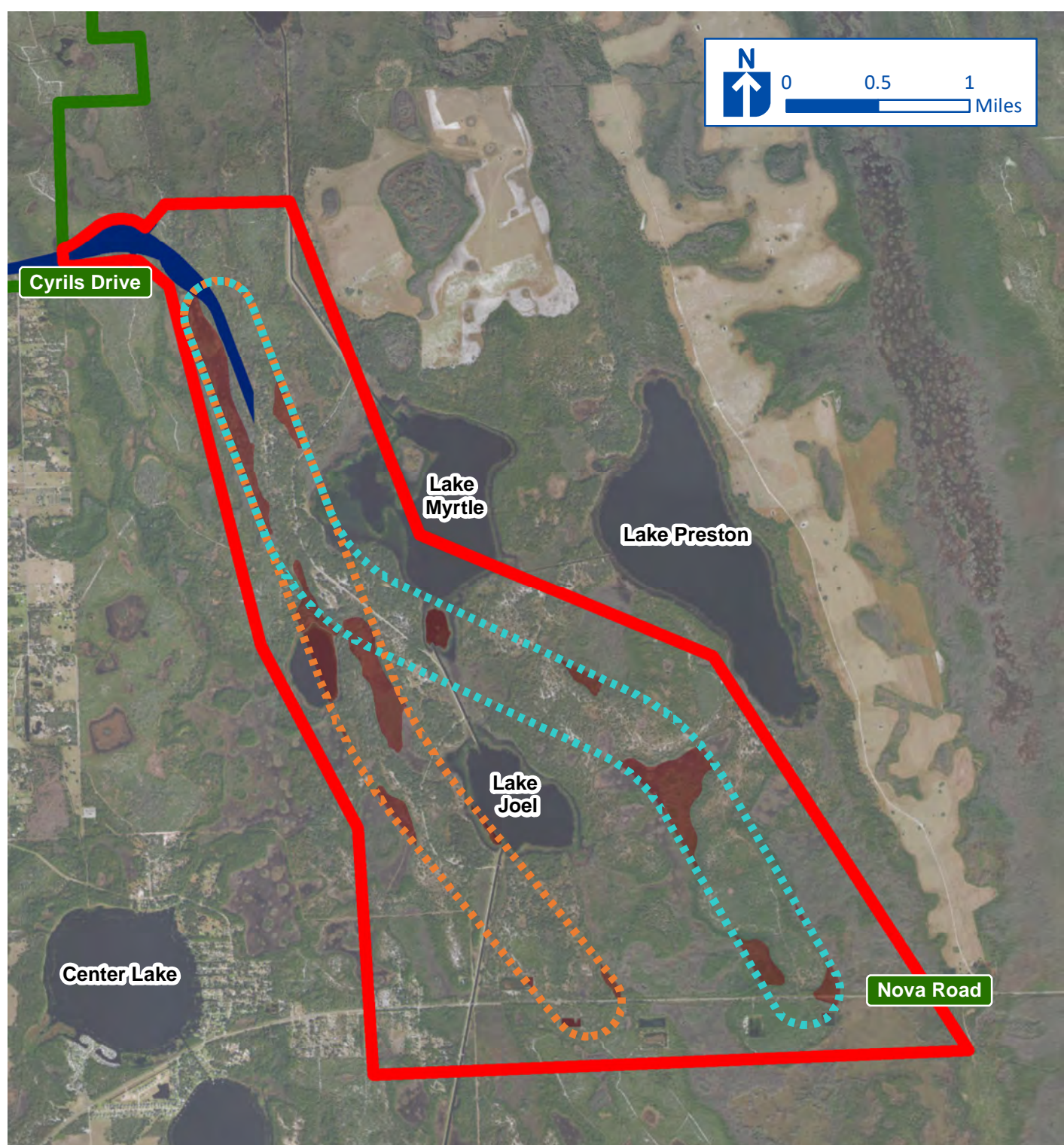
The geotechnical investigation for this ACE consisted of a desktop review of data to identify critical geotechnical conditions. The US Geological Survey (USGS) quadrangle maps indicate a flat topography with natural grades generally ranging from 65 to 70 feet above the natural ground.

The Natural Resources Conservation Service (NRCS) soil survey for Osceola County indicated that most of the soils along the alignment are fine sands with varying amounts of silt that are generally suitable for highway construction. However, the corridors do cross several lakes, swamps, and existing ponds which can have severe limitations for roadway embankment construction. Corridor A and Corridor B include areas of muck along the corridor as shown in Figure 4.3.1. The preliminary estimates of muck within each corridor are as follows:







- Corridor A: 245 acres; and
- Corridor B: 266 acres.

The majority of the land that is not considered muck within the corridors is considered sandy soil with shallow groundwater, which indicates that existing groundwater levels are within 1.5 feet of the natural ground surface. Shallow groundwater will present challenges that will have to be addressed during design and construction.

A review of the USGS survey map entitled “Recharge and Discharge Areas of the Floridan Aquifer in the St. Johns River Water Management District and Vicinity, Florida” shows that both corridors are located in a zone of low to moderate discharge. Therefore, the relative risk of sinkhole formation along both corridors is low to moderate compared to the overall risk across Central Florida.



LEGEND

	Study Area		Corridor A		Organic Soils (Muck)
	Split Oak Forest		Corridor B		OPE Preferred Alternative

4.3.2 Cost

Construction and right-of-way costs will be determined for the alignment alternative(s) developed once a corridor is selected.

The centerline length of each corridor was calculated to give an approximate scale of the potential difference in project costs between corridors. Corridor A is approximately 4.3 miles in length and Corridor B is approximately 5.1 miles in length. Assuming that other factors like bridge length are equal, Corridor B would have a higher construction cost, since it is 0.8 miles longer than Corridor A. Similarly, Corridor B requires an additional 202 acres in the corridor, likely resulting in a higher right-of-way cost than Corridor A.

5.0 Recommendations

Table 5.0.1 provides a summary of the corridor evaluation.

Table 5.0.1: Corridor Evaluation Matrix

Criteria	Corridor A	Corridor B
Purpose and Need	Most Consistent	Somewhat Consistent
Stakeholder Input	Favored	Not Favored
Social		
Consistency with Northeast District Master Plan	Consistent	Not Consistent
Total Parcels in Corridor	12	14
Number of Owners in the Corridor	2	2
Total Acreage in Corridor (acres)	1,113	1,315
Number of Buildings in the Corridor	0	0
Cultural		
Previous Cultural Resource Surveys	4	4
Recorded Archaeological Resources	1	1
Historic Parcels	0	0
Historic Linear Resources	1	1
Natural		
Total Wetlands (acres)	329.5	379.6
Surface Waters (acres)	44.9	18.1
Potential Scrub Habitat (acres)*	37.4	87.1
100-Year Floodplain (acres)	49.6	47.2
Prime NRCS Farmland (acres)	315	390
Number of Canal Crossings	3	2
Physical		
Potential Contamination Sites	2	2
Engineering		
Length (miles)	4.3	5.1
Relative Project Cost	Lower	Higher
Organic Soils / Muck (acres)	245	266
Recommendation	Recommended to be Carried Forward	Not Recommended to be Carried Forward

* Note that during a field review on November 17, 2020, no high-quality scrub habitat was found in either project corridor.

The ACE process indicates that both corridor alternatives meet the intent of the project's purpose, but Corridor A is superior in addressing the need for the project as discussed in Section 4.1. The following list highlights the differences between the two corridors:

Social Considerations

- Corridor A is consistent with the Northeast District Master Plan and Corridor B is not consistent as shown in Figure 4.1.1;
- Stakeholders have a strong preference for Corridor A;
- Both corridors have two property owners and no buildings present;
- Due to a longer overall length, Corridor B has 200 additional acres in the corridor, which would likely translate into a higher right-of-way cost.

Cultural Considerations

- Corridors are identical:
 - One previously recorded resource; and
 - One historic canal.

Natural Environment Considerations

- Corridor A has 50.1 acres fewer wetlands than Corridor B;
- Corridor B has 26.8 acres fewer surface waters than Corridor A;
- Corridors A and B have a similar quantity of floodplains (2.4 acres more in Corridor A); and
- Corridor A has one potential additional canal crossing than Corridor B.

Physical Considerations

- Corridors A and B have identical potential contamination impacts.

Engineering Considerations

- Corridor A has 21 acres less organic soils or muck in the corridor than Corridor B;
- Corridor A is 0.8 mile shorter than Corridor B; and
- Corridor A is anticipated to have a lower construction cost than Corridor B.

The environmental impacts for Corridor A and B are comparable. The differentiator between corridors is the local plan consistency, which ultimately affects the purpose and need. In that respect, Corridor A is superior to Corridor B and is therefore recommended to be carried forward in the PD&E Study.