Concept, Feasibility, & Mobility Study
Interim Report

Osceola/Brevard County Connectors
From Nova Road to I-95
Osceola, Brevard, and Orange Counties, Florida

CFX Project Number: 599-229

Prepared for:

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Osceola/Brevard County Connectors (OBCC) represent two potential expressway connections recommended for further study by the East Central Florida Corridor Task Force (ECFCTF). The ECFCTF was created to evaluate and develop consensus recommendations on future transportation corridors serving established and emerging economic activity centers in portions of Brevard, Orange, and Osceola counties (Florida Governor Executive Order 13-319). These included:

- Corridor D – A multimodal corridor along the Orange/Osceola county line to provide connectivity between the Orlando International Airport/Lake Nona area, the Northeast District of Osceola County, the North Ranch Master Plan, and the SR 520 corridor; and,
- Corridor F – A multimodal corridor from the Orlando International Airport/Lake Nona area through the proposed North Ranch Master Plan to central/southern Brevard County, including the potential need for an additional crossing of the St. Johns River.

The general objective of this Concept, Feasibility and Mobility (CF&M) Study is to provide documented information necessary for the Central Florida Expressway Authority (CFX) to determine the feasibility of the respective transportation corridors.

1.2 PURPOSE OF REPORT AND STUDY PAUSE

The purpose of this report is to document the development and evaluation of alternate mobility programs within the project corridors. This includes the evaluation and documentation of the physical, natural, social, and cultural environment within the corridors and potential impacts associated with each mobility alternative. This report also addresses economic and engineering feasibility; mobility capacity and levels of congestion; conceptual geometry and structures; and potential interchanges and intersection improvements. Interagency coordination and results are documented herein. However, public involvement, which is integral to this this type of study, was not completed.

In June 2021, CFX made the decision to pause the OBCC CF&M Study instead of moving forward with public meetings. While significant evaluation was completed and input received leading up to this determination, a range of factors, including an overall lack of consensus, indicated that a study pause was prudent and in the best interest of planning for these corridors. At this stage in a CF&M study, there is typically analysis and evaluation results regarding the feasibility and retention of alternatives, including a general consensus of support around a particular alternative or alternatives. However, most OBCC alternatives continue to have significant opposition from one or more key stakeholders. The Study Team has also evaluated the travel demand forecast and believes that it is challenged to adequately provide an appropriate view of the future transportation need in the study area at this time. This study is evaluating corridors that are not expected to be developed for some time. The input received and evaluation conducted during this study effort made clear that land use and economic plans within this area continue to evolve. As they mature in the years ahead, the likely pattern of growth that would drive the need for OBCC corridors will become more evident.

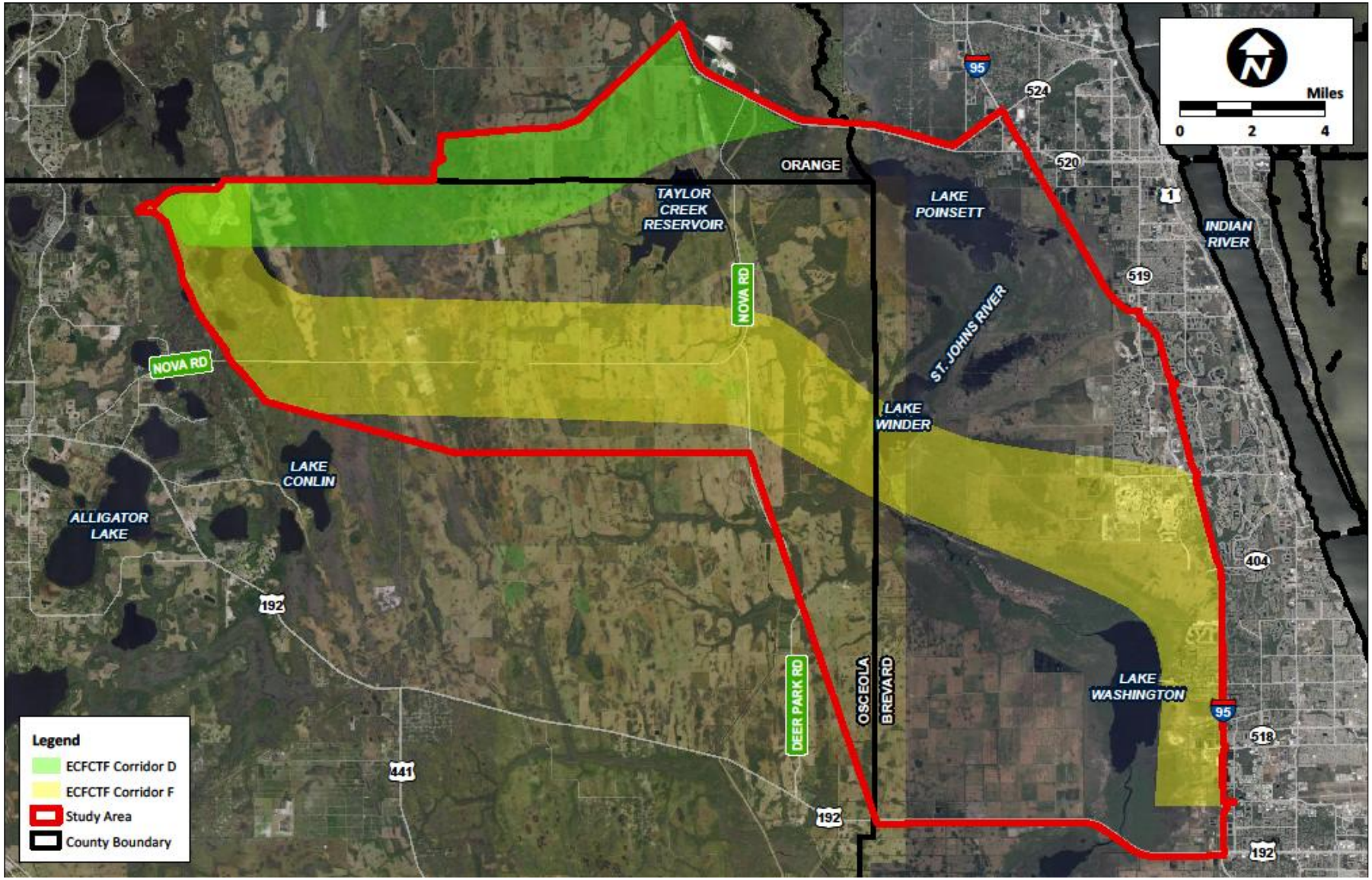
The concept for these corridors (D and F) was formalized through recommendations of the East Central Florida Corridor Task Force in 2014. Because of their potential importance to the growing regional transportation network, these corridors were included in the CFX 2040 Master Plan in 2016. This laid the

groundwork for the OBCC study which began in 2020. Owing to their continued importance, Corridor D and F are expected to remain in CFX's 2045 Master Plan which will be presented for approval by the CFX Board in 2022. These corridors have also been included in other plans. For example, prior to start of the CF&M study, a proposed corridor similar to Alternative F1 was included in Osceola County's North Ranch Sector Plan within the Comprehensive Plan and in the Space Coast TPO Vision Plan, documented in their Long Range Transportation Plan in place at that time. Looking ahead, CFX will monitor plans for growth and development in the study area and will remain engaged with key stakeholders to determine the appropriate point to continue further study of the alternatives within Corridors D and F identified in this report. In the meantime, the CF&M study effort completed to date, including high-level evaluation of eight alternatives and extensive input of stakeholders, Environmental Advisory Group, Project Advisory Group, and Environmental Stewardship Committee, is being documented in this Interim Report.

1.3 PROJECT LOCATION

The study area for the OBCC CF&M Study is illustrated on **Exhibit 1-1**. This exhibit also identifies the original corridors D and F identified by the ECFCTF. The study area is bounded by the planned Osceola Parkway Extension (SR 534) expressway to the west and Interstate 95 (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.

Exhibit 1-1: Study Area and ECFCTF Corridors



1.4 PREVIOUS STUDIES RELATED TO THE PROJECT

In 2007, myregion.org completed a 50-year regional visioning process with input from nearly 20,000 residents of Brevard, Lake, Orange, Osceola, Polk, Seminole, and Volusia counties. This process culminated in the adoption of the How Shall We Grow? vision and regional growth compact by representatives of seven counties and 86 cities. The vision focused on four key themes: Conservation, Countryside, Centers, and Corridors. The vision specifically identified the need for improving connectivity between Orlando and southern Brevard County.

In 2014, the ECFCTF utilized the How Shall We Grow? framework to evaluate a study area from Orlando and Kissimmee to Cape Canaveral and Palm Bay, and recommended improving existing corridors and evaluating potential new corridors. Prior to the Executive Order creating the Task Force, this study area evaluation was also proposed in a 2013 FDOT Future Corridors Concept Report for the Tampa Bay to Central Florida region. FDOT is taking the lead on evaluating existing corridors identified by the ECFCTF, and the CFX is taking the lead in evaluating potential new corridors. The Final ECFCTF Report included recommendations for evaluating potential new east-west corridors (Corridors D and F) and new north-south corridors (Corridors H and I). The OBCC CF&M study is addressing Corridors D and F. CFX has already addressed Corridor I as part of the Northeast Connector Expressway Extension (NECEE) CF&M Study. Corridor H is being addressed by a planned local roadway (i.e., Sunbridge Parkway).

Osceola County and Farmland Reserve, Inc. (an entity of Deseret Ranches of Florida) developed the North Ranch Sector Plan, which was adopted in October 2015, to be consistent with the Task Force recommendations. This sector plan covers approximately 133,000 acres and represents the majority of the Osceola County portion of the OBCC Study Area. The transportation plan for the sector plan includes expressways in Corridors D, F, and I from the ECFCTF.

In 2019, CFX completed the NECEE CF&M Study which evaluated the Corridor I identified by the ECFCTF and also addressed the Task Force's objectives for Corridor H (i.e., Continuation of the project development process for the Northeast Connector Expressway and extension of this expressway from its planned terminus at the Osceola Parkway Extension (SR 534) to the SR 528 corridor, including potential multimodal improvements). This study evaluated multiple alignments and concluded that no "fatal flaws" were identified with engineering and environmental issues. It recommended that as development within or near the study area progresses, a more comprehensive study should be conducted to identify a preferred alternative that will serve the needs of the community.

1.5 OTHER PROJECTS WITHIN OR NEAR THE STUDY AREA

1.5.1 CFX PROJECTS

Osceola Parkway Extension (SR 534) Project Development and Environment Study (PD&E)

On December 12, 2019, the CFX Board approved the Preferred Alternative for the Osceola Parkway Extension (SR 534) PD&E re-evaluation. The preferred alternative, consisting of the Lake Nona Alternative to the west of Narcoossee Road and the Split Oak Minimization Alternative to the east of Narcoossee Road, had the fewest social impacts and highest projected traffic of the alternatives considered.

Northeast Connector Expressway – Phase 1 PD&E

CFX is conducting a PD&E for Phase 1 of the Northeast Connector Expressway which will extend the eastern terminus of SR 534 south to Nova Road.

1.5.2 ADDITIONAL CAPACITY PROJECTS – DOT, MPO, TPO, LOCAL

There are roadway and other capital improvement projects identified in the Florida Department of Transportation's (FDOT) Five Year Work Program, the MetroPlan Orlando Transportation Improvement Program (TIP), and the Space Coast Transportation Planning Organization (TPO) TIP for the Years 2021 through 2025 that are scheduled to occur within or near the study area. These projects are identified in **Table 1-1**.

Table 1-1: Programmed Roadway and Other Improvement Projects

Roadway	From	To	Responsible Entity	Improvement
Sunbridge Parkway	SR 534	Aerospace Parkway	Orange Co.	New 4-Lane Road
SR 520	N. of SR 520	Orange/Brevard Co. Line	FDOT	Resurfacing
SR 520	SR 524	A1A	Space Coast Area Transit	Bus Service
Ellis Road	Johns Rhodes Boulevard	S. Wickham Road	FDOT/ Brevard Co.	Widen to 4-Lanes

2.0 PROJECT NEED AND PURPOSE

2.1 NEED FOR IMPROVEMENT

The need for the project is to: provide system linkage; provide regional connectivity and mobility; meet social and economic needs; provide multimodal opportunities; and enhance safety, evacuation support, and resiliency.

2.1.1 SYSTEM LINKAGE

System linkage is defined as linking two or more existing or planned transportation facilities, types of modal facilities, geographic areas, or regional traffic generators. Two specific linkages are being evaluated in this study.

2.1.1.1 CORRIDOR D

Corridor D, as identified by the East Central Florida Corridor Task Force (ECFCTF), is a new multimodal corridor along the Orange/Osceola County line from the Orlando International Airport/Lake Nona area to the State Road 520 corridor. Corridor D connects the planned SR 534 (extending from SR 417) to I-95 in northern Brevard County.

2.1.1.2 CORRIDOR F

Corridor F, as identified by the ECFCTF, is a new multimodal corridor from the Orlando International Airport/Lake Nona area to central/southern Brevard County. Corridor F connects the planned SR 534 (extending from SR 417) and the Northeast Connector – Phase 1 to I-95 in central/southern Brevard County.

2.1.2 REGIONAL CONNECTIVITY AND MOBILITY

Mobility is the movement of people and goods and the ability to meet transportation demands. Two specific movements are being evaluated in this study.

2.1.2.1 CORRIDOR D

Corridor D provides regional connectivity and mobility from the Orlando International Airport/Lake Nona area to the State Road 520 corridor, serving the Northeast District and portions of the North Ranch (both are planned developments in Osceola County). This corridor serves the east-west travel between Orange and Osceola counties and northern Brevard County.

2.1.2.2 CORRIDOR F

Corridor F provides regional connectivity and mobility from the Orlando International Airport/Lake Nona area to central/southern Brevard County to provide a more direct connection between these economic centers, as well as to serve the emerging population centers in the Northeast District and the North Ranch. This corridor serves the east-west travel between Orange and Osceola counties and central/southern Brevard County.

2.1.3 SOCIAL AND ECONOMIC NEEDS

Current and future growth in land-use development, population, and employment opportunities within the study area contribute to the need for a coordinated transportation network providing access to and mobility within the east central Florida region. Over the past several years, a number of initiatives have been considered to develop a regional vision for managing growth and mobility needs.

In 2007, myregion.org completed a 50-year regional visioning process for Brevard, Lake, Orange, Osceola, Polk, Seminole, and Volusia counties. This process culminated in the adoption of the How Shall We Grow? vision and regional growth compact by representatives of seven counties and 86 cities. The vision specifically identified the need for improving connectivity between Orlando and southern Brevard County.

In 2013, Osceola County and Farmland Reserve, Inc. (an entity of Deseret Ranches of Florida), jointly initiated a long-term master planning process for 133,000 acres of the North Ranch in Osceola County under Florida's sector planning law. The North Ranch planning area is within the Osceola/Brevard County Connectors (OBCC) study area and is east and southeast of the Northeast District – a previously-approved 19,000 acre planned development area. The stated goals of the sector planning process are to maximize job growth and reinforce long-term economic sustainability for the region; protect large-scale natural systems; connect regions and economic centers with multimodal transportation systems; and plan mixed-use communities using the highest quality growth practices.

The North Ranch Master Plan was adopted by the Osceola County Board of County Commissioners in 2015. The North Ranch plan anticipates creating a network of 16 development nodes or centers to accommodate a population of approximately 355,000 residents by the year 2060 and an estimated 490,000 residents by the year 2080. The transportation framework within the North Ranch plan identifies the need for several new limited-access expressway corridors including the ECFCTF Corridors D and F, as well as the ECFCTF north-south Corridor I.

The OBCC would support the planned economic development within the study area consistent with the Northeast District and North Ranch plans, as well as the regional vision (How Shall We Grow?) and recommendations of the ECFCTF.

2.1.4 CONSISTENCY WITH TRANSPORTATION PLANS

For federally funded projects, planning consistency means that the metropolitan planning organization (MPO or TPO) long-range transportation plan (LRTP), MPO transportation improvement program (TIP), state TIP (STIP), and environmental documents (i.e., documentation resulting from a Project Development and Environment (PD&E) study) all reflect consistent project descriptions and information. While Central Florida Expressway Authority (CFX) is not required to follow the federal process, CFX seeks to be consistent with Local, State, and/or Regional Transportation Plans. This includes MPO LRTPs and local government comprehensive plans. In addition, MPOs and local governments look to CFX to evaluate potential expressways which serve regional needs. Both MetroPlan Orlando and Space Coast Transportation Planning Organization (TPO) are looking to CFX to identify the transportation improvement(s) to include in their LRTPs. As part of this Concept, Feasibility, and Mobility (CF&M) Study, CFX will work with the applicable agencies and local governments to support consistency with transportation plans.

2.1.5 MULTIMODAL OPPORTUNITIES

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. In addition, through the incorporation of the North Ranch Element, Osceola County's Comprehensive Plan calls for an integrated, multimodal transportation network within the North Ranch. Opportunities to support multimodal improvements will be considered as part of the alternatives developed to address the need and purpose for this project.

2.1.6 SAFETY, EVACUATION SUPPORT AND RESILIENCY

Resilience is defined as the ability to prepare and plan for, absorb, recover from, or more successfully adapt to actual or potential adverse events. An important consideration for the OBCC CF&M Study is evacuation. The Florida Division of Emergency Management has identified I-95, SR 520, SR 524, Nova Road (CR 532), and US 192 as evacuation routes in the study area. In addition, SR 417 is an evacuation route which will be connected to Corridors D and F.

2.2 PURPOSES OF THE PROPOSED PROJECT

The primary purposes of the transportation improvements are to construct a limited-access expressway that would: provide direct system linkage to existing and proposed regionally significant transportation networks; promote overall regional connectivity and mobility; support the region's growing population and economy; support consistency with transportation plans; provide for the expansion of multimodal options; and improve safety, evacuation support, and resiliency for the region.

3.0 EXISTING CONDITIONS

The study area for the Osceola/Brevard County Connectors (OBCC) Concept, Feasibility, & Mobility (CF&M) Study is illustrated on **Exhibit 3-1**. The study area is bounded by the planned SR 534 expressway to the west and Interstate 95 (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.

A larger influence area is also identified on **Exhibit 3-2**. It is anticipated that construction of the OBCC will influence travel patterns within this area; therefore, existing conditions for roadways within the larger influence area have been identified.

The OBCC CF&M study also includes the evaluation of an alternative corridor which travels outside the study area. This alternative, the Environmental Advisory Group (EAG) Alternative, is a result of input received from the EAG during its September 1, 2020 meeting. The EAG Alternative will utilize a portion of the Northeast Connector Expressway Extension (NECEE) (Segments 1 and 2) previously studied by Central Florida Expressway Authority (CFX). The NECEE study evaluated Corridor I, as recommended by the East Central Florida Corridor Task Force (ECFCTF). Segments 1 and 2 extend south from an east-west expressway corridor parallel to Nova Road to US 192, approximately 18 miles west of I-95. The Existing Conditions section from the NECEE CF&M Study is provided in **Appendix A**.

After traveling south, the EAG Alternative will travel east, parallel to US 192, to I-95. The Existing Conditions along US 192 are described in Section 5 of the East Central Florida Corridor Evaluation Study, Existing Conditions Data Report, provided in **Appendix B**.

Exhibit 3-1: Study Area

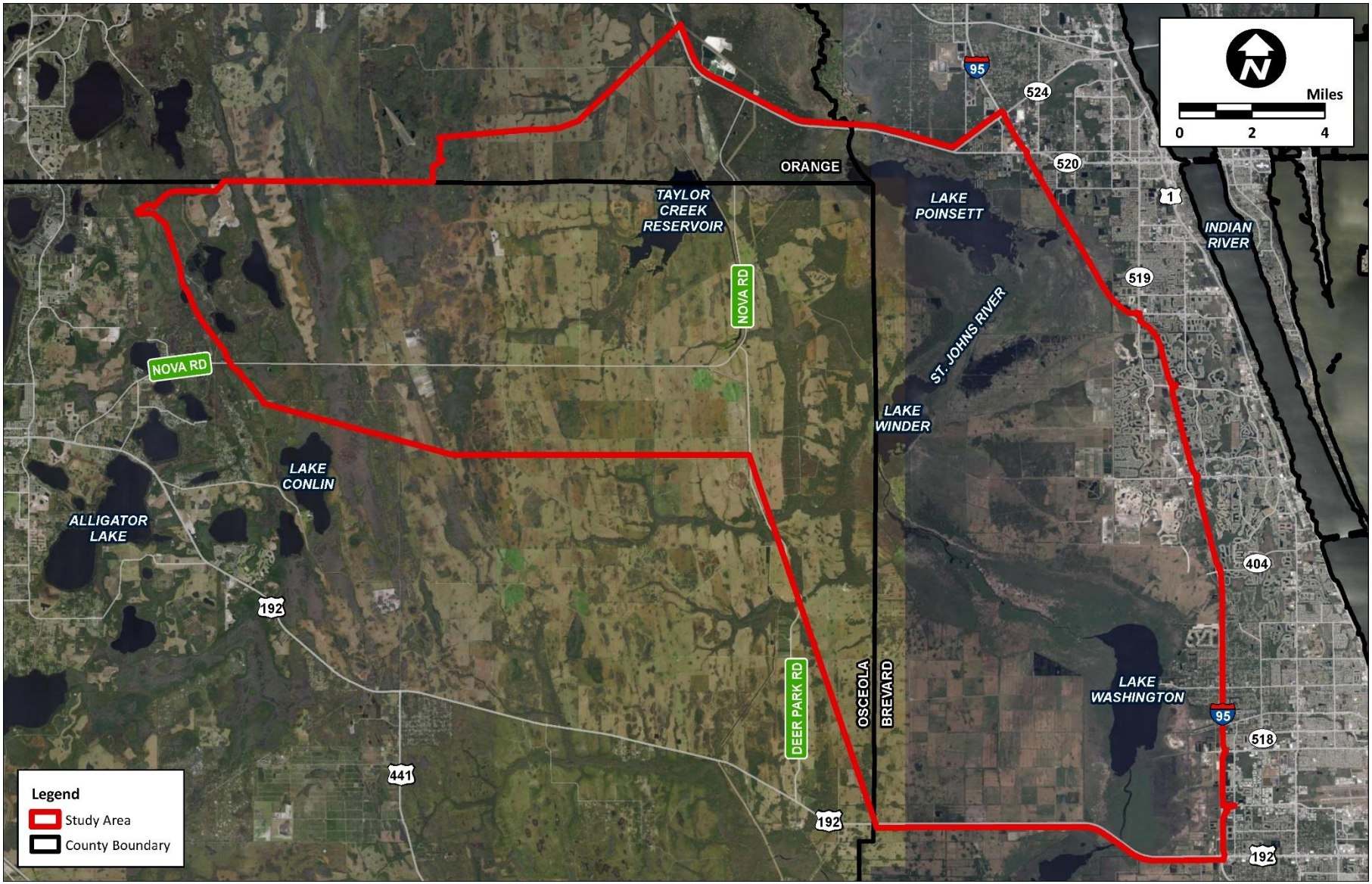
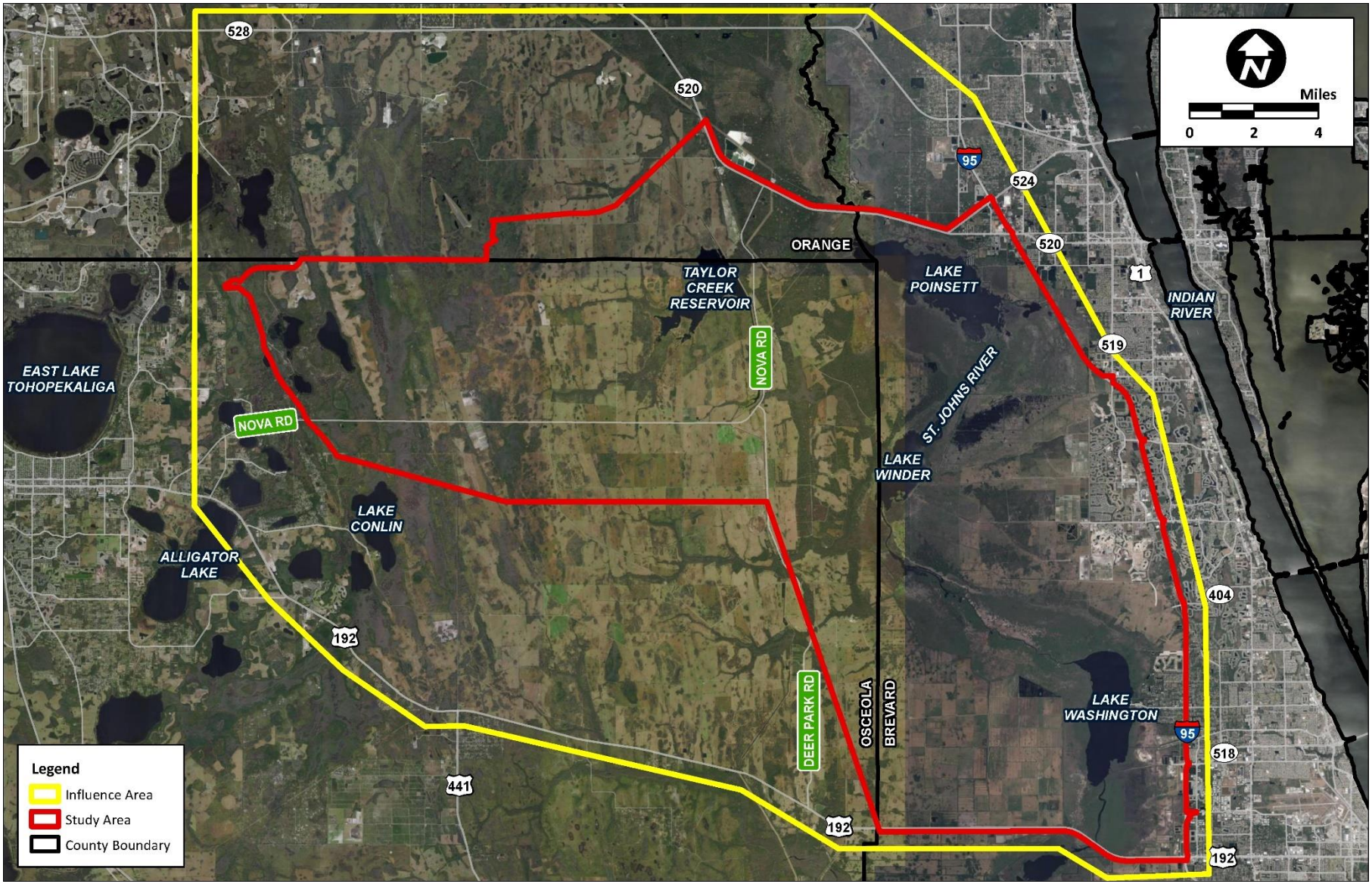


Exhibit 3-2: Influence Area



3.1 EXISTING ROADWAY NETWORK

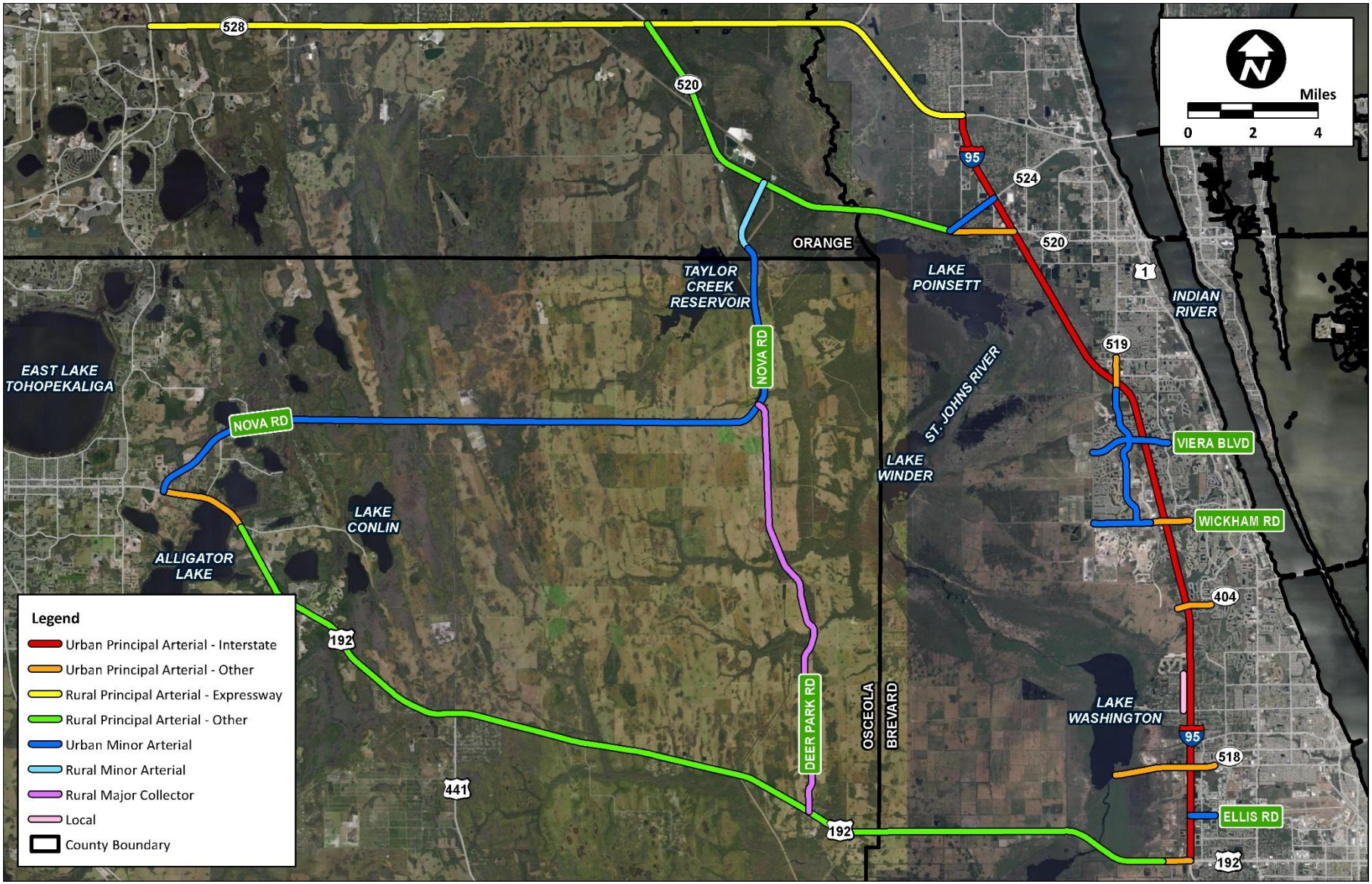
3.1.1 FUNCTIONAL CLASSIFICATION

The functional classifications for key roadways within the limits of this study are shown in **Table 3-1** and illustrated on **Exhibit 3-3**. The functional classifications were identified using the FDOT District 5, 2010 Urban Area Boundary & Federal Functional Classification for each roadway.

Table 3-1: Roadway Functional Classification

Roadway		Functional Classification
From	To	
SR 528		
SR 417	I-95	Rural Principal Arterial - Expressway
SR 520		
SR 528	SR 524	Rural Principal Arterial - Other
SR 524	I-95	Urban Principal Arterial - Other
SR 524		
SR 520	I-95	Urban Minor Arterial
US 192		
Nova Road (CR 532)	Old Melbourne Highway	Urban Principal Arterial - Other
Old Melbourne Highway	Simon Road	Rural Principal Arterial - Other
Simon Road	I-95	Urban Principal Arterial - Other
I-95		
US 192	SR 528	Urban Principal Arterial - Interstate
Nova Road (CR 532)		
US 192	Taylor Creek	Urban Minor Arterial
Taylor Creek	SR 520	Rural Minor Arterial
Deer Park Road (CR 419)		
US 192	Nova Road	Rural Major Collector
S. Fiske Boulevard/Stadium Parkway		
N. Wickham Road	I-95 Southbound Ramp	Urban Minor Arterial
I-95 Southbound Ramp	North of I-95	Urban Principal Arterial - Other
Viera Boulevard		
Powerline Road	East of I-95	Urban Minor Arterial
Wickham Road		
Powerline Road	Lake Andrew Drive	Urban Minor Arterial
Lake Andrew Drive	East of I-95	Urban Principal Arterial - Other
Pineda Causeway (SR 404)		
West of I-95	East of I-95	Urban Principal Arterial - Other
Eau Gallie Boulevard (SR 518)		
St. Johns River	East of I-95	Urban Principal Arterial - Other
Ellis Road		
I-95	East of I-95	Urban Minor Arterial
Washingtonia Drive		
Lake Washington Road	Province Drive	Local

Exhibit 3-3: Roadway Functional Classification



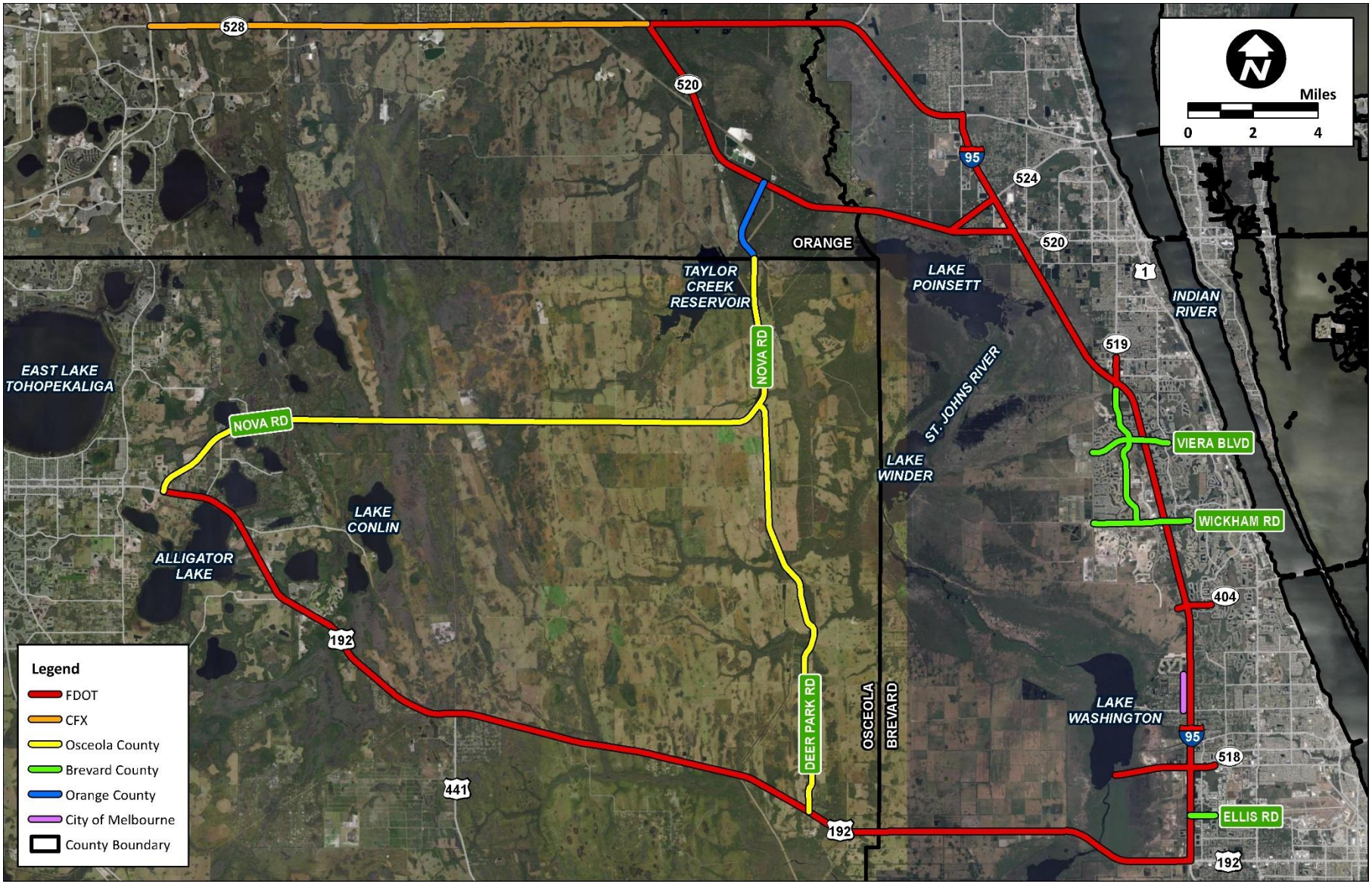
3.1.2 MAINTAINING AGENCY

The maintaining agency for roadways within the study area are summarized in **Table 3-2** and illustrated on **Exhibit 3-4**. The maintaining agency of the roadways on the State Highway System (SHS) were determined using the MyFlorida Transportation Map, while the maintaining agencies of the local government-maintained roadways were determined using local sources.

Table 3-2: Roadway Maintaining Agency

Roadway		Maintaining Agency
From	To	
SR 528		
SR 417	SR 520	CFX
SR 520	I-95	FDOT
SR 520		
SR 528	I-95	FDOT
SR 524		
SR 520	I-95	FDOT
US 192		
Nova Road (CR 532)	I-95	FDOT
I-95		
US 192	SR 528	FDOT
Nova Road (CR 532)		
US 192	Orange/Osceola County Line	Osceola County
Orange/Osceola County Line	SR 520	Orange County
Deer Park Road (CR 419)		
US 192	Nova Road	Osceola County
S. Fiske Boulevard/Stadium Parkway		
N. Wickham Road	I-95 Southbound Ramp	Brevard County
I-95 Southbound Ramp	North of I-95	FDOT
Viera Boulevard		
Powerline Road	East of I-95	Brevard County
Wickham Road		
Powerline Road	East of I-95	Brevard County
Pineda Causeway (SR 404)		
West of I-95	East of I-95	FDOT
Eau Gallie Boulevard (SR 518)		
St. Johns River	East of I-95	FDOT
Ellis Road		
I-95	East of I-95	Brevard County
Washingtonia Drive		
Lake Washington Road	Province Drive	City of Melbourne

Exhibit 3-4: Roadway Maintaining Agency



3.1.3 ACCESS MANAGEMENT CLASSIFICATION

The existing access management classifications for the roadways within the study area are shown in **Table 3-3**. The classifications of the roadways on the SHS were obtained from FDOT sources, while the classifications of the local government-maintained roadways were determined based on the observed use and interpretation from the FDOT Access Management Classification System. The FDOT Access Management Classification system for the applicable access classes are described below:

- Access Class 1 (SR 528, I-95) is limited-access, meaning direct property connections are not provided. Access is via interchanges which require justification. Interchange spacing is determined by the area type (i.e., rural, transitioning, or urbanized). The spacing is two miles in urbanized areas, three miles in transitioning areas, and six miles in rural areas.

- Access Class 3 (SR 520, portions of US 192, SR 518) is controlled access, meaning direct access to abutting land will be controlled to maximize the operation of the through traffic movement. Spacing for full median openings is 2,640 feet, directional median opening is 1,320 feet, and connection is 660 feet (situations in which the speed limit is more than 45 mph) or 440 feet (situations in which the speed limit is 45 mph or less).

- Access Class 4 is controlled access, meaning direct access to abutting land will be controlled to maximize the operation of the through traffic movement. Although similar to Class 3, Class 4 roadways are distinguished by non-restrictive median treatments. Spacing for full median openings is 2,640 feet, directional median opening is 1,320 feet, and connection is 660 feet (situations in which the speed limit is more than 45 mph) or 440 feet (situations in which the speed limit is 45 mph or less).

- Access Class 5 (portions of US 192) is controlled access, but not as restrictive as Class 3. Spacing for full median openings is 2,640 feet (situations in which the speed limit is more than 45 mph) or 1,320 feet (situations in which the speed limit is 45 mph or less), directional median opening is 660 feet, and connection is 440 feet (situations in which the speed limit is more than 45 mph) or 245 feet (situations in which the speed limit is 45 mph or less).

Table 3-3: Roadway Access Classification

Roadway		Access Management Classification
From	To	
SR 528		
SR 417	I-95	1
SR 520		
SR 528	I-95	3
SR 524		
SR 520	Friday Road	4
Friday Road	I-95	3
US 192		
Nova Road (CR 532)	Simon Road	3
Simon Road	I-95	5
I-95		
US 192	SR 528	1
Nova Road (CR 532)		
US 192	SR 520	4 [1]
Deer Park Road (CR 419)		
US 192	Nova Road	4 [1]
S. Fiske Boulevard/Stadium Parkway		
N. Wickham Road	King Street	3 [1]
King Street	North of I-95	4 [1]
Viera Boulevard		
Powerline Road	Porada Drive/Sedge Drive	4 [1]
Porada Drive/Sedge Drive	East of I-95	3 [1]
Pineda Causeway (SR 404)		
West of I-95	East of I-95	1 [1]
Eau Gallie Boulevard (SR 518)		
Jones Road	East of I-95	3

[1] Potential context classification as determined by Kimley-Horn

3.1.4 CONTEXT CLASSIFICATION

The context classification for roadways within the study area are summarized in **Table 3-4**. The classifications of the roadways on the SHS were obtained from FDOT sources while the FDOT Context Classification Handbook, August 2017 was used to determine the local government-maintained roadways. Only five of the eight context classifications were identified in the study area, described below:

- Context classification C1-Natural consists of lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural conditions.

- Context classification C2-Rural consists of sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands.

- Context classification C2T-Rural Town consists of small concentrations of developed areas immediately surrounded by rural and natural areas; includes many historic towns.

- Context classification C3R-Suburban Residential consists of mostly residential uses within large blocks and disconnected or sparse roadway network.

- Context classification C3C-Suburban Commercial consists of mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.

Table 3-4: Roadway Context Classification

Roadway		Context Classification
From	To	
SR 528		
SR 417	I-95	Limited-Access
SR 520		
SR 528	Friday Road	C1
Friday Road	I-95	C3C
SR 524		
SR 520	I-95	C2
US 192		
Nova Road (CR 532)	Gator Run	C1
Gator Run	Pine Grove Road	C3C
Pine Grove Road	Durbin Road	C3R
Durbin Road	Arthur J. Gallagher Boulevard	C1
Arthur J. Gallagher Boulevard	Harmony Square Drive	C3R
Harmony Square Drive	Simon Road	C1
Simon Road	MP 9.390 (Brevard County)	C2T
MP 9.390	I-95	C3
I-95		
US 192	SR 528	Limited-Access
Nova Road (CR 532)		
US 192	SR 520	C2 [1]
Deer Park Road CR 419		
US 192	Nova Road	C2 [1]
S. Fiske Boulevard/Stadium Parkway		
N. Wickham Road	North of I-95	C3C [1]
I-95 Southbound Ramp	North of I-95	C3C
Viera Boulevard		
Powerline Road	East of I-95	C3C [1]
Wickham Road		
Powerline Road	Lake Andrew Drive	C3R [1]
Lake Andrew Drive	East of I-95	C3C [1]
Pineda Causeway (SR 404)		
West of I-95	East of I-95	C3R [1]
Eau Gallie Boulevard (SR 518)		
St. Johns River	Jones Road	C2T [1]
Jones Road	East of I-95	C3C [1]
Ellis Road		
I-95	East of I-95	C3C [1]
Washingtonia Drive		
Lake Washington Road	Province Drive	C3R [1]

[1] Potential context classification as determined by Kimley-Horn

3.2 EXISTING ROADWAY CHARACTERISTICS

3.2.1 TYPICAL SECTIONS

The typical sections of roadways within the study area are identified in **Table 3-5**. The typical section for roadways on the SHS were determined using the FDOT Straight Line Diagrams while the local government-maintained roadways were determined using Google Earth Aerial Views.

Table 3-5: Roadway Typical Sections

Roadway		Typical Section
From	To	
SR 528		
SR 417	I-95	4-Lane Divided
SR 520		
SR 528	I-95	4-Lane Divided
SR 524		
SR 520	Friday Road	2-Lane Undivided
Friday Road	I-95	2-Lane Divided
US 192		
Nova Road (CR 532)	I-95	4-Lane Divided
I-95		
US 192	SR 528	6-Lane Divided
Nova Road (CR 532)		
US 192	SR 520	2-Lane Undivided
Deer Park Road (CR 419)		
US 192	Nova Road	2-Lane Undivided
S. Fiske Boulevard/Stadium Parkway		
N. Wickham Road	Vahalla Way	2-Lane Undivided
Vahalla Way	North of I-95	4-Lane Divided
Viera Boulevard		
Powerline Road	Porada Drive/Sedge Drive	2-Lane Undivided
Porada Drive/Sedge Drive	I-95 SB Ramp	4-Lane Divided
I-95 SB Ramp	I-95 NB Ramp	4-Lane Divided (DDI)
I-95 NB Ramp	East of I-95	4-Lane Divided
Wickham Road		
Powerline Road	Wyndham Way/Wyndham Drive	2-Lane Undivided
Wyndham Way/Wyndham Drive	East of I-95	4-Lane Divided
Pineda Causeway (SR 404)		
West of I-95	East of I-95	4-Lane Divided
Eau Gallie Boulevard (SR 518)		
Jones Road	East of I-95	4-Lane Divided
Ellis Road		
I-95	East of I-95	2-Lane Undivided
Washingtonia Drive		
Lake Washington Road	Province Drive	2-Lane Undivided

3.2.2 INTERCHANGES, INTERSECTIONS, AND SIGNALIZATION INTERCHANGES

An interchange, intersection, and signalization inventory was conducted within the study area boundaries using Google Earth Aerial View. The interchanges, intersections, and signalization of roadways within the study area are identified in **Table 3-6**.

Table 3-6: Roadway Interchanges, Intersections, and Signalization

Roadway/ Location	Type	Control	Turn Lanes	Crosswalks
SR 528				
Innovation Way	Diamond Interchange w/ 1 loop	Signals	All	NB, SB Approaches
Dallas Boulevard	Half Diamond Interchange (west)	Stop	EBL	None
Unknown Road	Half Diamond Interchange (west)	Stop	None	None
SR 520	Diamond Interchange	Stop	All	None
SR 407	3-Leg Interchange	None	All	None
I-95	Cloverleaf Interchange	None	All	None
SR 520				
SR 528	Diamond Interchange	Stop	All	None
Cocoa Water Plant Road	T Intersection	Stop	EBL, WBL	None
Nova Road (CR 532)	T Intersection	Stop	All	None
SR 524	T Intersection	Stop	All	None
I-95	Diamond Interchange	Signals	All	None
SR 524				
SR 520	T Intersection	Stop	All	None
Adamson Road	T Intersection	Stop	WBR	None
Precious Boulevard	T Intersection	Stop	All	SB Approach
Friday Road	+ Intersection	Stop	EBR, EBL, WBR, WBL, SBR	None
I-95	Diamond Interchange	Signals	All	None
US 192				
Nova Road (CR 532)	T Intersection	Stop	All	None
Pine Grove Road	+ Intersection	Stop	EBR, EBL, WBR, WBL, SBR	None
Old Melbourne Highway	T Intersection	Stop	EBL, WBL, SBR, SBL	None
Arthur J Gallagher Boulevard	T Intersection	Signal	All	None
US 441	+ Intersection	Stop	EBR, EBL, WBL, NBL, SBL	None
Deer Park Road CR 419	+ Intersection	Stop	EBR, EBL, WBR, WBL	None
Simon Road	T Intersection	Stop	EBL, WBL	None
I-95	Diamond Interchange	Signals	All	None
I-95				
US 192	Diamond Interchange	Signals	All	None

Table 3-6 (continued): Roadway Interchanges, Intersections, and Signalization

Roadway/ Location	Type	Control	Turn Lanes	Crosswalks
Ellis Road (under construction)	Partial Diamond Interchange w/ 1 loop	-	-	-
W. Eau Gallie Boulevard	Diamond Interchange	Signals	All	None
Pineda Causeway Ext. (SR 404)	Diamond Interchange	Signals	All	NB, SB Approaches
N. Wickham Road	Diamond Interchange	Signals	All	NB, SB Approaches
Viera Boulevard	Diverging Diamond Interchange	Signals	All	Crossing Viera Boulevard
S. Fiske Boulevard/Stadium Parkway	Partial Cloverleaf Interchange	Signals	All	WB Approach
SR 520	Diamond Interchange	Signals	All	None
SR 524	Diamond Interchange	Stop	All	None
SR 528	Cloverleaf Interchange	None	All	None
Nova Road (CR 532)				
US 192	T Intersection	Stop	All	None
Deer Park Road (CR 419)	T Intersection	Stop	EBR	None
SR 520	T Intersection	Stop	All	None
Deer Park Road (CR 419)				
US 192	+ Intersection	Stop	EBR, EBL, WBR, WBL	None
Nova Road (CR 532)	T Intersection	Stop	EBR	None
S. Fiske Boulevard/Stadium Parkway				
N. Wickham Road	+ Intersection	Signal	EBL, WBL, WBR, NBL, SBL	All Approaches
Vahalla Way	T Intersection	Stop	NBL	EB Approach
Judge Fran Jamieson Way	+ Intersection	Signal	EBL, WBL, WBR, NBL, NBR, SBL, SBR	All Approaches
Fellowship Place	+ Intersection	Stop	EBL, NBR, SBR, SBL	EB, WB Approaches
Veterans Way	T Intersection	Stop	NBL, SBR, SBL	EB Approach
Porada Drive	T Intersection	Stop	EBR, NBR, NBL, SBR, SBL	EB Approach
Viera Boulevard	+ Intersection	Signal	All	All Approaches
Rosemount Drive	+ Intersection	Signal	EBR, WBR, NBL, NBR, SBL, SBR	EB, WB, SB Approaches
Tavistock Drive/Sonoma Way	+ Intersection	Signal	EBL, WBL, NBL, NBR, SBL, SBR	EB, WB, SB Approaches
I-95	Partial Cloverleaf Interchange	Signals	All	WB Approach
Viera Boulevard				
Powerline Road	T Intersection	Stop	None	None
Tavistock Drive	+ Intersection	Stop	All	SBL

Table 3-6 (continued): Roadway Interchanges, Intersections, and Signalization

Roadway/ Location	Type	Control	Turn Lanes	Crosswalks
Porada Drive/Sedge Drive	+ Intersection	Stop	EBL, WBR, WBL, NBR, SBR	NB, SB Approaches
Stadium Parkway	+ Intersection	Signal	All	All Approaches
I-95	Diverging Diamond Interchange	Signals	All	Crossing Viera Boulevard
Wickham Road				
Powerline Road	+ Intersection	Stop	None	None
Wyndham Way/Wyndham Drive	+ Intersection	Stop	EBR, EBL, WBR, WBL, NBR	NB, SB
Stadium Pkwy	+ Intersection	Signal	EBL, WBL, WBR, NBL, SBL	All Approaches
Lake Andrew Drive	Roundabout	N/A	NBR, SBR, WBR	All Approaches
Shoppes Drive	+ Intersection	Signal	EBL, WBL, NBL, SBL	All Approaches
I-95	Diamond Interchange	Signals	All	NB, SB Approaches
Pineda Causeway (SR 404)				
I-95	Diamond Interchange	Signals	All	NB, SB Approaches
Eau Gallie Boulevard (SR 518)				
Gate	End of public road	N/A	N/A	N/A
I-95	Diamond Interchange	Signals	All	None
Ellis Road				
I-95 (Under Construction)	Partial Diamond Interchange w/ 1 loop	-	-	-
Washingtonia Drive				
Lake Washington Road	T Intersection	Stop	None	None
Domain Court	T Intersection	Stop	None	None

3.2.3 DESIGN SPEED AND POSTED SPEED

The design speeds and posted speed limits for the major roadways in the study area are shown in **Table 3-7**. Posted speed limits for roadways on the SHS were obtained from FDOT Straight Line Diagrams for roadways while the local government-maintained roadways were determined using Google Earth Aerial View. Design Speeds were assumed to be 5 miles per hour (mph) higher than the posted speed limits.

Table 3-7: Roadway Design Speeds and Posted Speed Limits for the Study Area

Roadway		Design Speed (mph)	Posted Speed (mph)
From	To		
SR 528			
SR 417	I-95	70	70
SR 520			
SR 528	MP 9.400	60 [1]	55
MP 9.400 (Orange County)	MP 2.700 (Brevard County)	70 [1]	65
MP 2.700	MP 4.100	60 [1]	55
MP 4.100	MP 4.612	55 [1]	50
MP 4.612	I-95	50 [1]	45
SR 524			
SR 520	MP 0.200	50	45
MP 0.200	MP 1.366	60	55
MP 1.366	I-95	50	45
US 192			
Nova Road (CR 532)	MP 13.440	60 [1]	55
MP 13.440	5 Oaks Drive	65 [1]	60
5 Oaks Drive	Harmony Square Drive	60 [1]	55
Harmony Square Drive	MP 24.259	70 [1]	65
MP 24.259	MP 24.652	60 [1]	55
MP 24.652	MP 9.390 (Brevard County)	70 [1]	65
MP 9.390	MP 9.590	60 [1]	55
MP 9.590	I-95	50 [1]	45
I-95			
US 192	SR 528	70	70
Nova Road (CR 532)			
US 192	Eden Drive	60 [1]	55
Eden Drive	Taylor Creek	65 [1]	60
Taylor Creek	SR 520	35 [1]	30
Deer Park Road (CR 419)			
US 192	5779 Deer Park Road	40 [1]	35
5779 Deer Park Road	Nova Road	60 [1]	55
S. Fiske Boulevard/Stadium Parkway			
N. Wickham Road	Vahalla Way	45 [1]	40
Vahalla Way	Veterans Way	35 [1]	30
Veterans Way	I-95 Southbound Ramp	45 [1]	40
I-95 Southbound Ramp	North of I-95	50 [1]	45
Viera Boulevard			
Powerline Road	Tavistock Drive	45 [1]	40
Tavistock Drive	Porada Drive/Sedge Drive	30 [1]	25

Table 3-7 (continued): Roadway Design Speeds and Posted Speed Limits for the Study Area

Roadway		Design Speed (mph)	Posted Speed (mph)
From	To		
Porada Drive/Sedge Drive	I-95 SB Ramp	45 [1]	40
I-95 SB Ramp	I-95 NB Ramp	35 [1]	30
I-95 NB Ramp	East of I-95	45 [1]	40
Wickham Road			
Powerline Road	Wyndham Way/Wyndham Drive	50 [1]	45
Wyndham Way/Wyndham Drive	Stadium Pkwy	45 [1]	40
Stadium Pkwy	Shoppes Drive	25 [1]	20
Shoppes Drive	East of I-95	45 [1]	40
Pineda Causeway (SR 404)			
West of I-95	East of I-95	50 [1]	45
Eau Gallie Boulevard (SR 518)			
St. Johns River	East of I-95	50 [1]	45
Ellis Road			
I-95	East of I-95	40 [1]	35
Washingtonia Drive			
Lake Washington Road	Province Drive	35 [1]	30

[1] Design speed estimated as 5 mph above posted speed

3.2.4 RIGHT-OF-WAY

The right-of-way (ROW) width for study area roadway segments is shown in **Table 3-8**. The width data were interpreted using local property appraiser parcel data.

Table 3-8: Roadway Right-of-Way

Roadway		ROW (feet)
From	To	
SR 528 [1]		
SR 417	I-95	300
SR 520		
SR 528	MP 9.400	230
MP 9.400 (Orange County)	James Creek Road	200
James Creek Road	Nova Road	220
Nova Road	MP 00.00	210
MP 00.00	MP 00.40	210-270
MP 00.40	Penny Lane	200
Penny Lane	Highway 524	215
Highway 524	I-95	190-215
SR 524		
SR 520	Precious Boulevard	200-220

Table 3-8 (continued): Roadway Right-of-Way

Roadway		ROW (feet)
From	To	
Precious Boulevard	I-95	230
US 192		
Nova Road (CR 532)	Gator Run	230
Gator Run	Whip O Will Lane	230-500
Whip O Will Lane	5 Oaks Drive	210
5 Oaks Drive	MP 20.00	200
MP 20.00	Cypress Creek Ranch Road	200-210
Cypress Creek Ranch Road	Wild Turkey Lane	200
Wild Turkey Lane	Turn Around Bay Road	200-470
Turn Around Bay Road	Topeka Avenue	220
Topeka Avenue	Wildlife Trail	200-280
Wildlife Trail	I-95	200-300
I-95 [1, 2]		
US 192	SR 528	290-500
Nova Road (CR 532)		
US 192	SR 520	200
Deer Park Road (CR 419)		
US 192	Nova Road	100
S. Fiske Boulevard/Stadium Parkway [1]		
N. Wickham Road	Vahalla Way	120
Vahalla Way	North of I-95	150
Viera Boulevard		
Powerline Road	East of I-95	150
Wickham Road		
Powerline Road	East of I-95	150
Pineda Causeway (SR 404) [1]		
West of I-95	East of I-95	150
Eau Gallie Boulevard (SR 518)		
St. Johns River	East of I-95	100
Ellis Road		
I-95	East of I-95	60
Washingtonia Drive		
Lake Washington Road	Province Drive	100

[1] ROW increases at interchanges

[2] Includes ROW for Washingtonia Drive

3.2.5 BORDER WIDTH

The border widths for the major roadways in the study area are shown in **Table 3-9**. The data were interpreted from FDOT Straight Line Diagrams for the combined roadway and median widths and compared to ROW widths from local property appraisers' parcel data.

Table 3-9: Roadway Border Width

Roadway		Border Width
From	To	
SR 528[1]		
SR 417	MP 15.565	101
MP 15.565	MP 16.057	89
MP 16.057	MP 19.293	101
MP 19.293	MP 24.891	105
MP 24.891	MP 26.238	101
MP 26.238	SR 520	105
SR 520	Brevard Co. Line	106
Brevard Co. Line	MP 0.815	106
MP 0.815	MP 1.670	138
MP 1.670	I-95	106
SR 520		
SR 528	MP 9.400	71
MP 9.400 (Orange County)	James Creek Road	56
James Creek Road	Nova Road	66
Nova Road	MP 00.40	61
MP 00.40	Penny Lane	56
Penny Lane	Highway 524	63.5
Highway 524	Friday Road	51
Friday Road	MP 4.721	56
Friday Road	I-95	51
SR 524		
SR 520	Precious Boulevard	88
Precious Boulevard	I-95	83
US 192		
Nova Road (CR 532)	Gator Run	71
Gator Run	Whip O Will Lane	71
Whip O Will Lane	5 Oaks Drive	61
Turn Around Bay Road	Topeka Avenue	66
Topeka Avenue	Wildlife Trail	56
Wildlife Trail	I-95	56
I-95		
US 192	SR 528	290-500

Table 3-9 (continued): Roadway Border Width

Roadway		Border Width
From	To	
Nova Road (CR 532)		
US 192	SR 520	88
Deer Park Road (CR 419)		
US 192	Nova Road	38
S. Fiske Boulevard/Stadium Parkway		
N. Wickham Road	Vahalla Way	48
Vahalla Way	North of I-95	41
Viera Boulevard		
Powerline Road	Porada Drive/Sedge Drive	63
Porada Drive/Sedge Drive	East of I-95	31
Wickham Road		
Powerline Road	Wyndham Way/Wyndham Drive	63
Wyndham Way/Wyndham Drive	Shoppes Drive	26
Shoppes Drive	East of I-95	21
Pineda Causeway (SR 404)		
West of I-95	East of I-95	36
Eau Gallie Boulevard (SR 518)		
St. Johns River	Jones Road	38
Jones Road	East of I-95	20
Ellis Road		
I-95	East of I-95	18
Washingtonia Drive		
Lake Washington Road	Province Drive	38

3.2.6 PAVEMENT CONDITIONS

Table 3-10 describes the existing pavement conditions of the major roadways in the study area. The surface type was interpreted from the FDOT Straight Line Diagrams for the roadways. The surface type of each roadway is described by two identifiers, the surface material and the friction course. The surface material of roadways within the study area are designated as either 08 (Portland Cement Concrete) or 28 (Asphaltic Concrete). The type of Friction Course is identified by the number following FC. The pavement conditions were obtained in May 2020 from the Florida Department of Transportation "All System Pavement Condition Forecast" for Orange, Osceola, and Brevard counties.

Table 3-10: Roadway Pavement Conditions

Roadway		Surface Type	Year	Cracking		Ride	
From	To			Left	Right	Left	Right
SR 528							
SR 417	MP 16.323	28/FC-5	2020	9.0	9.0	8.5	8.3
MP 16.323	MP 16.331	08/FC-0 (WB) 28/FC-5 (EB)	2020	9.0	9.0	8.5	8.3
MP 16.331	MP 16.340	08/FC-0	2020	9.0	9.0	8.5	8.3
MP 16.340	MP 16.349	FC-5 (WB) 08/FC-0 (EB)	2020	9.0	9.0	8.5	8.3
MP 16.349	MP 19.907	28/FC-5	2020	9.0	9.0	8.5	8.6
MP 19.907	MP 22.175	28/FC-5	2020	9.0	9.0	8.6	8.6
MP 22.175	MP 23.334	28/FC-5	2018	9.0	9.0	8.3	8.4
MP 23.334	MP 25.531	28/FC-5	2019	9.0	9.0	8.0	8.2
MP 25.531	MP 25.552	08/FC-0	2019	9.0	9.0	8.0	8.2
MP 25.552	MP 26.290	28/FC-5	2019	9.0	9.0	8.0	8.2
MP 26.290	MP 29.825	28/FC-5	2019	9.0	9.0	8.6	8.6
MP 29.825	SR 520	28/FC-5	2019	9.0	7.0	8.0	7.5
SR 520	Brevard County Line	28/FC-2	2020	9.0	7.0	8.0	7.5
Brevard County Line	MP 0.815	28/FC-2	2019	5.5*	5.5*	7.7	6.9
MP 0.815	MP 1.670	28/FC-2	2019	3.5*	3.5*	7.5	7.7
MP 1.670	I-95	28/FC-2	2019	4.5*	4.5*	7.9	7.7
SR 520							
SR 528	MP 16.072	28/FC-5	2020	6.5	6.5	8.1	8.1
MP 16.072	MP 17.800	28/FC-5	2020	7.5	6.5	7.6	7.1
MP 17.800	Brevard County Line	28/FC-5	2020	9.0	9.0	6.9	7.4
Brevard County Line	MP 0.068	08/	2020	6.5	4.5*	8.0	7.6
MP 0.068	MP 2.799	28/FC-5	2020	6.5	4.5*	8.0	7.6
MP 2.799	MP 4.178	28/FC-5	2020	9.0	9.0	7.4	7.2
MP 4.178	MP 4.700	28/FC-12.5	2020	9.0	9.0	7.4	7.2
MP 4.700	MP 4.721	28 FC-12.5 (WB) 28/FC-5 (EB)	2020	10.0	10.0	8.2	8.3
MP 4.721	I-95	28/FC-5	2020	10.0	10.0	8.2	8.3
SR 524							
SR 520	MP 0.086	28/FC-5	2020	9.0	9.0	7.7	7.7
MP 0.086	MP 1.439	28/FC-9.5	2020	9.0	9.0	7.7	7.7
MP 1.439	I-95	28/FC-9.5	2020	9.0	9.0	7.6	7.6
US 192							
Nova Road (CR 532)	MP 13.258	28/FC-5	2020	9.0	8.0	8.4	8.3
MP 13.258	MP 15.570	28/FC-6	2020	9.0	8.0	8.4	8.3
MP 15.570	MP 18.375	28/FC-5	2020	9.0	8.0	8.4	8.3

Table 3-10 (continued): Roadway Pavement Conditions

Roadway		Surface Type	Year	Cracking		Ride	
From	To			Left	Right	Left	Right
MP 18.375	MP 19.298	28/FC-5	2020	4.5*	3.5*	7.3	6.8
MP 19.298	MP 31.600	28/FC-5	2020	9.5	9.5	8.5	9.5
MP 31.600	MP 37.100	28/FC-5	2020	4.5*	6.5	8.3	8.3
MP 37.100	Brevard County Line	28/FC-5	2020	4.5*	4.5*	8.3	7.7
Brevard County Line	MP 0.532	28/FC-5	2020	4.5*	4.5*	7.9	7.9
MP 0.532	MP 3.998	28/FC-5	2020	6.5	4.5*	7.6	8.1
MP 3.998	MP 5.010	28/FC-5	2020	6.5	10.0	7.6	8.3
MP 5.010	I-95	28/FC-5	2020	6.5	6.5	7.6	7.8
I-95							
US 192	MP 34.669	28/FC-5	2020	9.0	9.0	8.3	8.4
MP 34.669	MP 36.711	28/FC-2	2020	9.0	9.0	8.0	8.0
MP 36.711	SR 520	08/FC-2 (WB) 28/FC-2 (EB)	2020	9.4	9.4	9.1	8.8
SR 520	MP 3.000	08/	2020	9.4	9.4	8.7	8.7
MP 3.000	MP 3.254	28/	2020	9.0	8.0	8.5	7.7
MP 3.254	SR 528	28/FC-5	2020	9.0	8.0	8.5	7.7
Eau Gallie Boulevard (SR 518)							
MP 00.000	MP 0.088	28/FC-0	2020	9.0	8.0	7.7	6.9
MP 0.088	East of I-95	28/FC-12.5	2020	9.0	8.0	7.7	6.9

3.2.7 HORIZONTAL ALIGNMENT

Table 3-11 describes the existing horizontal alignment of the major roadways in the study area. The alignment data were interpreted from the FDOT Straight Line Diagrams. Minimum curve length was determined based on the FDOT 2020 Design Manual, Chapter 210, Table 210.8.1.

Table 3-11: Roadway Horizontal Alignment

Roadway					
PC (MP)	PI (MP)	PT (MP)	Δ	D	LC (feet)
SR 528					
MP 22.247	MP 22.239	MP 22.786	1°10'22.00"	0°10'00.00"	2846
MP 0.876	MP 1.399	MP 1.851	51°30'00.00"	1°00'00.00"	5148
MP 4.459	MP 4.996	MP 5.456	52°38' 45.00"	1°00'00.00"	5264
SR 520					
MP 9.053	MP 9.105	MP 9.153	1°56'00.26"	0°20'00.00"	528 [1]
MP 11.047	MP 11.177	MP 11.295	13°26'00.59"	1°00'00.00"	1309
MP 13.224	MP 13.620	MP 14.007	41°21'00.20"	1°00'00.00"	4134
MP 16.557	MP 16.780	MP 17.003	23°15'00.00"	1°00'00.00"	2355
MP 17.963	MP 18.118	MP 18.065	1°23'34.00"	15°15'00.00"	544 [1]

Table 3-11 (continued): Roadway Horizontal Alignment

Roadway					
PC (MP)	**PI (MP)**	**PT (MP)**	**Δ**	**D**	**LC (feet)**
MP 18.065	MP 18.118	MP 18.171	1°23'34.00"	00°15'00.00"	560 [1]
MP 0.093	MP 0.151	MP 0.209	1°31'13.00"	0°15'00.00"	613 [1]
MP 0.333	MP 0.390	MP 0.448	1°31'13.00"	0°15'00.00"	607 [1]
MP 0.554	MP 0.668	MP 0.780	11°56'56.00	1°00'00.00"	1193
MP 0.780	MP 0.853	MP 0.925	1°38'0.800"	0°12'54.00"	765 [1]
MP 1.309	MP 1.373	MP 1.437	1°41'27.00"	0°15'00.00"	676 [1]
MP 2.461	MP 2.502	MP 2.543	1°39'15.00"	0°22'55.00"	433 [1]
MP 2.543	MP 2.584	MP 2.625	1°39'15.00"	0°22'55.00"	433 [1]
MP 2.925	MP 3.012	MP 3.100	1°45'00.00"	16°05'05.00"	924
US 192					
MP 12.754	MP 12.811	MP 12.869	3°01'50.00"	0°35'55.00"	607 [1]
MP 13.739	MP 13.971	MP 14.197	24°10'00.00"	1°00'00.00"	2418
MP 14.612	MP 14.862	MP 15.102	25°54'00.00"	1°00'00.00"	2587
MP 15.712	MP 15.798	MP 15.882	2°15'00.00"	0°15'00.00"	898 [1]
MP 17.527	MP 17.730	MP 17.932	31°20'00.00"	1°30'00.00"	2138
MP 19.431	MP 19.752	MP 20.055	33°09'38.00"	1°00'00.00"	3295
MP 20.452	MP 20.665	MP 20.872	22°24'52.00"	1°00'00.00"	2218
MP 22.430	MP 22.714	MP 22.996	15°03'35.00"	0°30'00.00"	2989
MP 23.466	MP 23.771	MP 24.060	31°35'28.00"	1°00'00.00"	3136
MP 24.100	MP 24.218	MP 24.336	6°16'24.00"	0°30'00.00"	1246
MP 24.556	MP 24.646	MP 25.115	5°14'37.00"	0°29'00.00"	2952
MP 30.115	MP 30.286	MP 30.457	4°30'05.00"	2°14'57.00"	1806
MP 30.501	MP 30.589	MP 30.676	2°09'47.00"	0°14'00.00"	924 [1]
MP 33.574	MP 33.730	MP 33.885	16°25'51.00"	1°00'00.00"	1642
MP 35.657	MP 35.781	MP 35.904	3°15'27.00"	0°15'00.00"	1304
MP 36.700	MP 36.977	MP 37.220	33°06'34.00"	1°15'00.00"	2746
-	MP 0.502	-	00°00'30.00"	-	-
-	MP 1.485	-	00°01'00.00"	-	-
-	MP 2.003	-	00°02'30.00"	-	-
-	MP 3.024	-	00°01'30.00"	-	-
-	MP 3.520	-	00°00'30.00"	-	-
-	MP 4.026	-	00°00'30.00"	-	-
MP 5.858	MP 5.916	MP 5.973	12°08'00.20"	2°00'00.00"	607 [1]
MP 5.973	MP 6.324	MP 6.423	35°54'00.00"	1°00'00.00"	2376
MP 7.326	MP 7.678	MP 8.008	35°59'00.00"	1°00'00.00"	3601
I-95					
MP 27.613	MP 28.163	MP 28.712	14°27'00.00"	0°15'00.00"	5803
MP 34.929	MP 35.329	MP 35.696	40°29'40.00"	1°00'00.00"	4045

Table 3-11 (continued): Roadway Horizontal Alignment

Roadway					
PC (MP)	PI (MP)	PT (MP)	Δ	D	LC (feet)
MP 36.332	MP 36.803	MP 37.226	24°40'30.00"	0°30'00.00"	4720
MP 2.215	MP 2.329	MP 2.442	12°00'00.00"	1°00'00.00"	1199
MP 3.441	MP 3.540	MP 3.637	18°07'00.00	1°45'00.00"	1035 [1]

[1] Does not meet minimum length of curve as specified in the FDOT 2020 Design Manual Table 210.8.1

3.2.8 VERTICAL ALIGNMENT

Based on existing available topographic information of the existing roadway network within the study area, the existing vertical alignments of these roadways appear to be in accordance with current FDOT standards.

3.2.9 STRUCTURES

Table 3-12 describes the existing structures on SR 520 and US 192 where potential corridors will be evaluated running parallel to these roadways. Sufficiency ratings (based on the FDOT 2020 4th Quarter Bridge Information Report) reflect an overall rating of a bridge's condition. According to the Federal Highway Administration Highway Bridge Replacement and Rehabilitation Program, highway bridges are considered eligible for rehabilitation or replacement with a sufficiency rating of less than 50. Highway bridges with a sufficiency rating of 80 or less are eligible for rehabilitation.

Table 3-12: Existing Structures

Roadway	Bridge Location	Structure No.	Length (feet)	Sufficiency Rating
SR 520	Wildlife Crossing – Approximately 1.1 miles west of Orange/Brevard County line.	750510 750511	63.4 63.4	99.3 99.3
SR 520	St. Johns River	700200 700217	353.8 353.8	96.9 96.9
US 192	Crabgrass Creek	920178 920179	158.4 158.4	99.7 94.7
US 192	Unnamed (W. of Osceola Drive)	920150	21.1	76.0
US 192	C 57 Canal	920014 920148	142.6 142.6	95.3 99.7
US 192	Sawgrass Creek	700212 700018	68.6 68.6	99.7 99.7
US 192	St. Johns Relief	700023 700213	205.9 205.9	99.7 99.7
US 192	St. Johns River	700214 700215	1066.6 1066.6	86.6 86.6

3.2.10 IDENTIFICATION OF CONTROLLING DESIGN ELEMENTS

The existing roadways within the study area were evaluated to identify the controlling design elements for high-speed roadways (design speed ≥ 50 mph).

- Design Speed: existing roadways within the study area are in accordance with the minimum criteria
- Lane Width: existing roadways within the study area are in accordance with the minimum criteria
- Horizontal Curve Radius: roadways within the study area below the minimum design criteria are identified in **Table 3-11**.

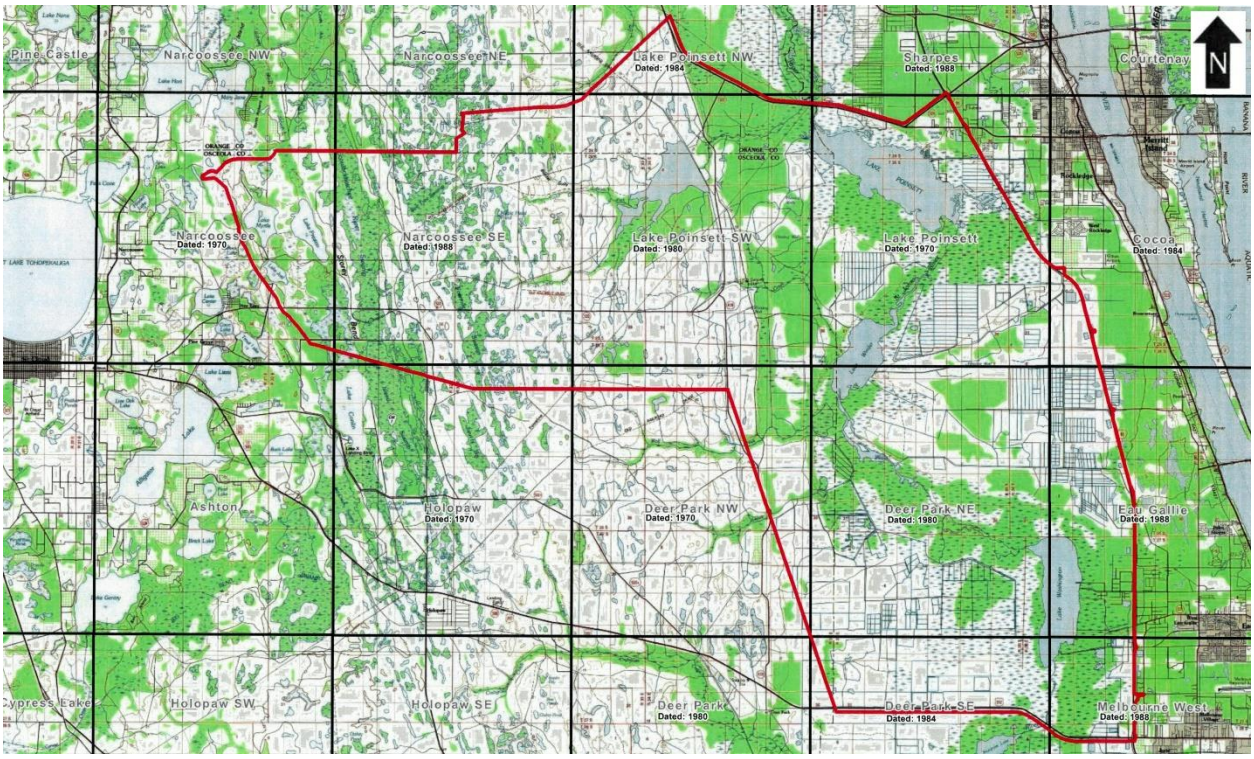
3.3 GEOTECHNICAL DATA

Exhibit 3-5 depicts the study area on the U.S. Geological Survey (USGS) Lake Poinsett NW, Sharpes, Narcoossee, Narcoossee SE, Lake Poinsett SW, Lake Poinsett, Cocoa, Holopaw, Deer Park NW, Deer Park NE, Eau Gallie, Deer Park SE, and Melbourne West, Florida Quadrangle maps.

The USGS Quadrangle maps indicate natural grades generally ranging from +20 feet to +80 feet National Geodetic Vertical Datum (NGVD) within the study area, varying from +65 to +80 in the northwest, and decreasing to approximately +15 to +20 ft NGVD in the northeast and south in the Rockledge Creek/St. Johns River vicinity. The highest elevations of +70 feet to +80 feet are seen in Osceola County (western portion of the study area), with the lower elevations in Brevard County. Several flowing wells are shown in the northeastern portion of the study area.

The Natural Resources Conservation Service (NRCS) soil units identified within the area are summarized by County in **Appendix C**.

Exhibit 3-5: USGS Quadrangle Maps



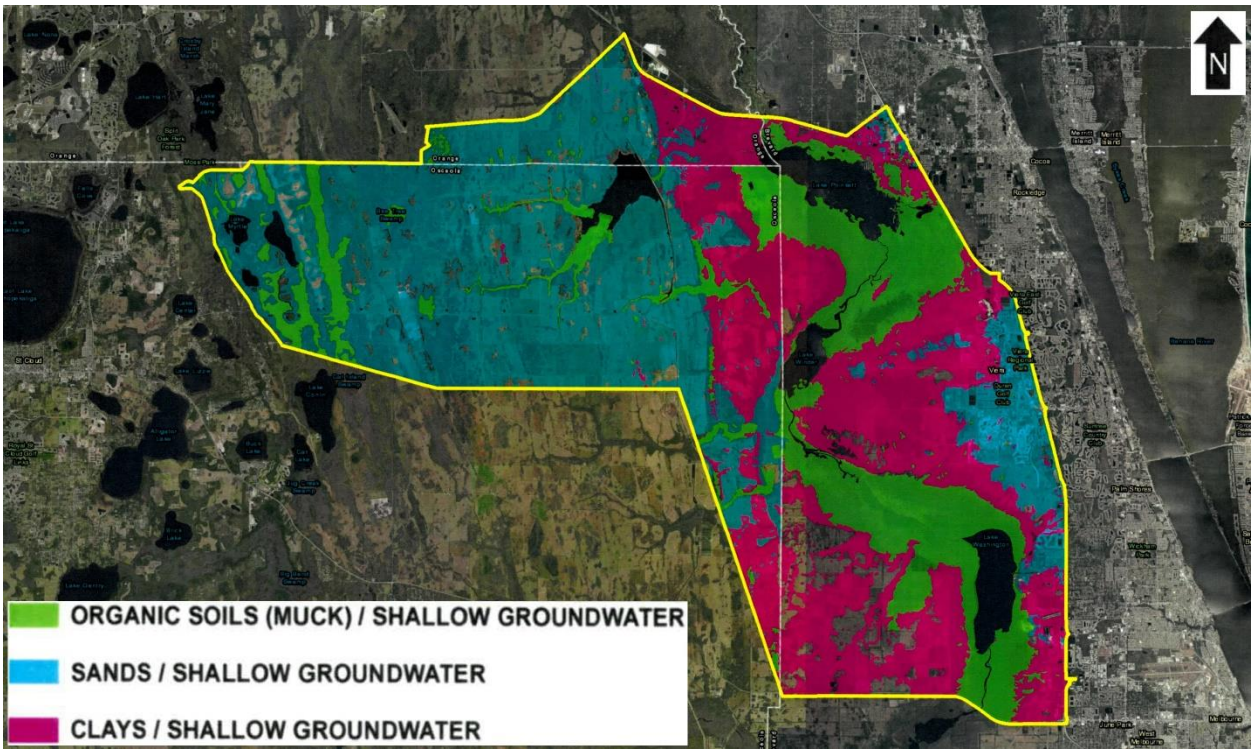
3.3.1 SAND AND GROUNDWATER

Excerpts of the NRCS WebSoil Survey highlighting the study area are shown on **Exhibit 3-6**. The shallow soils depicted on the WebSoil Survey maps are predominantly fine sand with varying silt content (A-3, A-2-4) to approximately 7.5 feet deep in the area west of Taylor Creek; similar soils are also listed in the Viera area in Brevard County. East of Taylor Creek, the soils listed are usually sands with varying silt content (A-3, A-2-4) to about 2 to 4 feet of depth, underlain by clayey sands and sandy clays (A-2, A-4, A-6, A-7-6) to about 7.5 feet below ground, except in the swamps and lakes comprising the St. Johns River formation, where depressional (mucky) soils are present. Seasonal high groundwater level estimates for the majority of the soils in the area of interest range from ground surface to 1.5 feet deep, with a few listed as deep as 2 to 3.5 feet.

On **Exhibit 3-6**, sands with shallow groundwater are highlighted in blue and clays with shallow groundwater are highlighted in pink.

The sand soils are generally suitable for roadway construction and are classified by FDOT as 'Select' material. However, the clay soils can impact the design and construction of the roadway: near-surface clay can perch groundwater, potentially causing impacts to the pavement base. Shallow groundwater can impact roadway grades and stormwater pond site selection, design, and construction.

Exhibit 3-6: NRCS Soil Survey Map

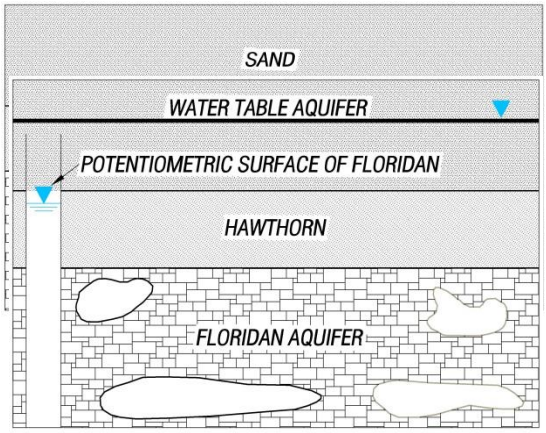


3.3.2 MUCK AND WATER FEATURES

The study area includes several swamps such as the Econlockhatchee River Swamp and Bee Tree Swamp to the west and many smaller swamp areas, various creeks, sloughs, and streams throughout. In addition, while there are many smaller water bodies in the western portion of the area of interest (such as Lake Myrtle, Lake Preston and Lake Joel), a few large lakes are located in the eastern half, including Lake Poinsett (to the northeast, straddling the Orange-Osceola-Brevard County line), Lake Winder and Lake Washington (all three located within the St. Johns River formation).

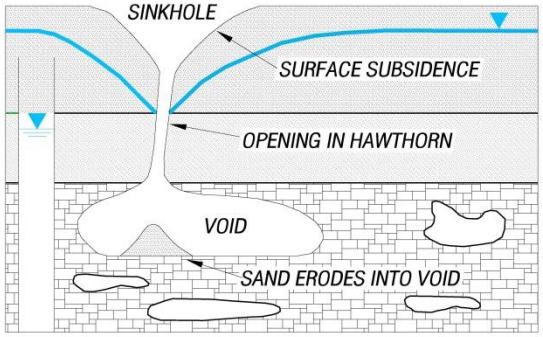
These wetlands exhibit shallow groundwater and muck soils. Muck is classified as A-8 in the American Association of State Highway and Transportation Officials (AASHTO) system and has severe limitations for roadway construction. It is generally unsuitable for embankment support and typically requires removal and replacement with engineered fill. However, if the depth of the deposit makes its removal impractical, ground improvement by means of soil surcharge is the method most often used to pre-consolidate the soft soil and provide adequate support for the roadway embankment. Muck soils are highlighted in green on **Exhibit 3-6**.

3.3.3 REGIONAL GEOLOGY AND SINKHOLE RISK



CENTRAL FLORIDA AQUIFER SYSTEMS

Due to its prevalent geology, referred to as karst, Central Florida is prone to the formation of sinkholes, or large, circular depressions created by local subsidence of the ground surface. The nature and relationship of the three sedimentary layers typical of Central Florida geology cause sinkholes. The deepest, or basement, layer is a massive cavernous limestone formation known as the Floridan aquifer. The Floridan aquifer limestone is overlain by a silty or clayey sand, clay, phosphate, and limestone aquitard (or flow-retarding layer) ranging in thickness from nearly absent to greater than 100 feet and locally referred to as the Hawthorn formation. The Hawthorn formation is in turn overlain by a 10 to 70-foot thick surficial layer of sand, bearing the water table aquifer. The likelihood of sinkhole occurrence at a given site within the region is determined by the relationship among these three layers, specifically by the water (and soil)-transmitting capacity of the Hawthorn formation at that location.



SINKHOLE FORMATION MECHANISM

The water table aquifer is comprised of Recent and Pleistocene sands and is separated from the Eocene limestone of the Floridan aquifer by the Miocene sands, clays and limestone of the Hawthorn formation. Since the thickness and consistency of the Hawthorn layer is variable across Central Florida, the likelihood of groundwater flow from the upper to the lower aquifer (known as aquifer recharge) will also vary by geographical location. In areas where the Hawthorn formation is absent, water table groundwater (and associated sands) can flow downward to cavities within the limestone aquifer, like sand through an hourglass, recharging the Floridan aquifer, and sometimes causing the formation of surface sinkholes. This process of subsurface erosion associated with recharging the Floridan aquifer is known as raveling. Thus, in Central Florida, areas of effective groundwater recharge to the Floridan aquifer have a higher potential for the formation of surface sinkholes.

No method of geological, geotechnical, or geophysical exploration is known that can accurately predict the occurrence of sinkholes. It is common geotechnical practice in Central Florida to make a qualitative prediction of sinkhole risk on the basis of local geological conditions in the vicinity of a particular site.

> …the relative risk of sinkhole formation in the study area is low compared to the overall risk across Central Florida…

Based on our review of the USGS map entitled "Recharge and Discharge Areas of the Floridan Aquifer in the St. Johns River Water Management District (SJRWMD) and Vicinity, Florida," 1984, the majority of the study area lies in an area of no recharge, with the northeastern quadrant in an area of low to moderate

recharge. Therefore, we can conclude that the relative risk of sinkhole formation in the study area is low compared to the overall risk across Central Florida.

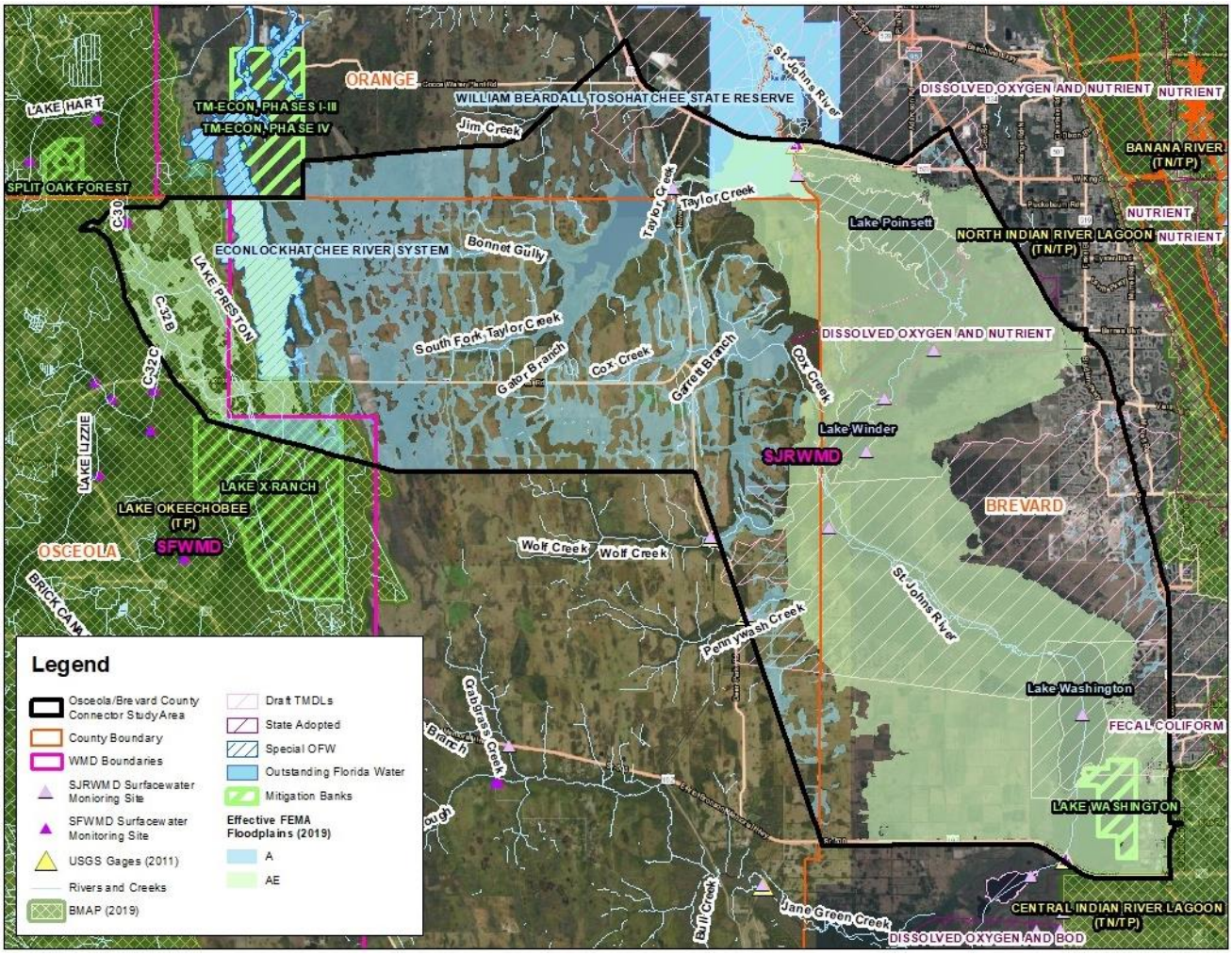
3.3.4 SUBSURFACE DRAINAGE

The soils present within the study area are generally identified by NRCS as a dual hydrologic soil group A/D; however, Group D is the predominant soils group. Group A soils identify drained areas and Group D soils represent undrained areas. Group A soils possess low runoff potential due to their sandy, permeable nature. Group D soils have high runoff potential due to a shallow groundwater table and/or impervious near-surface silt, clay or organic fines. Group A soils can be conducive to stormwater infiltration and design of dry retention ponds. Group D soils indicate poor infiltration characteristics and are more conducive to the design of wet detention ponds. Knowledge of geotechnical conditions within the study area, as well as published sources of geotechnical data, will be used to identify soil/groundwater conditions that could impact feasibility of the concept alternatives.

3.4 WATER RESOURCES

Exhibit 3-7 presents surface water, drainage and floodplain information. The existing conditions of water resources are described in the following sections.

Exhibit 3-7: Surface Water, Drainage, and Floodplain Evaluation



3.4.1 SURFACE WATER

The Federal Water Pollution Control Act, as amended by the Clean Water Act (CWA, 33 United States Code 1251), provides the Environmental Protection Agency (EPA) authority to establish water control standards, point source discharge into surface and subsurface water standards, develop waste treatment management plans and practices, and issue permits for discharges and dredge and fill activities in surface waters. The CWA requires states to establish and administer EPA-approved water quality standards for intrastate waters. Additionally, the CWA Section 303(d) and the Florida Watershed Restoration Act (WRA, Florida Statue 403.067) requires the State to define impaired waters that do not meet the established water quality standards and establish a list of impaired waters requiring total maximum daily loads (TMDLs). Pursuant to the CWA and the WRA, the Florida Department of Environmental Protection (FDEP) created the Identification of Impaired Surface Waters Rule (IWR, Chapter 62-303 Florida Administrative Code), which establishes the methodology to identify impaired water quality. The IWR establishes standards of waterbody of the state for the following:

- Designated uses for waters of the state (public water supply, recreation, fishing, navigation)
- Criteria for specific pollutants for each designation
- Antidegradation requirements to protect existing water uses and limits on high quality waters

The IWR identifies impaired waters based on representative sampling of the waterbody identification (WBID) basin. Once the waterbody is classified as impaired, it is included on the State's verified list of impaired waters and submitted to EPA. Pursuant to WRA guidelines, FDEP then generates a TMDL for the identified impaired waterbody. The TMDL determines the maximum amount of a given pollutant that a surface water can absorb and still meet water quality standards, and the threshold on the pollutant of concern to restore the water quality of the impaired waterbody. Once a TMDL is established for a basin, it is removed from the impaired waters list and a Basin Management Action Plan (BMAP) is developed. The BMAP involves coordination with state agencies, county and local governments, private and non-governmental organizations, and other stakeholders within the basin to identify projects and assist with the development of regulations that will improve the water quality.

Water quality datasets were evaluated for the study area, which are summarized in **Table 3-13**. The study area contains twelve impaired waterbodies, four (4) TMDL parameters of concern, and one (1) approved BMAP.

In addition to impairments identified by FDEP, some waters of the state may be designated as an Outstanding Florida Water (OFW) to provide additional protective measures due to the environmentally sensitive nature of the waterbody. With the OFW designation, the ambient (existing) water quality must be maintained. This requires additional treatment measures for stormwater runoff that discharge directly into the waterbody or that indirectly discharge if it is deemed to significantly degrade the OFW. The designation of OFW boundaries do not follow the same WBID basin limits. There are two OFWs within the study area: Econlockhatchee River System and William Beardall Tosohatchee State Reserve.

Table 3-13: Summary of Impaired Waters Within the Project Study Area

Basin Name	Water Class	WBID	Waterbody Group Number	Impaired Waterbody	TMDL Parameter(s)	Approved BMAP
St. Johns River Above Puzzle Lake (South Segment)	3F	28935	3	Fecal, Ag, TN	Nutrient*	--
Lake Poinsett	3F	2893K	3	Not Listed	Nutrient*	--
St. Johns River Above Lake Poinsett	3F	2893L	3	DO, TN**	TP and BOD (Adopted)	--
St. Johns River Above Lake Winder	3F	2893N	3	DO, TP**	Nutrient*	--
Lake Washington	1	2893O	3	Biology**	Nutrient*	--
Lake Washington Drain	3F	2893O 1	3	Fecal, Macro	Chloride*	--
Lake Winder	3F	2893Y	3	Biology**	Nutrient*	--
Lake Winder Drain	3F	2893Y1	3	Fe, DO, Macro	--	--
St. Johns River Above Lake Washington	1	2893P	3	TN, Macro	--	--
Econlockhatchee River	3F	2991	2	Fecal	--	--
Jim Creek	3F	3042	3	DO, Fecal	--	--
Mud Lake Outlet	3F	3056	3	DO	--	--
Wolf Creek (Osceola County)	3F	3075	3	TP, TN, DO**	--	--
C-29A Canal	3F	3171E A	4	Not Listed	--	Lake Okeechobee BMAP
Lake Myrtle	3F	3174A	4	Not Listed	--	Lake Okeechobee BMAP
Lake Preston	3F	3174B	4	Not Listed	--	Lake Okeechobee BMAP
Lake Joel	3F	3174C	4	Not Listed	--	Lake Okeechobee BMAP
Lake Center Outlet	3F	3174F	4	Not Listed	--	Lake Okeechobee BMAP

Impaired Waterbody from FDEP Comprehensive Verified List (11-15-2019)
TMDL Parameter(s) from Adopted TMDLs dataset from FDEP Division of Env. Assessment & Restoration (March 2019)
BMAP from BMAP Area dataset from FDEP (April 2019)
* Denotes parameter for which the TMDL is being developed, pollutant causing the impairment is still under development. This TMDL is in the process of being developed and a Draft has not been submitted.
**Not listed in the FDEP Comprehensive Verified List (11-15-2019), but listed as substandard in FDEP database (https://floridadep.gov/dear/water-quality-restoration/content/impaired-waters-tmdls-and-basin-management-action-plans)
TMDL Parameters:
Ag – Silver, BOD – Biological Oxygen Demand, DO – Dissolved Oxygen, Fe – Iron, Fecal – Fecal Coliform, Macro – Nutrients (Macrophytes), TN – Total Nitrogen, TP – Total Phosphorus

3.4.2 EXISTING DRAINAGE

The study area is mostly undeveloped with concentrations of development on the eastern side along SR 9 (I-95). While a small portion of the study area is within the South Florida Water Management District (SFWMD), the majority (95%) is within the SJRWMD. The region has a relatively flat topography and a high surface water table. The study area is characterized by gently rolling hills, agricultural lowlands, and forested and herbaceous wetlands with residential and commercial development along I-95. The study area is within Orange, Osceola, and Brevard Counties. Each county entity will be the Floodplain Manager for impacts to Federal Emergency Management Agency (FEMA) floodplains within their jurisdiction.

The western portion of the study area consists of wetlands that connect to either the Lake Joel/Lake Preston/Lake Conlin wetlands system, which is a part of the Upper Kissimmee Chain of Lakes, or the Econlockhatchee River System. East of the Econlockhatchee River and west of the St. Johns River, the study area hydrology consists of several localized reservoirs, wetlands, and creeks that discharge to tributaries of the Upper St. Johns River. The segment of the St. Johns River system within the study area includes the riverbed, expansive overbank floodplain, Lake Washington, Lake Winder, and Lake Poinsett. East of the St. Johns River, the study area is mainly comprised of urbanized development.

As mentioned, the St. Johns River flows through the mid-eastern side of the study area from south to northeast for approximately 27 miles from US 192 (SR 500) to SR 520, and includes Lake Washington, Lake Winder, and Lake Poinsett. There are two existing bridge crossings over the St. Johns River within the study area, at US 192 (SR 500) and SR 520. Both bridge crossings have USGS and SJRWMD data collection gage stations. Additionally, Taylor Creek and Lake Washington are a part of SJRWMD minimum flows and levels program (MFLs) and contain SJRWMD gage stations. The various gage data in the study area can be used for determination of peak flows and minimum water levels along the St. Johns River, which can be compared to peak flows determined by USGS Regression Analysis and the historical discharge and stage information from the 1985 Rao Study (SJRWMD Technical Publication SJ 85-3).

Pond sizing criteria will account for the differences in criteria between the two water management districts and watershed boundaries, including any special water management district basin criteria. Development within the project area utilizes mainly wet detention ponds that provide treatment and attenuation prior to discharge. Floodplain compensation will be evaluated and either provided within the stormwater ponds or will be provided in separate floodplain compensation areas. Any discharge to OFWs or verified impaired waterbodies will require an additional 50% of treatment volume. Additional protective measures, such as pollutant loading analysis or pre-treatment, will be confirmed with the water management district as it relates to discharge within the Lake Okeechobee BMAP, to an impaired waterbody, and to mitigation banks (Lake X Ranch, TM-Econ, and Lake Washington Mitigation Bank (LWMB)).

3.4.3 FLOODPLAINS

Approximately 61,984 acres of the 136,431-acre study area (63.5%) is classified as a Zone A or Zone AE FEMA floodplain. Approximately two-thirds of these floodplains are Zone AE, where an established Base Flood Elevation (BFE) has been determined. Zone A floodplains do not have established Base Flood Elevations.

The Effective FEMA FIRMs dated 2009 (Orange Co.), 2013 (Osceola Co.), and 2014 (Brevard Co.), including Letter of Map Revisions (LOMR) dated 2017, indicate Zone AE at the Upper Kissimmee Chain of

Lakes, Econlockhatchee River, and along the St. Johns River throughout the project limits. FEMA Zone A floodplains are identified within the localized reservoirs, wetlands, and creeks between the Econlockhatchee River and the St. Johns River, as well as some areas along I-95. There is no FEMA Regulatory Floodway within the study area.

The FEMA Flood Insurance Study (FIS) flood profile at the St. Johns River contains an estimate of the 100-year and 500-year peak flood levels within the study area, which can be utilized for estimates of the proposed bridge low member elevations. The 1985 Rao Study also contains peak flood levels. The 100-year FEMA flood level ranges from 17.0' North American Vertical Datum (NAVD) to 19.0' NAVD within the study area.

3.5 NATURAL ENVIRONMENT

3.5.1 WETLANDS

Activities in, on or over Waters of the United States (WOTUS), including wetlands, are regulated at the state and federal level. Executive Order 11990, Protection of Wetlands, 1977 (the Order), is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands". To meet these objectives, the Order requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. In Florida, the EPA has delegated the jurisdictional authority over activities in WOTUS under the Clean Water Act (CWA) of 1972, as amended, to the U.S. Army Corps of Engineers (USACE). On January 23, 2020, the EPA Administration and Assistant Secretary of the Army for Public Works signed a final rule defining the scope of waters federally regulated under the CWA. The Navigable Waters Protection Rule is the second step of a two-step process intended to review and revise the definition of WOTUS. It is intended to increase the predictability and consistency of the CWA programs by clarifying the scope of WOTUS federally regulated under the CWA. The final rule was posted on April 21, 2020, and became effective June 22, 2020.

In addition, Florida Statue 373.016 states that waters in the state are among its basic resources. If activities in, on or over wetlands or surface waters cannot be avoided by an activity, it is subject to the conditions set forth in Florida Administrative Code (FAC) 62-330. The USACE, SJRWMD, and SFWMD, as well as other local governments, have jurisdictional authority over wetlands and surface waters within the study area.

A preliminary assessment of wetlands and surface waters was conducted within the study area utilizing the 2009 SJRWMD Florida Land Use, Cover, and Forms, Classification System (FLUCFCS), 2016 SFWMD FLUCFCS, and 2013 Osceola County National Wetland Inventory (NWI) GIS datasets.

The study area contains large expanses of freshwater emergent wetlands. These areas are primarily associated with the St. Johns River system. Numerous areas of smaller freshwater forested/shrub wetlands are found throughout the study area. Based on a review of recent and historical aerial photography, the majority of the forested, shrub, and herbaceous systems are potentially hydrologically connected during the wet season and therefore, potentially fall under the jurisdiction of the SJRWMD, SFWMD, and USACE. Qualitative field reviews were not conducted within the study area; however, based on aerial interpretation, it is anticipated that these wetlands are medium to high quality due to the large intact wetland systems that are hydrologically connected throughout and the undeveloped characteristics of the study area. Cattle ranching may have altered the overall characteristics of the

individual wetlands due to cattle intrusion, ditching, and influx of nuisance vegetation. Field reviews will be conducted in representative wetland areas throughout the study area to determine the level of alteration. A map depicting the SJRWMD and SFWMD wetland land use types within the study area is presented on **Exhibit 3-8**.

The NWI dataset appears to include fewer wetland areas than the SJRWMD and SFWMD datasets. **Exhibit 3-9** depicts the areas mapped as wetlands according to the NWI data. One specific area east of Lake Winder includes a large area that is highly ditched; this area is approximately 3,100 acres. Based on a review of aerial photographs (Google Earth 1994 – 2017), the area appears to be extremely wet during most years. The SJRWMD land use denotes this area as wetland, but the NWI data does not have this area mapped as a wetland. Site reviews will be needed to determine which dataset best represents the site conditions.

Exhibit 3-8: SFWMD and SJRWMD Wetlands and Surface Waters

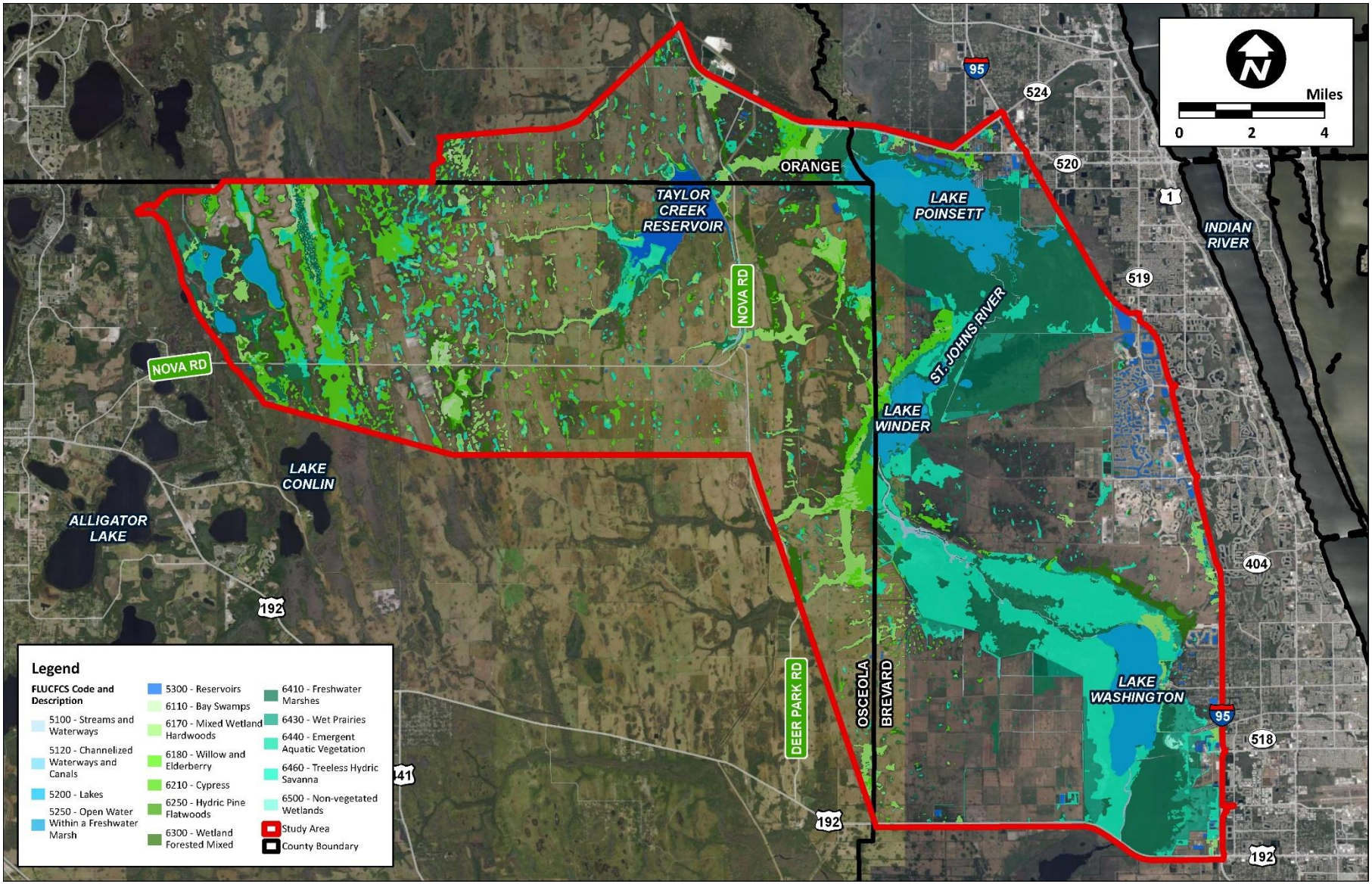
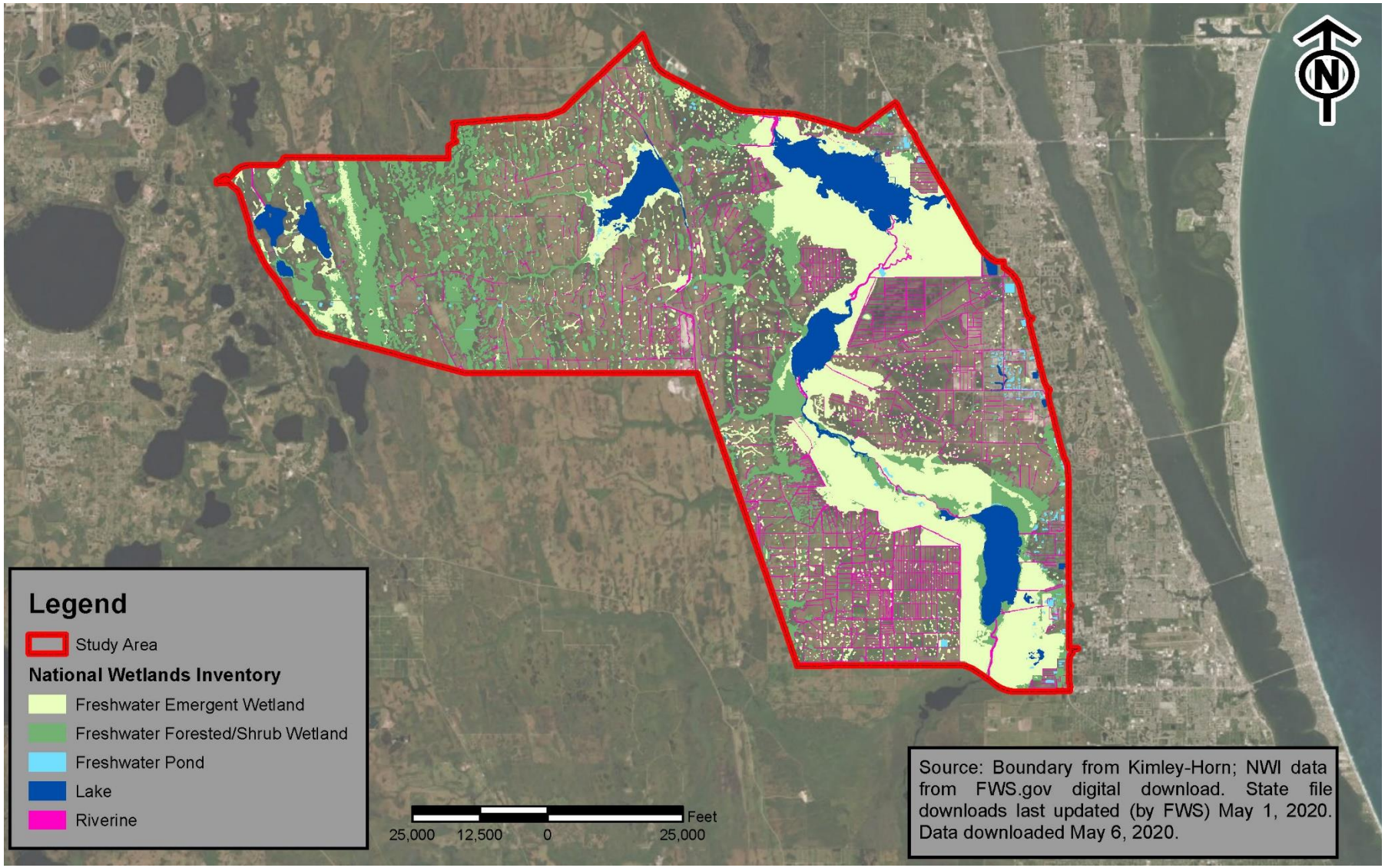


Exhibit 3-9: USFWS National Wetland Inventory

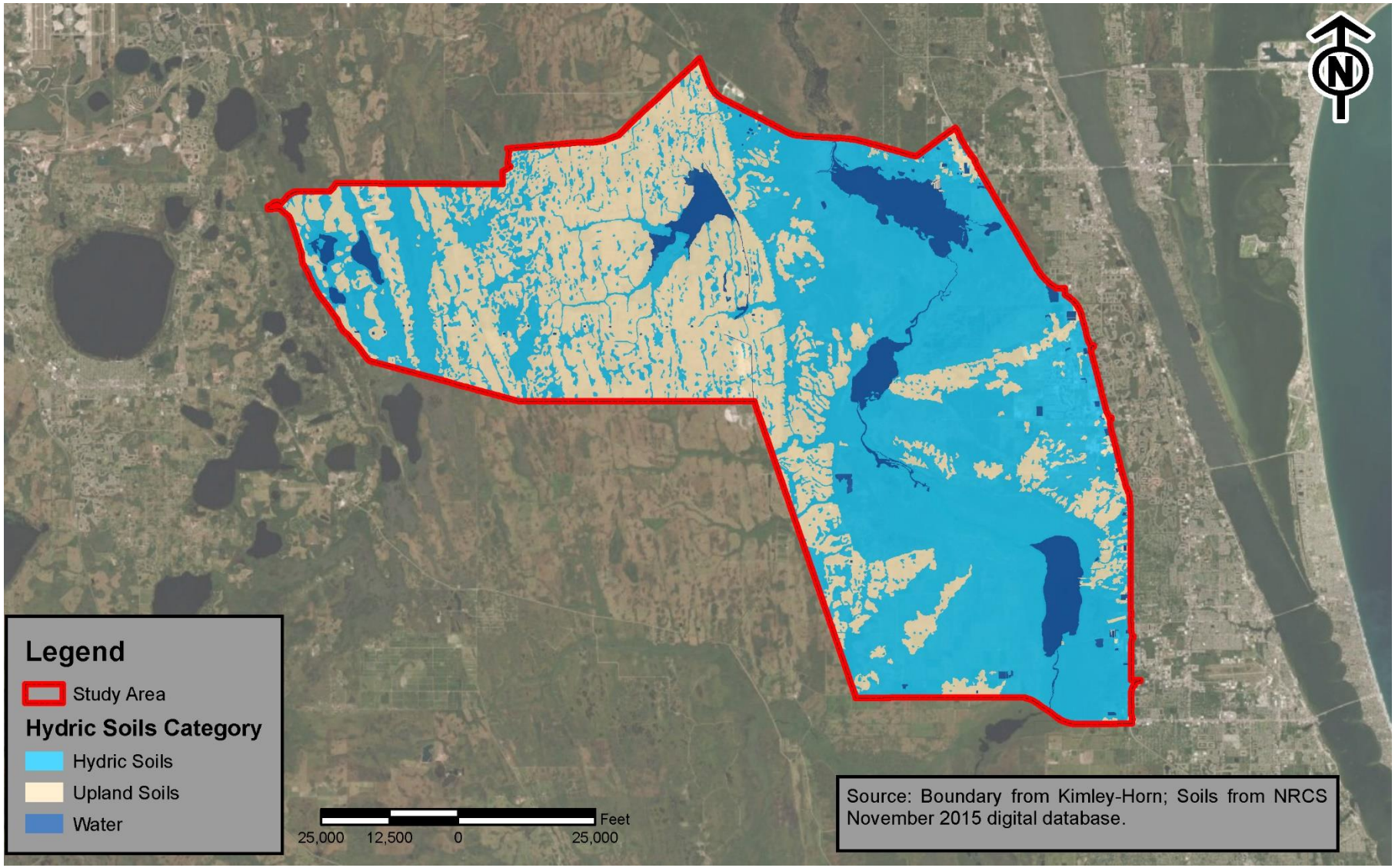


3.5.2 SOIL CLASSIFICATIONS

Multiple upland and wetland soil types occur within the study area based on 2015 NRCS soils GIS data. For the purpose of this study, soil data was used to assist with the determination of wetland and upland areas by their hydric soils classification. **Exhibit 3-10** depicts the NRCS hydric soil types within the study area.

The hydric soils classification shows a much broader expanse of hydric soils than the wetland boundaries mapped by SFWMD and SJRWMD land-use dataset or the NWI dataset.

Exhibit 3-10: NRCS Hydric Soils



3.5.3 FARMLANDS

In 1981, the U.S. Congress passed the Agriculture and Food Act containing the Farmland Protection Policy Act (FPPA) and the final regulation was promulgated in 1994. The NRCS is the agency responsible for ensuring that FPPA is implemented. It is the responsibility of other Federal agencies and entities receiving Federal funds to lessen the effects of conversion activities on farmland and to ensure that their programs or activities are compatible, to the extent practicable, with State, local, and private programs to protect farmland. Important farmlands, including lands identified with soils that are prime, unique, or statewide or locally important farmland, are subject to the provisions of the Farmland Protection Policy Act.

In accordance with the 1981 FPPA (Public Law 97-98), important farmland includes all land that is defined as prime, unique, or statewide or locally important. Under the Code of Federal Regulations (7 CFR 657.5) these farmlands are based on soil types. The identification of important farmlands will be determined from currently published or interim soil survey maps and data produced and certified by the NRCS National Cooperative Soil Survey Program. Soil map units with component(s) of prime farmland are considered: 1) prime farmland where 50 percent or more of the component(s) in the map unit is prime farmland; 2) farmland of statewide importance where less than 50 percent of the component(s) in the map unit is prime farmland but the combination of prime farmland and farmland of statewide importance is 50 percent or more of the map unit; and 3) farmland of local importance where less than 50 percent of the component(s) in the map unit is prime farmland or farmland of statewide importance, but the total of prime farmland and farmland of statewide or local importance is 50 percent or more of the map unit. All other soil map units should be shown as not important farmland unless they are unique farmland.

According to the FPPA, prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. The land could be cropland, pastureland, rangeland, forestland, or other land but not urban built-up land or water.

Also, according to the FPPA, unique farmland is land other than prime farmland that is used to produce specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high-quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods and other conditions, such as nearness to market, that favor the growth of a specific food or fiber crop. Examples of such crops are red tart cherries, citrus, tree nuts, olives, cranberries, fruit, and vegetables.

Consultation with NRCS determines whether the farmland is classified as prime or unique. If an area is considered prime or unique, the FPPA requires a complete site assessment based on the length of time the area was farmed, an evaluation of the surrounding farmland, the level of local farm support services, and the level of urban land in the area.

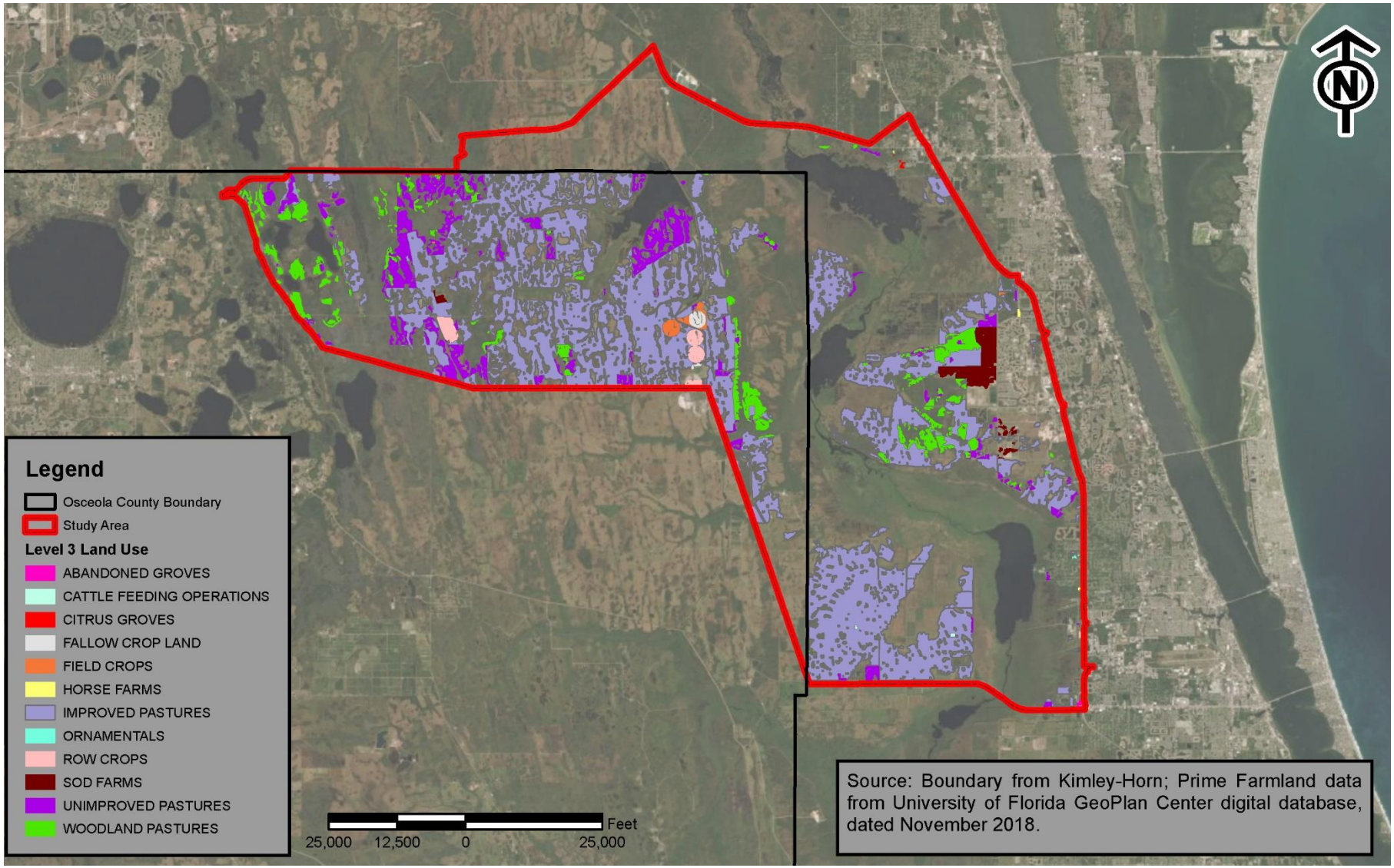
A further analysis of prime farmland was conducted by the University of Florida GeoPlan Center in 2018 and this analysis identifies prime farmland using NRCS soils data and cross-references it with the FLUCFCS that are developed by the SFWMD and SJRWMD.

Based on a review of the "University of Florida's Prime Farmlands in Florida with associated Level 3 Water Management District Land Use Descriptions" data, most of the prime or unique farmland occurs within the Osceola County portion of the study area, with a couple of large areas within Brevard County. Prime farmland constitutes 28.59% of the study area, of which improved pastures are the dominant land use type, comprising 22.87% of the study area (**Table 3-14**). **Exhibit 3-11** depicts the prime farmlands in the study area.

Table 3-14: Prime Farmland Land Use

Farmland Land Use Type	Acres	Percent of Prime Lands	Percent of Study Area
Abandoned Groves	17	0.03%	0.01%
Cattle Feeding Operations	10	0.02%	<0.01%
Citrus Groves	15	0.02%	0.01%
Fallow Crop Land	139	0.23%	0.07%
Field Crops	277	0.45%	0.13%
Horse Farms	15	0.03%	0.01%
Improved Pasture	48,767	80.00%	22.87%
Ornamentals	5	0.01%	<0.01%
Row Crops	615	1.01%	0.29%
Sod Farms	1,282	2.10%	0.60%
Unimproved Pastures	5,867	9.62%	2.75%
Woodland Pastures	3,953	6.48%	1.85%
Total	**60,962**	**100.00%**	**28.59%**

Exhibit 3-11: Prime and Unique Farmlands by Land Use



3.5.4 THREATENED AND ENDANGERED SPECIES

The U.S. Fish and Wildlife Service (USFWS) and Florida Fish and Wildlife Conservation Commission (FWC) have authority under the U.S. Endangered Species Act of 1973 (ESA) and the State of Florida's Endangered and Threatened Species Act (s. 379.2291, Florida Statutes) to provide comments and recommendations concerning protected species. Section 7 of the ESA requires federal agencies to ensure that activities do not have a detrimental effect on the continued existence of listed species or their habitats. For some species, USFWS has designated consultation areas or critical habitat. If actions may affect state or federally-listed species or critical habitats, then coordination with USFWS and FWC will be required. The following information and datasets were reviewed to determine the likelihood of state and federally-listed species occurring within the study area:

- True color aerial photography (Environmental Science Research Institute's (ESRI) Online Database)
- USGS topographic (ESRI Online Database)
- U.S. Department of Agriculture NRCS soils GIS data for Orange and Osceola Counties (2017)
- SJRWMD Land Use Data (2014)
- SJRWMD Permitting Portal (2020)
- SFWMD Land Use Data (2019)
- SFWMD Permitting Portal (2020)
- USFWS NWI Data (2013)
- "Federal Listed Species in Brevard, Osceola and Orange Counties, Florida" USFWS (2020)
- Endangered & Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12
- "Notes on Florida's Endangered and Threatened Plants," Florida Department of Agriculture and Consumer Services (2010), and 5B-40 FAC
- Florida Natural Areas Inventory (FNAI) database of listed species known to occur in Brevard, Orange, and Osceola Counties (2020)
- FNAI Florida Conservation Lands and Florida Forever Board of Trustees Projects Database (2020)
- USFWS Wood Stork Key for South Florida (revised 2010)
- USFWS Wood Stork Florida Nesting Colonies and Core Foraging Areas (CFA) Active 2008-2019 (2020)
- "Florida's Endangered and Threatened Species," FWC (2018)
- FWC listed species occurrence data (2017)
- FWC Gopher Tortoise Permitting Guidelines (2017)
- Osceola County - North Ranch Sector Plan Long-Term Master Plan, Peer Review of the Environmental Plan (2015)
- USFWS Consultation Areas and Critical Habitat Maps (2020)

The study area lies within the USFWS consultation area for the Everglade snail kite (*Rostrhamus sociabilis plumbeus*), Audubon's crested caracara (*Polyborus plancus audubonii*), Florida scrub-jay (*Aphelocoma coerulescens*), red-cockaded woodpecker (*Picoides borealis*), Florida grasshopper sparrow (*Ammoduramus savannarum floridanus*), and Lake Wales Ridge plants. Based on a review of the USFWS Critical Habitat Mapper, there is USFWS designated critical habitat within the study area for the Florida manatee (*Trichechus manatus*) located in the upper basin of the St. Johns River (Lake Washington, Winder, and Poinsett connections) on the eastern side of the study area.

Areas identified by FWC as strategic habitat conservation areas (SHCA) are located within the study area. SHCAs are undeveloped natural areas identified by FWC as areas that could provide potential habitat to native plant and wildlife species and, therefore, may be considered for acquisition as conservation lands. However, these areas have no regulatory implications and have not been and may never be acquired for conservation.

Based on the review of available information from USFWS, FNAI, and FWC, an assessment of habitat availability, and on-site investigations of the study area, a list of the state and federally-listed species with the potential to occur within the study area has been compiled. **Table 3-15** includes state and federally listed species that may occur in the study area, along with other relevant species information. A likelihood of occurrence was developed based on known occurrences documented in existing databases, the presence of suitable habitat, and on-site observations.

Table 3-15: Potential Listed Species and Likelihood of Occurrence

Common Name	Scientific Name	Federal Status	State Status	Comments	Likelihood of Occurrence
Mammals					
Florida manatee	*Trichechus manatus*	T	T	The study area is within USFWS critical habitat for Florida manatee.	Moderate
Florida black bear	*Ursus americanus floridanus*	N*	N*		Moderate
Birds					
Everglade snail kite	*Rostrhamus sociabilis plumbeus*	E	E	The study area is within the USFWS Consultation Area for Everglade snail kite. No snail kite nests documented within the study area.	Low
Audubon's crested caracara	*Polyborus plancus audubonii*	T	T	The study area is within the USFWS Consultation Area for Audubon's crested caracara. Documented occurrences within the study area.	High
Bald eagle	*Haliaeetus leucocephalus*	N**	N**	Eight (8) active bald eagle nests exist within the study area.	High
Wood stork	*Mycteria americana*	T	T	The study area falls within wood stork CFA's.	High

Table 3-15 (continued): Potential Listed Species and Likelihood of Occurrence

Common Name	Scientific Name	Federal Status	State Status	Comments	Likelihood of Occurrence
Florida scrub-jay	*Aphelocoma coerulescens*	T	T	The study area is within the USFWS Consultation Area for Florida scrub-jay. No documented occurrences within the study area.	Moderate
Red-cockaded woodpecker	*Picoides borealis*	E	E	The study area is within the USFWS Consultation Area for red-cockaded woodpecker. No documented occurrences within the study area.	Low
Florida grasshopper sparrow	*Ammoduramus savannarum floridanus*	E	E	The study area is within the USFWS Consultation Area for Florida grasshopper sparrow but not within NRCS consultation area. No documented occurrences within the study area.	Low
Tricolored heron	*Egretta tricolor*	N	T	Foraging habitat exists within the study area.	High
Florida sandhill crane	*Grus canadensis pratensis*	N	T	May forage and/or nest within the study area.	Moderate
Florida burrowing owl	*Athene cunicularia floridana*	N	T	Documented occurrences within the study area.	High
Southeastern American kestrel	*Falco sparverius paulus*	N	T	Found in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida.	Moderate
Little blue heron	*Egretta caerulea*	N	T	Foraging habitat exists within the study area.	Moderate
Reddish egret	*Egretta rufescens*	N	T	Foraging habitat exists within the study area. Inhabits mainly coastal areas.	Low
Roseate spoonbill	*Platalea ajaja*	N	T	Foraging habitat exists within the study area.	Moderate
Least tern	*Sternula antillarum*	T	T	Documented occurrences within the study area.	Moderate
Reptiles					
Gopher tortoise	*Gopherus polyphemus*	C	T	Documented occurrences within study area.	High
American alligator	*Alligator mississippiensis*	T (S/A)	T (S/A)	Typically found in wetland habitats, including freshwater marshes, swamps, lakes, and rivers.	Moderate

Table 3-15 (continued): Potential Listed Species and Likelihood of Occurrence

Common Name	Scientific Name	Federal Status	State Status	Comments	Likelihood of Occurrence
Eastern indigo snake	*Drymarchon couperi*	T	T	Utilizes a wide variety of habitats ranging from marshes to xeric habitats. Indigo snakes forage around the edges of wetland areas.	Moderate
Florida pine snake	*Pituophis melanoleucus mugitus*	N	T	Inhabits areas with relatively open canopies and dry sandy soils.	Moderate

E = Endangered T = Threatened SSC = Species of Special Concern N = Not Listed C=candidate species T (S/A) = Threatened due to Similarity of Appearance
*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 Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act and FWC Management Plan regulations.

Florida Manatee (Trichechus manatus)
The Florida manatee is listed as threatened by USFWS and FWC. Manatees inhabit coastal waters, bays, rivers, and occasionally lakes. Manatees require warm-water refugia such as springs or cooling effluent during cold weather events. Sheltered coves are important to the manatee for feeding, resting, and calving. The study area is within the USFWS critical habitat for the manatee. No sightings or mortalities have been documented in the study area, however, potential habitat for the manatee is present in the upper basin of the St. Johns River on the eastern side of the study area.

Florida Black Bear (Ursus americanus floridanus)
The Florida black bear was removed from the FWC list of state-threatened species in August 2012; however, the Florida black bear remains protected under other laws, primarily the Florida Black Bear Conservation Rule 68A-4.009 (FAC) and the FWC Florida Black Bear Management Plan. Based on these regulations, pursuing, hunting, molesting, capturing, killing, or attempting those actions, whether or not such actions result in possession of the bear is unlawful. In addition, Rule 68A-4.009, FAC, generally prohibits anyone from possessing, injuring, shooting, wounding, trapping, collecting, or selling bears or their parts or attempting to engage in such actions without prior authorization from FWC. Black Bear Management Units (BMU) have also been established based on the seven geographically distinct bear subpopulations in Florida. The study area is located within the South Central BMU. Specifically, according to FWC, black bears occasionally occur in the study area (https://myfwc.com/wildlifehabitats/wildlife/bear/bmu/).

Black bears are adaptable and inhabit a variety of forested habitats including seasonally inundated pine flatwoods, tropical hammocks, hardwood swamps, and xeric sand pine-scrub oak communities. Based on a review of GIS databases, there is one nuisance report from 2007 in Viera in the study area (see **Exhibit 3-12: Listed Species Map**).

Everglade Snail Kite (Rostrhamus sociabilis plumbeus)
The Everglade snail kite is listed as endangered by USFWS and FWC. Snail kites prefer large open freshwater marshes and lakes with shallow water and a low density of emergent vegetation. They nest

solitarily, or in loose colonies, sometimes in association with other water birds. Nests are found in a variety of vegetation types, including trees, shrubs, and even cattails and bulrushes. Snail kites prey almost exclusively on freshwater apple snails (*Pomacea paludosa*). The study area is within the USFWS consultation area for the snail kite. No nests have been documented in the study area, however, potential habitat for the snail kite is present within the study area. If observed, USFWS Draft Snail Kite Management Guidelines must be followed.

Audubon's Crested Caracara (Polyborus plancus audubonii)

Audubon's crested caracara is listed as threatened by USFWS and FWC. Caracaras prefer open land including pastures and dry prairie with cabbage palm and/or live oak hammocks and shallow ponds or sloughs. They are often observed foraging for carrion along roadsides throughout south central Florida. Nesting occurs within cabbage palm trees, or live oaks, if cabbage palms are not present. Typically, a pair will maintain the same territory for several years. The study area is within the USFWS consultation area for the crested caracara. No caracara nests have been documented within the study area; however, potential habitat for the crested caracara is present within the study area and species occurrences have been documented. Surveys would be required to determine presence or absence of caracara nests and coordination with USFWS may be required to address impacts to the crested caracara if nesting is observed.

Bald Eagle (Haliaeetus leucocephalus)

The bald eagle is not listed by USFWS or FWC but is protected by the Bald and Golden Eagle Protection Act. Bald eagle nests are generally built in high pine trees or cell phone towers with the nest being used year after year by the same pair. The nests are typically located near lakes, marshes or coastlines where foraging habitat is available. Nests are reused each year with new material added, often resulting in very large nests. Disturbance too close to the nest tree or destruction of the nest tree can cause abandonment of the nesting site. According to the FWC's approved Bald Eagle Management Plan, 2008, a 660-foot radius buffer from an active nest must be maintained for all activities during anytime of the year. Eight (8) active nests are located within the vicinity of the study area and potential nesting habitat for the bald eagle is present within the study area.

Wood Stork (Mycteria americana)

The wood stork is listed as threatened by USFWS and FWC. Foraging habitats include cypress domes, mixed forested wetlands, freshwater marshes and sloughs, and sawgrass marshes. Additionally, drainage canals, shallow swales, golf courses and furrows in agricultural fields have become alternate foraging areas in Florida as long as there is appropriate foraging conditions. Eight (8) wood stork Core Foraging Areas (CFA) intersect the study area: Gatorland, Lake Russell, Lake Mary Jane, Lake Conlin, Orlando Wetlands Park, SR 524/SR 520, Brevard County Maintenance Shop, Deseret Ranch, US 192 East, and Kemper Ranch. Suitable foraging habitat for the wood stork is present within the study area.

Florida Scrub-Jay (Aphelocoma coerulescens)

The Florida scrub-jay is listed as threatened by USFWS and FWC. This species prefers low growing oak scrub habitats, including sand pine scrub and scrubby flatwoods found on sandy soils. The study area is located in the USFWS consultation area for the Florida scrub-jay and potential habitat for the scrub jay is present within the study area. Small areas of FWC-mapped scrub-jay habitat also exists in the north and west sections of the study area. Surveys would be required to determine presence or absence of the scrub jay. Coordination with FWC may be required to address impacts to scrub jay habitat, if scrub jays are observed.

Red-Cockaded Woodpecker (Picoides borealis)

The red-cockaded woodpecker (RCW) is listed as endangered by USFWS and FWC. RCWs inhabit open, mature pine woodlands that have a diversity of grass and shrub species. Preferred habitat for this species includes longleaf pine flatwoods in north and central Florida and mixed longleaf pine and slash pine in south-central Florida. The study area is located within USFWS consultation area for the red-cockaded woodpecker. Potential habitat for the red-cockaded woodpecker is present within the study area.

Florida Grasshopper Sparrow (Ammoduramus savannarum floridanus)

The Florida grasshopper sparrow is listed as endangered by USFWS and FWC. Florida grasshopper sparrows occur in the prairies of south-central Florida including Osceola county. Preferred habitat for this species includes grassland prairies dominated by wiregrass, bluestem, or saw palmetto. Much of the preferred habitat has been lost due to the conversion to improved cattle pastures, sod production, and other agricultural uses. The study area is within the USFWS consultation area for the grasshopper sparrow; however, the study area is not within the revised NRCS consultation area for this species. Therefore, it is unlikely Florida grasshopper sparrows would be found within the study area.

Tricolored Heron (Egretta tricolor)

The tricolored heron is listed as threatened by FWC. This heron inhabits and forages in cypress domes, scrub cypress, freshwater marshes and sloughs, and sawgrass marshes. Additionally, drainage canals, shallow swales, golf courses and furrows in agricultural fields have become alternate foraging areas in Florida. Habitat for this species is present within the study area. Historic wading bird rookeries have been documented as active within the study area.

Florida Sandhill Crane (Grus canadensis pratensis)

The Florida sandhill crane is listed as threatened by FWC. This crane is non-migratory and inhabits open grasslands, marshes, swampy edges of lakes and ponds, river banks, and occasionally pine savanna throughout the state. Nesting occurs within herbaceous wetlands associated with freshwater ponds or marshes. Potential nesting and foraging habitat for the sandhill crane exists within the study area. Surveys would be required to determine presence or absence of sandhill crane nests. Coordination with FWC may be required to address impacts to the Florida sandhill crane if nesting is observed.

Florida Burrowing Owl (Athene cunicularia floridana)

The Florida burrowing owl is listed as threatened by FWC. Burrowing owls are small, ground-dwelling owls with long legs, a round head, and stubby tail. These owls will dig their own burrows in high, sparsely vegetated, sandy soils. Natural habitats include dry prairies and sandhill; however, burrowing owls can also inhabit urban and ruderal areas such as pastures, agricultural lands, and parks. Potential habitat for the burrowing owl is present within the study area and species occurrences have been documented. Surveys would be required to determine presence or absence of Florida burrowing owl burrows. Coordination with FWC may be required to address impacts to the Florida burrowing owl, if burrows are observed.

Southeastern American Kestrel (Falco sparverius paulus)

The southeastern American kestrel is listed as threatened by FWC. Male American kestrels have blue-gray wings, while females are slightly larger and have brownish wings. Both sexes have brownish backs and buffy-white, or off-white undersides with a black flecking, and have distinct black marks extending downward below the eyes. This kestrel is the smallest falcon in United States. The kestrel's range is

limited by nest and perch site availability, foraging habitat, and food supply all in close proximity to one another. Kestrels are secondary cavity nesters using abandoned woodpecker cavities. Nests are commonly found in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. In north central Florida, kestrels prefer open pine woodlands with adjacent open, pasture-like areas. Nest cavities are located in tall dead trees or utility poles generally with an unobstructed view of surroundings. Sandhill habitats seem to be preferred, but kestrels have been observed in flatwoods settings. Open patches of grass or bare ground are necessary for kestrels to effectively utilize flatwoods settings for foraging, since thick palmettos may prevent detection of prey. Potential habitat for the kestrel is present within the study area. Surveys would be required to determine presence or absence of kestrel nest cavities. Coordination with FWC may be required to address impacts to the kestrel, if nesting cavities are observed.

Reddish Egret (Egretta rufescens)

The reddish egret is listed as threatened by FWC. This egret inhabits and forages in shallow water of variable salinity. Broad, open, marine tidal flats and shorelines with little vegetation are ideal feeding areas. Also important are salt evaporation pools and lagoons, often located inside mangrove keys or just inside shoreline on mainland. The species typically nests on coastal mangrove islands, or in Brazilian pepper on manmade dredge spoil islands, near suitable foraging habitat. Foraging habitat for this species exists within the study area. Historic wading bird rookeries have been documented as active within the study area.

Roseate Spoonbill (Platalea ajaja)

The roseate spoonbill is listed as threatened by FWC. The spoonbill inhabits and forages in shallow water of variable salinity, including marine tidal flats and ponds, coastal marshes, mangrove-dominated inlets and pools, and freshwater sloughs and marshes. The species primarily nests in mixed-species colonies on coastal mangrove islands or in Brazilian pepper on man-made dredge spoil islands near suitable foraging habitat. Foraging habitat for this species exists within the study area. Historic wading bird rookeries have been documented as active within the study area.

Least Tern (Sternula antillarum)

The least tern is federally endangered by USFWS and listed threatened by FWC. Least tern habitat typically consists of coastal areas throughout Florida, including beaches, lagoons, bays, and estuaries. However, the species can also be found in more inland areas. This species often nests on gravel rooftops and other artificial nest sites such as spoil islands, dredged material deposits, construction sites, causeways, and mining lands. Nesting areas have a substrate of well-drained sand or gravel and usually have little vegetation. Least terns have been documented within the study area.

Gopher Tortoise (Gopherus polyphemus)

The gopher tortoise is a candidate species for USFWS listing and listed as threatened by FWC. Gopher tortoises inhabit a variety of Florida's native upland communities including sandhills, scrub, xeric oak hammock, and dry pine flatwoods. They also commonly use disturbed habitats such as pastures, old fields, and road shoulders. Tortoises excavate deep burrows for refuge from predators, weather, and fire. Additionally, their burrows serve as important shelter for more than 300 other animal species. Potential habitat for the gopher tortoise is present within the study area. Surveys would be required to determine presence or absence of gopher tortoise burrows. Coordination with FWC may be required to address impacts to the gopher tortoise, if burrows are observed.

American Alligator (Alligator mississippiensis)

The American alligator is listed as threatened due to similarity of appearance to other imperiled crocodilians by USFWS and FWC. Alligators are found statewide in wetland habitats, including freshwater marshes, swamps, lakes, and rivers. The species is most active from spring to fall, with nesting in late spring and hatchlings emerging in the summer. Potential habitat for the alligator is present within the study area.

Eastern Indigo Snake (Drymarchon couperi)

The eastern indigo snake is listed as threatened by USFWS and FWC. This species is a very large, stout-bodied, shiny black snake and is widespread but uncommon in Florida. Generally, this species lives and hunts in a wide variety of habitats and their territories can cover large tracts of land. Preferred Florida habitats include dry glades areas, tropical hammocks, fields and some flatwoods areas, disturbed areas, and mangrove swamps as well as upland and even urban habitats. The indigo snake can be associated with gopher tortoise burrows as a commensal especially in the northern portion of its range Potential habitat for the eastern indigo snake is present within the study area. It is assumed that because habitat exists, there is a potential for this species to occur. USFWS recommends incorporating the *Standard Protection Measures for the Eastern Indigo Snake* during construction. Surveys may be required during design and permitting.

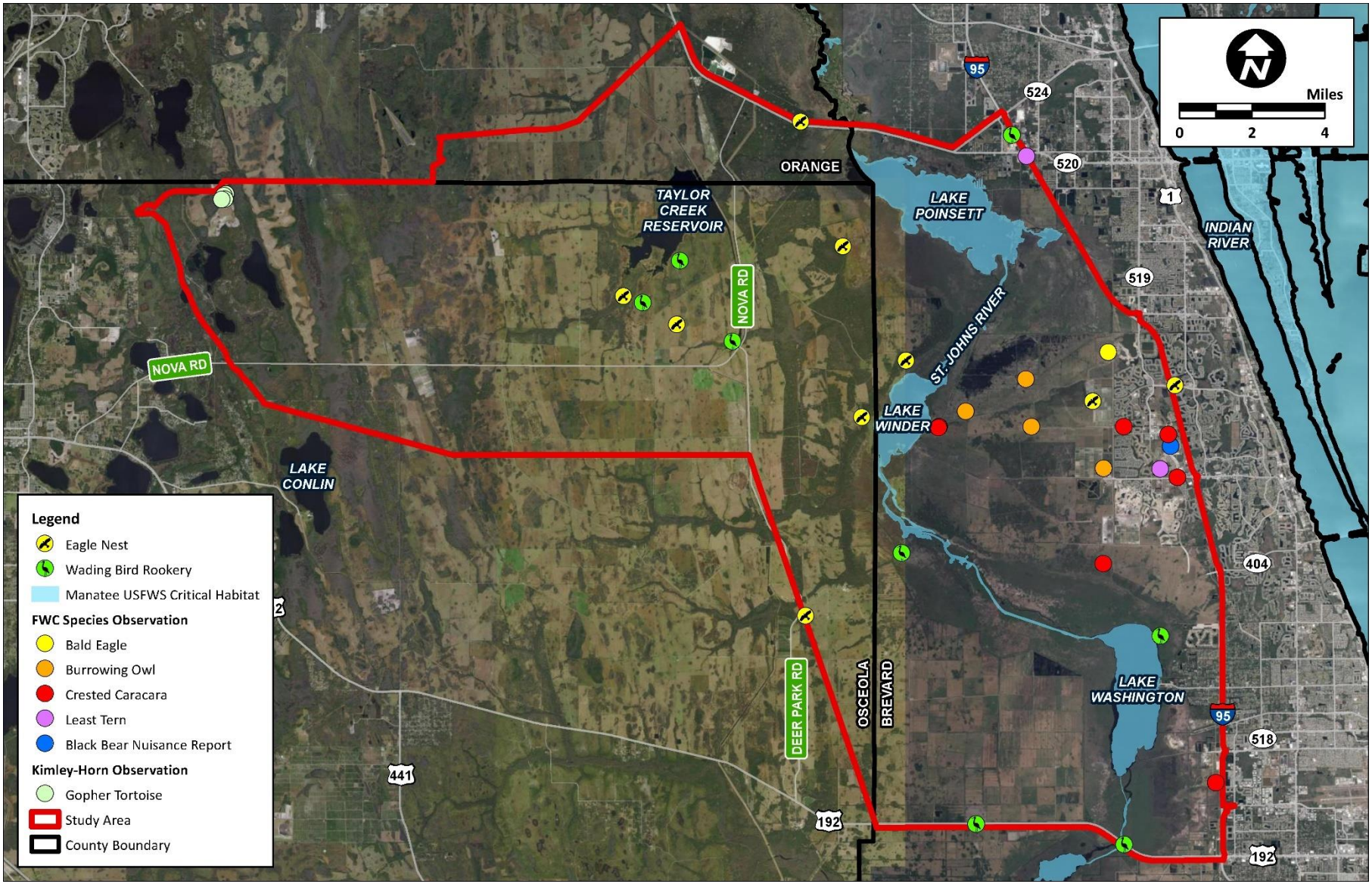
Florida Pine Snake (Pituophis melanoleucus mugitus)

The Florida pine snake is listed as threatened by FWC. This species is a large, stocky, tan, or rusty colored snake with an indistinct pattern of large blotches on a lighter background. This snake is found throughout the state, excluding the Florida Keys, the Everglades, extreme southwest Florida, and immediately north of Lake Okeechobee. It is found most often in open, pine-turkey oak woodlands and abandoned fields, and also in scrub, sandhills, and longleaf pine forest, as it requires dry sandy soils for burrowing. Florida pine snakes spend most of their time underground in pocket gopher or gopher tortoise burrows. Potential habitat for the Florida pine snake is present within the study area.

Listed Plant Species

The Florida Department of Agriculture and Consumer Service's *Notes on Florida's Threatened and Endangered Plants*, and Richard Wunderlin's *Guide to Vascular Plants of Florida*, were consulted to assess habitat requirements for listed species. Based on the available habitats, state and federally-listed plant species have the potential to occur within the study area. A botanical survey may be recommended during any future Project Development and Environment (PD&E) study(s).

Exhibit 3-12: Protected Species



3.5.5 ESSENTIAL FISH HABITAT

A review of the National Marine Fisheries Service (NMFS) essential fish habitat (EFH) GIS data and literature was conducted and it was determined that the study area does not contain EFH. Should revised EFH GIS data and literature become available, a further analysis will be conducted during the PD&E study.

3.5.6 CONSERVATION AND MITIGATION AREAS

According to the FNAI Florida Conservation Lands GIS and SJRWMD and SFWMD permitting databases, there are five (5) areas that are identified as conservation or mitigation lands within the study area. One (1) additional mitigation is located outside the study area but directly adjacent to it. Mitigation banks are required to have conservation easements with the State of Florida or the federal government identified as the easement holders; therefore, mitigation banks are classified as public lands in the database. Listed below are the conservation lands within and adjacent to the study area and these areas are depicted on **Exhibit 3-13**. The conservation lands and mitigation banks within the study area are also summarized in **Table 3-16**. Additionally, lands that are planned for acquisition by SJRWMD are shown on **Exhibit 3-14**. Areas planned for acquisition include lands around the River Lakes Conservation Area, which is discussed further below.

The Tosohatchee Wildlife Management Area (WMA), managed by the FWC, is located on the northern border within and adjacent to the study area. The WMA covers 30,701 acres along 19 miles of the St. Johns River in eastern Orange County. Meandering creeks, lush cabbage palm hammocks, slash pine flatwoods, cypress swamps, and freshwater marshes form an integral part of the WMA.

The River Lakes Conservation Area runs along the St. Johns River in the eastern portion of the study area. The River Lakes Conservation Area was acquired as part of the Upper St. Johns River Basin Project, undertaken jointly by the SJRWMD and the USACE, as a long-term flood control project to revitalize the upper basin. The Upper St. Johns River Basin Project reclaimed drained marshlands by creating reservoirs and replumbing existing canals. The area contains extensive wetland communities, typically dominated by emergent species such as sawgrass (*Cladium jamaicense*), smartweed (*Polygonum hydropiperoides*), arrowhead (*Sagittaria sp*.) and maidencane (*Panicum hemitomon*).

The River Lakes Conservation Area includes a 30-year Wetlands Reserve Program (WRP) easement, executed on July 28, 1999 and administered by the US Department of Agriculture, NRCS. The easement area consists of approximately 8,800 acres and is located between Lake Poinsett and Lake Washington. Through this easement, the U.S. holds vested rights and interests that authorize NRCS to make determinations necessary to administer the easement [7 C.F.R. Part 1468]. If a project is expected to impact lands under a WRP easement, there are requirements that must be addressed including demonstrating that the project is in the Federal government's interest and addresses a compelling public need. It must also be demonstrated that there are no practicable alternatives. For purposes of this study, the presence of the easement is being documented. However, with a termination date in 2029, the actual effect of the easement on proposed alternatives within the study area is unknown. Even if a PD&E is undertaken in the future for the OBCC, the relevance of the WRP easement will be contingent upon when the study is conducted and when a potential alternative would be developed in relation to the easement termination date.

The FNAI Florida Forever Board of Trustees (FFBOT) GIS data indicates that Conlin Lake X (CLX) is located within the study area and was acquired by approval of the State of Florida's Acquisition and Restoration Council on June 19, 2015. This site is located in the southwest corner of the study area and north of US 192. The CLX site is a high-quality landscape, comprised of uplands and wetlands surrounding a large mostly undeveloped lake, Lake Conlin. The CLX site is dominated by large cypress (*Taxodium sp*.) swamps, intermixed with pine flatwoods (mostly mesic but also including scrubby and wet flatwoods) dotted with smaller dome swamps and depression marshes. The CLX site surrounds Lake Conlin and is bisected by a 2,215-acre basin swamp that serves as the eastern floodplain of the lake. The lake border is undeveloped with the exception of a small area of pasture and facilities on its southwestern side. Lake Conlin is reported to be in good condition in terms of water quality and natural biota.

Based on the review of the SJRWMD and SFWMD permitting databases, two areas have been identified within the study area as a wetland mitigation bank. The Lake X Mitigation Bank (LXMB) is located within the CLX conservation area. The LXMB (mitigation banking permit 49-00004-M) was issued on October 14, 2016, and includes 5,499 acres of land of which contains approximately 3,975 acres of wetlands, 1,508 acres of uplands, 16 acres of surface waters, and 111 acres of field roads. LWMB is located in the south east section of the study area. LWMB is contiguous to the southeastern shore of Lake Washington, approximately 0.5 mile from the St. Johns River, and approximately 0.75 mile from the River Lakes Conservation Area. The LWMB (mitigation banking permit 009-135425-1) was issued on July 21, 2017, and includes 1,657.5 acres of land of which nearly all is wetland and/or surface water.

Table 3-16: Conservation Lands and Mitigation Banks within the Study Area

Conservation Land/ Mitigation Bank Name	Agency/Management Responsibility	Acres within Study Area	Percentage (%) of Study Area
Tosohatchee Wildlife Management Area	FWC	2,558.0	1.2%
River Lakes Conservation Area	SJRWMD	22,691.0	10.6%
Conlin Lake X*	FFBOT	1,400.0	0.7%
Lake X Mitigation Bank	Lake X Holdings, LLC	730.0	0.3%
Lake Washington Mitigation Bank	City of Melbourne	1,657.5	0.8%
Total		**29,036.5**	**13.6%**

*According to the FFBOT and SJRWMD data, a portion of this area is the Lake X Mitigation Bank

The Little Creek Florida Mitigation Bank (LCFMB) is located in southeastern Orange County, approximately 3.5 miles south of SR 528 and seven (7) miles west of SR 520. The southern boundary of the bank is adjacent to the northern boundary of Osceola County. The LCFMB's SJRWMD permit 147836-1, was issued on August 1, 2019, and includes 4,685 acres of land. Land use within the LCFMB includes unimproved pasture, bay swamps, hydric pine flatwoods, wet prairies, coniferous plantations, cypress, pine flatwoods, mixed wetland forest, freshwater marshes, and roads. This mitigation bank serves as headwaters to Little Creek and Four Mile Creek (Econolockhatchee River Swamp) which are categorized by the FDEP as OFW and flow to the Econlockhatchee River which is also designated as an OFW. The site also serves as headwaters to Taylor Creek which flows to the St. Johns River.

Exhibit 3-13: Conservation Land and Mitigation Banks

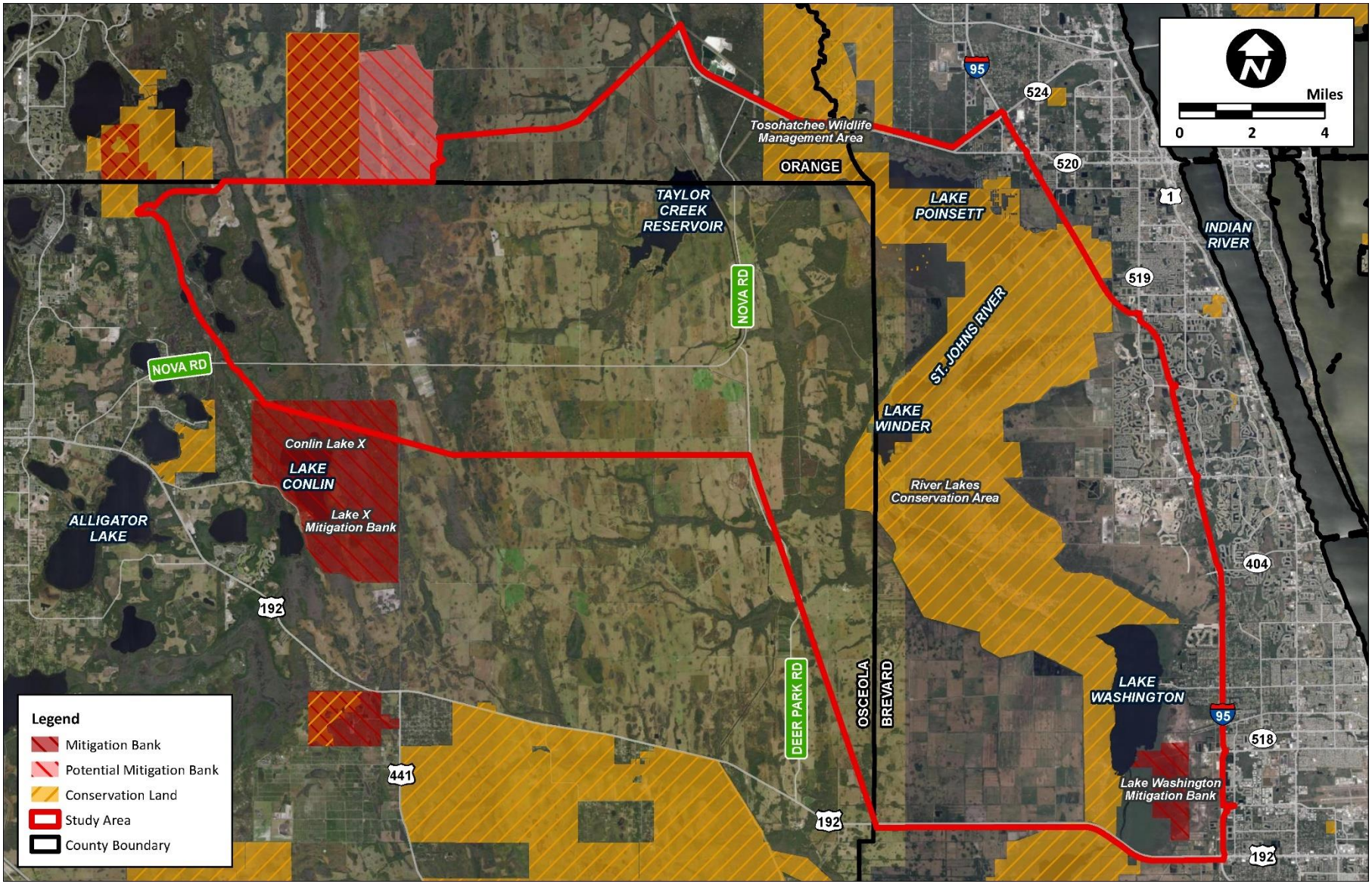
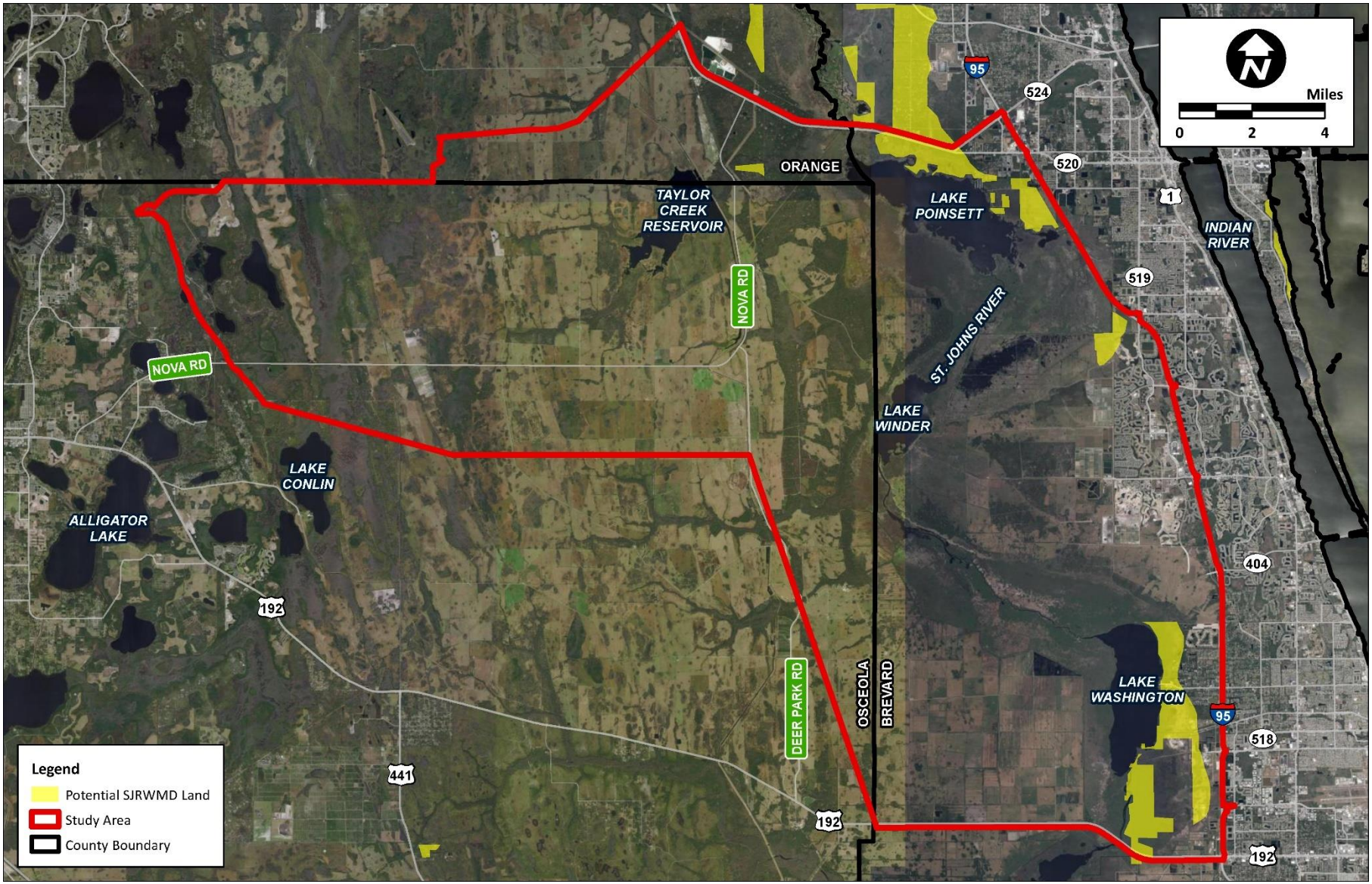


Exhibit 3-14: Potential SJRWMD Lands



Senate Bill 976 (The Florida Wildlife Corridor Act) became effective on July 1, 2021. Among its provisions, the new law encourages "all state, regional, and local agencies that acquire lands, including, but not limited to, the Fish and Wildlife Conservation Commission and the Department of Transportation, to include in their land-buying efforts the acquisition of sufficient legal interest in opportunity areas to ensure the continued viability of the Florida wildlife corridor." As defined in law, portions of the Florida Wildlife Corridor cross through the OBCC study area. Although SB 976 was enacted following the pause of the study, it is being documented here as a consideration for any future evaluation in this study area.

3.5.7 PRESCRIBED BURN AREAS

Many of Florida's natural communities have been fire-suppressed historically and are a potential danger to the public due to the amount of fuel accumulation. In recent years, controlled burns have been conducted on public lands to reduce this danger and improve habitat for wildlife. Most upland and some wetland habitats are fire-dependent for seed dispersal and germination.

Upland communities within and directly contiguous to the LXMB are subject to prescribed burns to promote diversity within the herbaceous groundcover within these areas and serve as a management tool to minimize the growth of shrub species along the wetland/upland ecotone. The permitted fire management program for the LXMB incorporates prescribed burning of upland communities within the LXMB area on a two- to four-year fire rotation. Controlled burns produce smoke that may affect roadway visibility as well as negatively affect public safety during these activities. As management plans for conservation areas are implemented, prescribed burns will be taken into consideration and re-evaluated during any future PD&E study(s).

3.6 HUMAN ENVIRONMENT

3.6.1 EXISTING LAND USE

GIS data was obtained from the SFWMD and the SJRWMD to assist in identifying land cover and natural communities. Land covers were classified according to the FLUCFCS system. The general land cover within the study area consists of a mixture of developments (residential, commercial, community facilities), wetlands, agriculture (pastures), and native uplands (pine flatwoods, xeric oak, and other hardwood forests). **Table 3-17** provides the FLUCFCS data and acreage within the study area. The FLUCFCS map is shown below as **Exhibit 3-15**.

Table 3-17: FLUCFCS Type and Acreage within the Study Area

FLUCFCS Code	FLUCFCS Type	Acres
1100	Residential Low Density	862
1180	Rural Residential	487
1190	Residential Low Density Under Construction	280
1200	Residential Medium Density	594
1290	Residential Medium Density Under Construction	555
1300	Residential High Density	653
1390	Residential High Density Under Construction	91
1400	Commercial and Services	324
1490	Commercial and Services Under Construction	46

1550	Other Light Industrial	9
1600	Extractive	4
1620	Sand and Gravel Pits	88
1630	Rock Quarries	25
1660	Holding Ponds	5
1700	Institutional	608

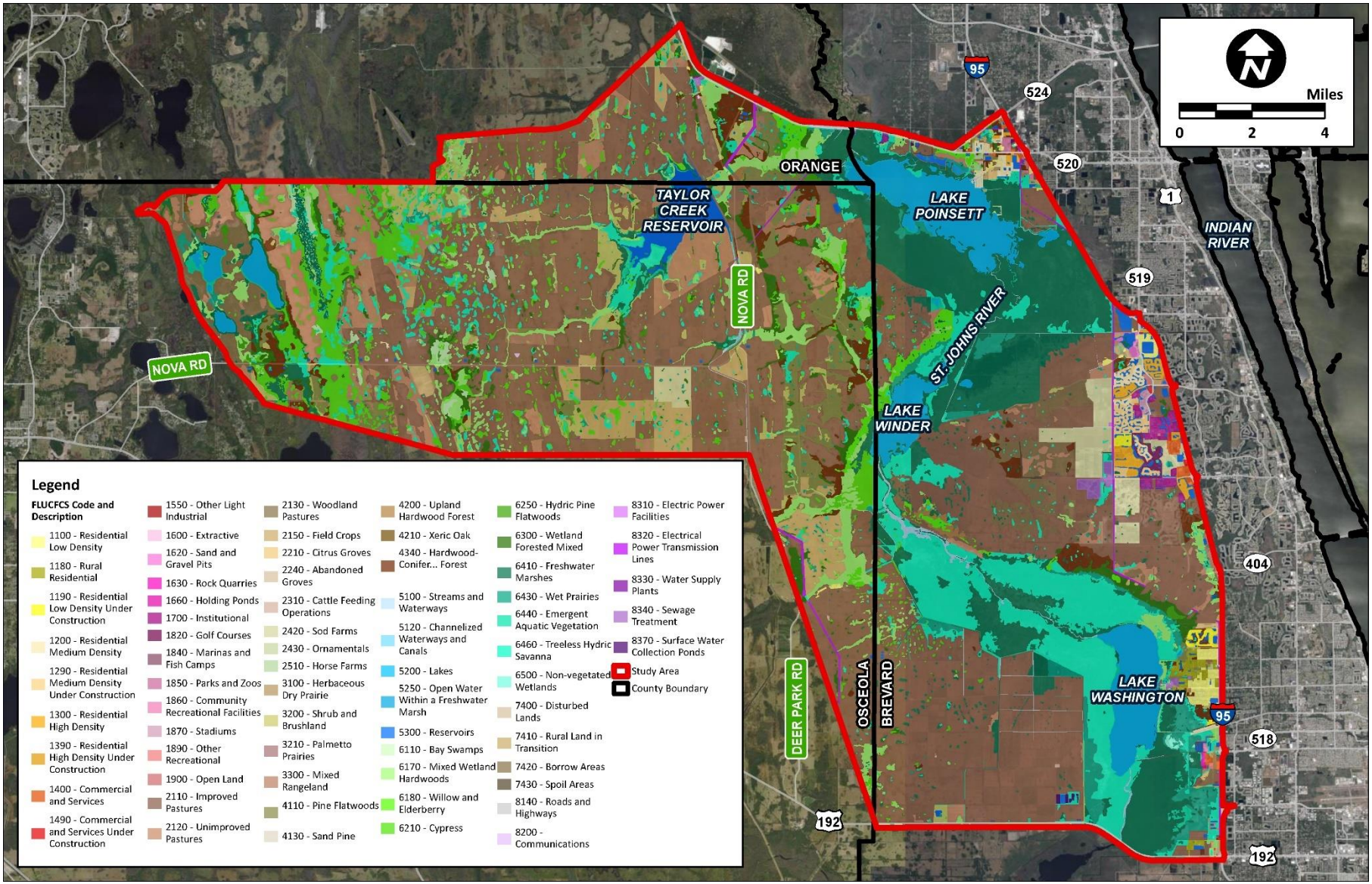
Table 3-17 (continued): FLUCFCS Type and Acreage within the Study Area

FLUCFCS Code	FLUCFCS Type	Acres
1820	Golf Courses	221
1840	Marinas and Fish Camps	22
1850	Parks and Zoos	80
1860	Community Recreational Facilities	17
1870	Stadiums	84
1890	Other Recreational	12
1900	Open Land	55
2110	Improved Pastures	77,297
2120	Unimproved Pastures	10,543
2130	Woodland Pastures	6,297
2150	Field Crops	5,235
2210	Citrus Groves	68
2240	Abandoned Groves	19
2310	Cattle Feeding Operations	20
2420	Sod Farms	3,092
2430	Ornamentals	23
2510	Horse Farms	52
3100	Herbaceous (dry prairie)	156
3200	Shrub and Brushland	3,675
3210	Palmetto Prairies	23
3300	Mixed Rangeland	1,214
4110	Pine Flatwoods	5,322
4130	Sand Pine	3
4200	Upland Hardwood Forests	410
4210	Xeric Oak	45
4340	Hardwood-Conifer Mixed	4,324
5100	Streams and Waterways	993
5200	Lakes	9,939
5250	Open Water within a Freshwater Marsh	59
5300	Reservoirs	3,237
6110	Bay Swamps	561
6170	Mixed Wetland Hardwoods	8,926
6180	Willow and Elderberry	1,955

Table 3-17 (continued): FLUCFCS Type and Acreage within the Study Area

FLUCFCS Code	FLUCFCS Type	Acres
6210	Cypress	8,112
6250	Hydric Pine Flatwoods	608
6300	Wetland Forested Mixed	4,446
6410	Freshwater Marshes	23,804
6430	Wet Prairies	4,513
6440	Emergent Aquatic Vegetation	844
6460	Treeless Hydric Savanna	19,396
6500	Non-vegetated Wetlands	71
7400	Disturbed Lands	15
7410	Rural Land in Transition	65
7420	Borrow Areas	< 1
7430	Spoil Areas	146
8140	Roads and Highways	1,313
8200	Communications	21
8310	Electric Power Facilities	6
8320	Electrical Power Transmission Lines	859
8330	Water Supply Plants	4
8340	Sewage Treatment	361
8370	Surface Water Collection Ponds	79
Approximate Total Acreage		**213,195**

Exhibit 3-15: Existing Land Use



3.6.2 FUTURE LAND USE

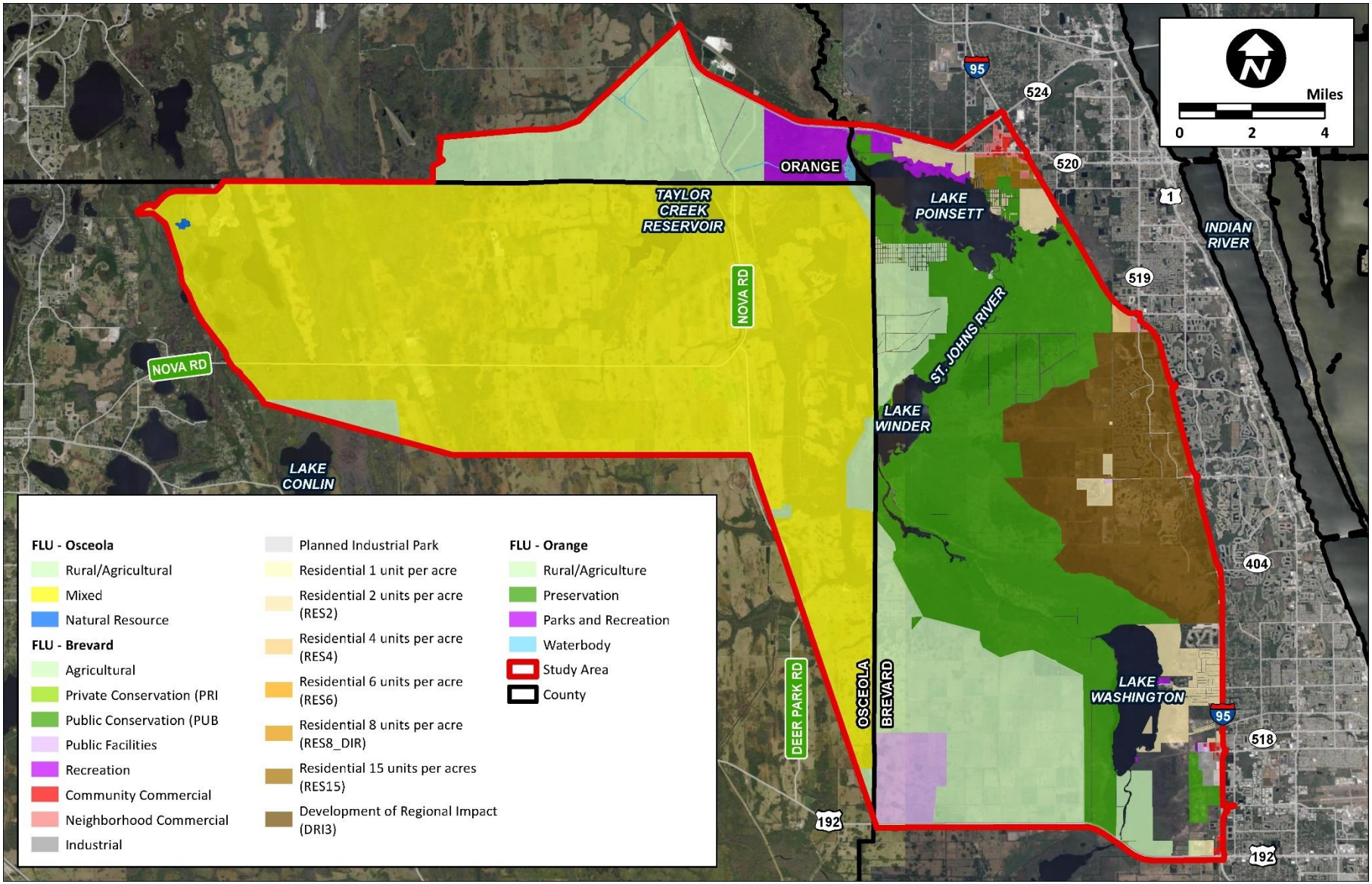
Future Land Use (FLU) was determined based on a review of Brevard County, Orange County and Osceola County Future Land Use Maps (**Exhibit 3-16**). The FLU designations for each County are shown below.

Osceola County
Mixed Use
Rural/Agricultural

Brevard County
Agricultural (AGRIC)
Community Commercial (CC)
Development of Regional Impact (DRI3)
Industrial (IND)
Neighborhood Commercial (NC)
Planned Industrial Park (PLNIP)
Private Conservation (PRI CON)
Public Facilities (PUB)
Public Conservation (PUB CON)
Recreation (REC)
Residential 1 unit per acre (RES1)
Residential 15 units per acres (RES15)
Residential 2 units per acre (RES2)
Residential 4 units per acre (RES4)
Residential 6 units per acre (RES6)
Residential 8 units per acre (RES8_DIR)

Orange County
Preservation (PRES)
Parks and Recreation (P/R)
Rural/Agriculture (R)
Waterbody (WB)

Exhibit 3-16: Future Land Use



3.6.3 COMMUNITY AND NEIGHBORHOOD FEATURES

The community facilities identified within the project study area are listed in **Table 3-18** and are displayed on **Exhibit 3-17**.

Table 3-18: Community Facilities

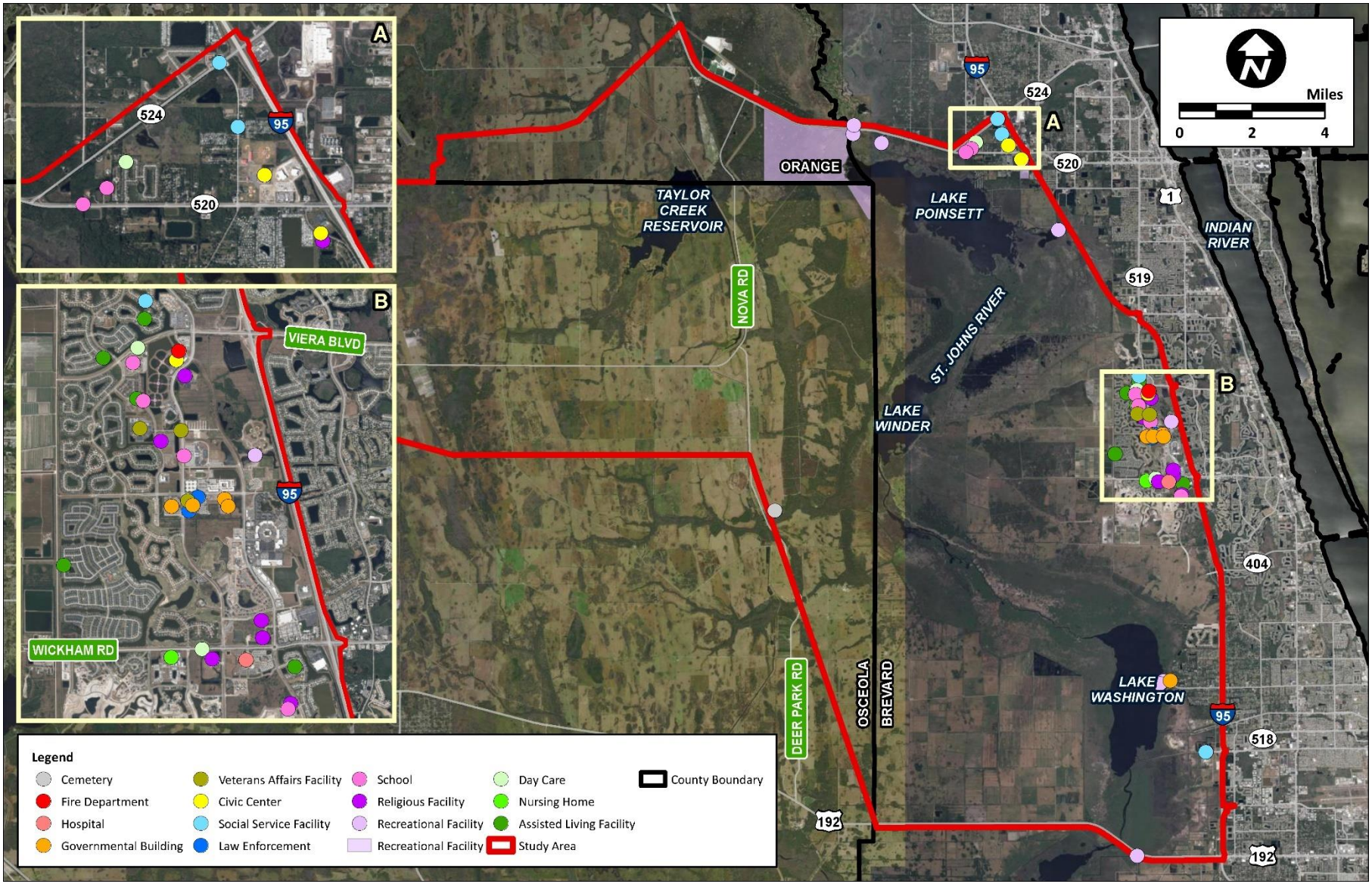
Site Name	Location	Type of Facility
A Counseling Center	Cocoa, FL	Social Service Facility
Lost Lakes Resort	Cocoa, FL	Social Service Facility
Senior Care of Brevard County Inc Palm Bay	Palm Bay, FL	Social Service Facility
South Animal Care and Adoption Center	Melbourne, FL	Social Service Facility
Harmony Farms Inc. Horses for the Handicapped	Cocoa, FL	Social Service Facility
Florida Fish and Wildlife Conservation Commission	Melbourne, FL	Governmental Building
Florida Department of Health in Brevard County	Melbourne, FL	Governmental Building
Brevard County Health Department – Viera Clinic	Viera, FL	Governmental Building
Brevard County Circuit and County Courts	Viera, FL	Governmental Building
Brevard County Property Appraiser	Viera, FL	Governmental Building
Brevard County Supervisor of Elections	Viera, FL	Governmental Building
Central Community Church	Cocoa, FL	Religious Facility
Temple Israel of Brevard County	Melbourne, FL	Religious Facility
Freedom Christian Church	Melbourne, FL	Religious Facility
St John the Evangelist	Melbourne, FL	Religious Facility
Church of Jesus Christ of Latter Day Saints	Melbourne, FL	Religious Facility
Church at Viera	Melbourne, FL	Religious Facility
Calvary Chapel of Melbourne	Melbourne, FL	Religious Facility
Viera Hospital	Melbourne, FL	Health Facility
Church at Viera Mothers Day Out	Melbourne, FL	Daycare
Viera Children's Academy, Inc	Viera, FL	Day Care
Theresia Lopez Family Day Care	Cocoa, FL	Day Care
Space Coast Convention Center	Cocoa, FL	Civic Center
USSSA Space Coast Stadium	Melbourne, FL	Civic Center
Cocoa Expo Stadium	Cocoa, FL	Civic Center
Manatee Elementary School	Rockledge, FL	School
Quest Elementary	Viera, FL	School
Amikids Space Coast Inc.	Melbourne, FL	School

Table 3-18 (continued): Community Facilities

Site Name	Location	Type of Facility
Einstein Montessori Academy	Cocoa, FL	School
Einstein Montessori Charter School East	Cocoa, FL	School
Viera High School	Viera, FL	School
Viera Charter School	Viera, FL	School
Charles' Place	Rockledge, FL	Assisted Living Facility
Heritage Pointe Manor	Melbourne, FL	Assisted Living Facility
Tuscany House	Rockledge, FL	Assisted Living Facility
Viera Manor Assisted Living Residence	Melbourne, FL	Assisted Living Facility
Tuscany Villa	Melbourne, FL	Assisted Living Facility
Veterans Affairs Outpatient Clinic Viera	Melbourne, FL	Veterans Affairs Facility
Brevard County Veterans Service Office	Melbourne, FL	Veterans Affairs Facility
U.S. Department of Veterans Affairs	Viera, FL	Veterans Affairs Facility
Brevard County Fire Department and Rescue Station 48	Melbourne, FL	Fire Department
Brevard County School Security	Melbourne, FL	Law Enforcement
Brevard County Sheriff's Office – West Precinct	Viera, FL	Law Enforcement
Wolf Creek Cemetery	St. Cloud, FL	Cemetery
Watersong	Melbourne, FL	Nursing Home
James G Bourbeau Memorial Park and Boat Ramp	Cocoa, FL	Recreational Facility
Leroy Wright Recreational Area Boat Ramp	Cocoa, FL	Recreational Facility
Viera Regional Park	Melbourne, FL	Recreational Facility
Lake Washington Park and Boat Ramp	Melbourne, FL	Recreational Facility
Lake Florence Primitive Boat Ramp	Cocoa, FL	Recreational Facility
Sweetwater Boat Ramp	Melbourne, FL	Recreational Facility
F Burton Smith Regional Park	Cocoa, FL	Recreational Facility
William Beardall Tosohatchee State Reserve	Christmas, FL	Recreational Facility
C&S Florida Flood Control		Recreational Facility
3rd World Missions Inc.	Cocoa, FL	Recreational Facility - private

There were no correctional facilities or colleges/universities identified within the project study area.

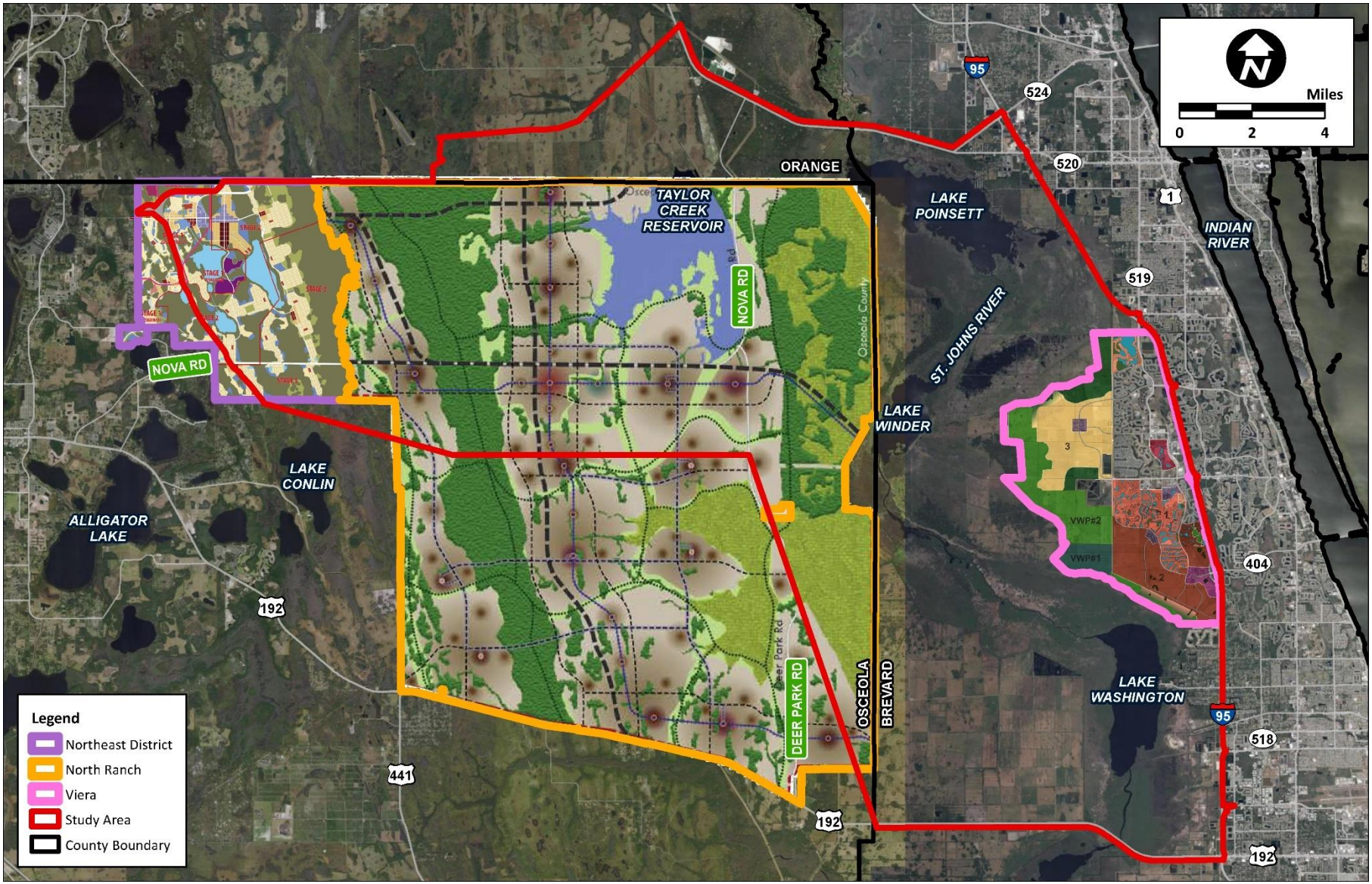
Exhibit 3-17: Community Facilities



3.6.4 DEVELOPMENT PLANS

There are major planned developments in the Osceola County and Brevard County portions of the study area, and none in Orange County. Planned developments within the study area are shown on **Exhibit 3-18**.

Exhibit 3-18: Planned Developments



3.6.4.1 OSCEOLA COUNTY

Two major developments are planned in the Osceola County portion of the study area.

Northeast District

The Northeast District is a sector plan located in the western portion of the study area. Per the Northeast District Element:

The goal of the Northeast District Conceptual Master Plan is to create a regional employment center that can position the County to successfully participate in expanding regional high-tech economy and can help diversify the local economy to include a growing number of high-wage, high-value jobs. This goal can be achieved by using long-range, large-scale planning to accommodate sustainable economic development and contribute to a sound tax base, alleviate the pressure for urban sprawl, and reduce vehicle miles traveled by linking road and transit networks. The plan also will provide a variety of housing options; protect environmentally sensitive lands, wildlife corridors and upland habitat; and create a strong sense of place through street layout, open space arrangements, streetscape appearance, and linkage of neighborhoods to commercial services and jobs.

The Northeast District buildout scenario includes:

- Total employment of 44,130
- 29,320 residential dwelling units
- 8,540,000 square feet of commercial/office/industrial development
- 1,995,000 square feet of institutional/civic development
- 5,000 hotel rooms

The first phase of development in the Northeast District is currently under construction.

North Ranch Sector Plan

The North Ranch Sector Plan is located in the center portion of the study area and includes approximately 133,000 acres. Per the North Ranch Element:

The goal of the North Ranch Master Plan is to proactively plan for regionally significant economic opportunities and job centers, close transportation corridor gaps, and preserve environmental systems and agricultural lands at a landscape scale while minimizing public infrastructure investment. The plan will stimulate high value job growth in mixed use districts, reinforce the long-term economic sustainability of Osceola County, connect the larger region with the least County investment, and preserve, enhance, and restore large-scale natural systems.

The projected 2060 population within this plan is 335,000 and the projected 2080 population is 493,000. The development program for the North Ranch includes:

- 182,600 residential dwelling units
- 30.3 million square feet of retail development
- 13.5 million square feet of office development
- 24.0 million square feet of industrial development
- 15.6 million square feet of institutional development
- 20,390 hotel rooms

3.6.4.2 BREVARD COUNTY

Viera

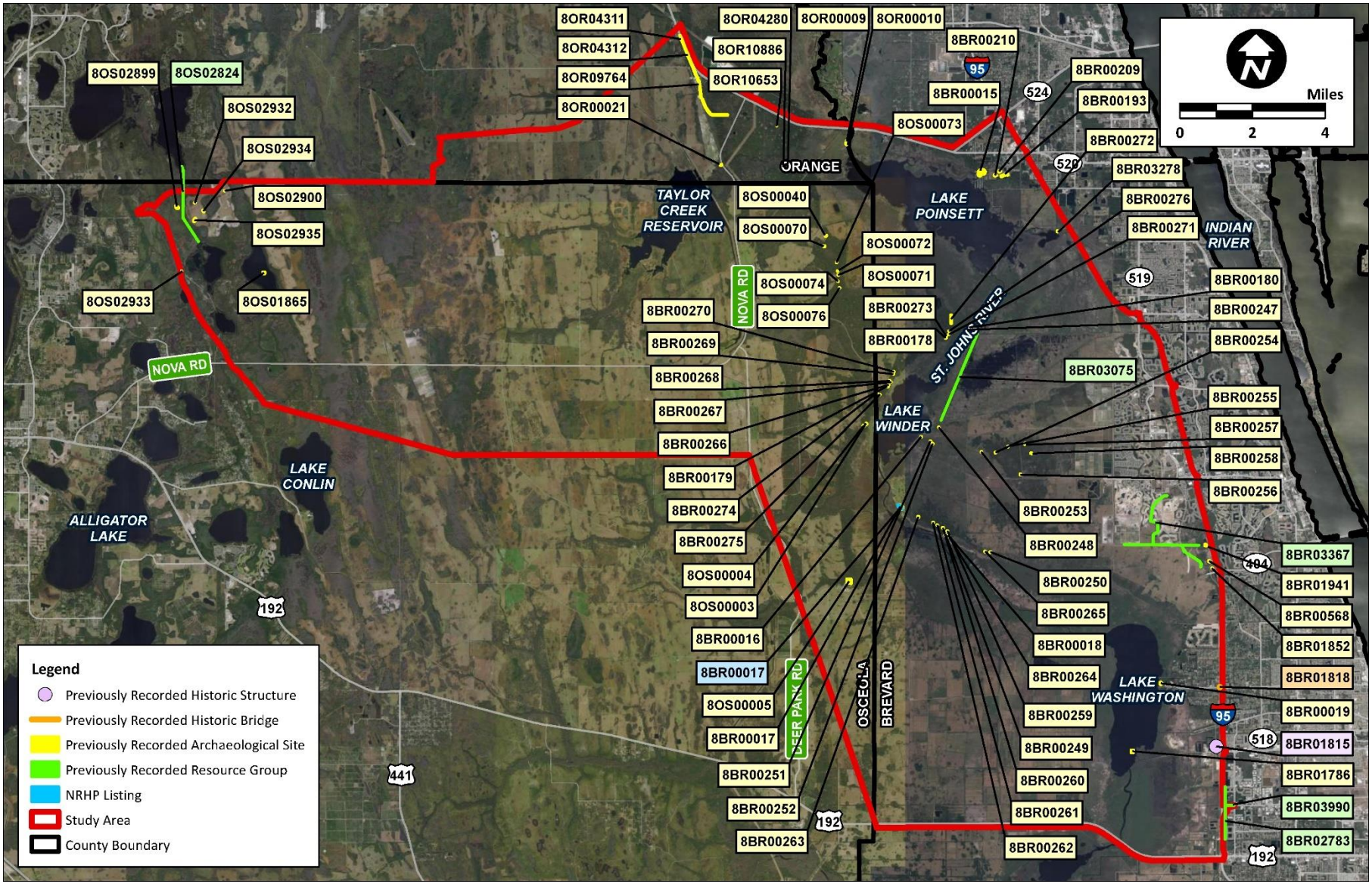
The Viera Development of Regional Impact (DRI) is a mixed-use development on approximately 20,646 acres located east and west of I-95 in central Brevard County. The Application for Development Approval was filed in 1993. In 2009, the DRI was expanded to the south (to include the Pineda Causeway Extension area) and west (to the lands owned by the SJRWMD). The most recent Amended and Restated Development Order is dated August 20, 2019. The DRI includes a completed Transportation Impact Study for phase 4 (buildout) of the development. The DRI Master Development Program includes:

- 31,619 residential units
- 3,504,467 square feet (SF) of office development
- 137,500 SF VA Clinics
- 322 hospital beds
- 1,060 nursing home beds
- 522,500 SF industrial plants or parks, distribution, warehousing, or wholesaling facilities
- 3,438,127 SF retail and service development
- 750 rooms of hotel or motel development

3.6.5 CULTURAL RESOURCES

Previously recorded cultural resources that occur within the study area are shown on **Exhibit 3-19**. Historical and archeological sites are described in the following sections.

Exhibit 3-19: Previously Recorded Cultural Resources



3.6.5.1 HISTORICAL

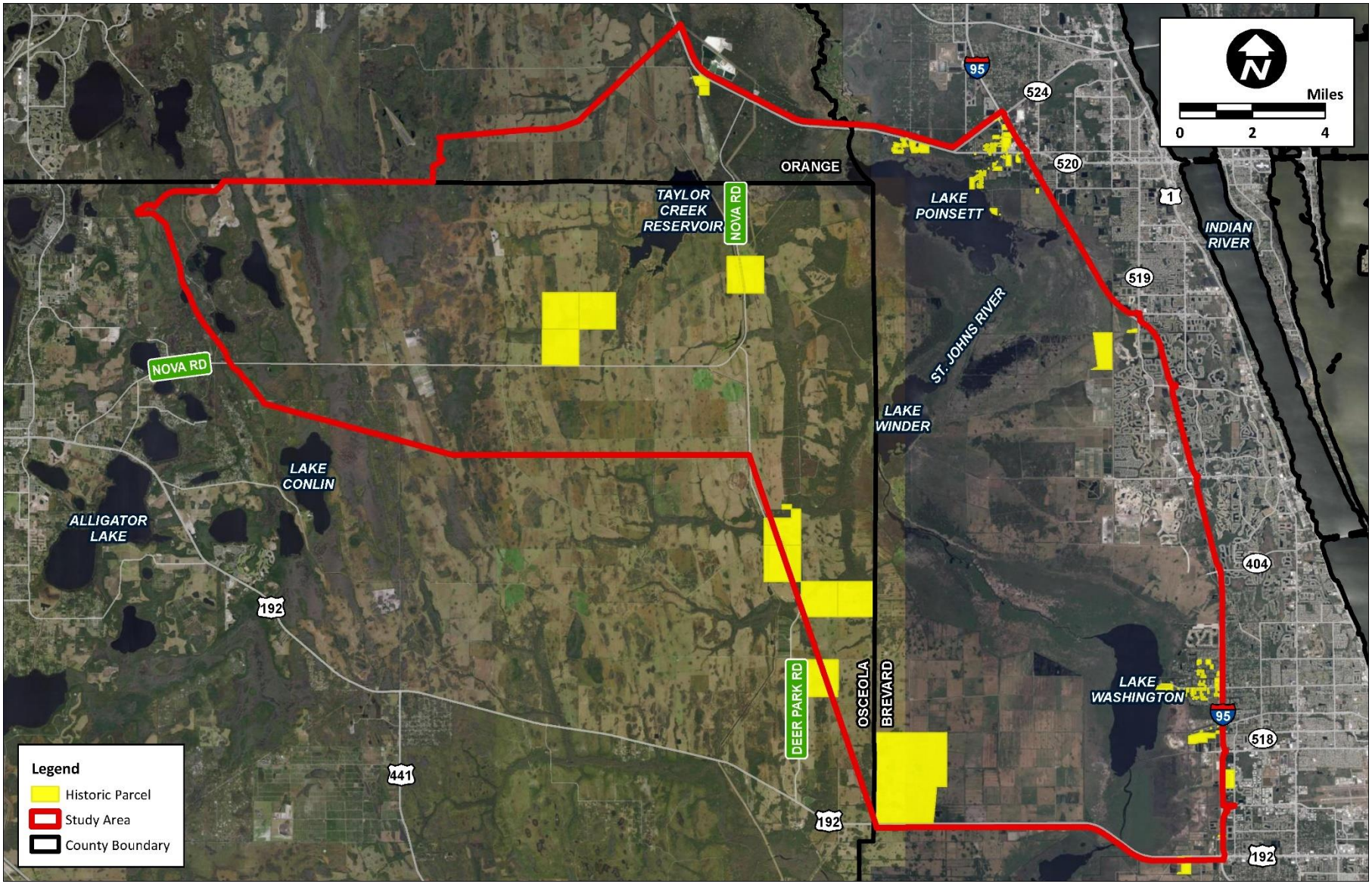
The Florida Master Site File (FMSF) database (updated April 2020) indicates that one historic structure, located along East Jones Road (8BR01815), has been identified within the study area (**Exhibit 3-19**; **Table 3-19**). This building has been determined ineligible for the National Register of Historic Places (NRHP) by the State Historic Preservation Officer (SHPO). Five (5) linear resources also have been recorded within the study area. Three (3) of these (8BR02783, 8BR03367, and 8OS02824) have been determined ineligible for the NRHP by the SHPO. The remaining two (2) include the Moccasin Island Levee (8BR03075) and the Canal Near S. John Rodes Boulevard (8BR03990). The Moccasin Island Levee (8BR03075) has not been evaluated by the SHPO; however, the FMSF database indicates that this levee was removed in order to reconnect the adjacent parcel to the river feeding Lake Winder. The Canal near S. John Rodes Boulevard (8BR03990) was documented as recently as 2018. Although the surveyor recommended the canal ineligible for the NRHP, the SHPO determined that insufficient information was available to evaluate the canal for NRHP eligibility. One (1) historic bridge, the Washington Road Bridge (8BR01818), also is located within the study area. This bridge was determined ineligible for the NRHP by the SHPO.

A review of property appraiser databases for Orange, Osceola, and Brevard Counties were also conducted to identify parcels within the study area that contained unrecorded structures of historic (pre-1976) age. A total of 254 parcels were identified in Brevard County, two (2) in Orange County, and ten (10) in Osceola County. The locations of these parcels are shown on **Exhibit 3-20**.

Table 3-19: Previously Recorded Historic Resources

Historic Structures			
FMSF No.	**Address**	**Year Built**	**SHPO Evaluation**
8BR01815	East Jones Road	1950	Ineligible
Historic Bridges			
FMSF No.	**Name**	**Year Built**	**SHPO Evaluation**
8BR01818	Washington Road Bridge	ca. 1990	Ineligible
Linear Resources			
FMSF No.	**Name**	**Description**	**SHPO Evaluation**
8BR02783	W. Melbourne Canal	Constructed prior to 1952	Ineligible for NRHP
8BR03075	Moccasin Island Levee	Levee system removed in 2010	Insufficient Information
8BR03367	Viera Canal System	Constructed between 1943 and 1952	Ineligible for NRHP
8BR03990	Canal Near S. John Rodes Boulevard	Constructed prior to 1952	Not Evaluated
8OS02824	C-30 Canal	Typical canal constructed in the twentieth century	Ineligible for NRHP

Exhibit 3-20: Historical Parcels



3.6.5.2 ARCHAEOLOGICAL

The FMSF database also indicates that 72 archaeological sites have been recorded within the study area (see **Exhibit 3-19**; **Table 3-20**).

Table 3-20: Previously Recorded Archaeological Sites

FMSF No.	Name	Description	SHPO Evaluation
8BR00015	Lake Poinsett Lodge Mound	Prehistoric burial mound containing human remains	Not Evaluated
8BR00016	Moccasin Island	Prehistoric shell midden	Eligible for NRHP
8BR00017	Persimmon Mount	Prehistoric midden	Not Evaluated
8BR00018	Turtle Mound/ Duda Ranch Mound	Prehistoric midden and mound	NRHP listed 1994
8BR00019	Cabbage Mound	Prehistoric burial mound containing human remains	Not Evaluated
8BR00178	Wild Orange	Prehistoric midden	Not Evaluated
8BR00179	Cox	Historic homestead and prehistoric midden	Not Evaluated
8BR00180	Halfway Cabbage	Prehistoric shell midden and mound; historic homestead	Not Evaluated
8BR00193	Gauthier	Prehistoric burial mound containing human remains	Not Evaluated
8BR00209	Unnamed	no information available	Not Evaluated
8BR00210	Unnamed	no information available	Not Evaluated
8BR00247	Dead Bird Island	Prehistoric midden and mound	Not Evaluated
8BR00248	North Moccasin	Prehistoric midden	Not Evaluated
8BR00249	Air Boat	Prehistoric midden	Not Evaluated
8BR00250	Tall Palms	Prehistoric midden	Not Evaluated
8BR00251	False Mound Marsh	Prehistoric lithic scatter	Not Evaluated
8BR00252	Black Earred Cow	Prehistoric lithic scatter	Not Evaluated
8BR00253	Duda Lodge	Prehistoric lithic scatter	Not Evaluated
8BR00254	Mosquito Pines	Prehistoric midden	Not Evaluated
8BR00255	J-1 Marsh	Single artifact	Not Evaluated
8BR00256	Turpentine Bluff	Historic, low-density artifact scatter	Not Evaluated
8BR00257	Palmetto Pines	Historic, low-density artifact scatter	Ineligible for NRHP
8BR00258	Turpentine Road	Historic, low-density artifact scatter	Ineligible for NRHP
8BR00259	Persimmon Road	Single artifact	Not Evaluated
8BR00260	Persimmon Road II	Prehistoric lithic scatter	Not Evaluated
8BR00261	Persimmon Road III	Prehistoric midden	Not Evaluated
8BR00262	Persimmon Road IV	Prehistoric midden	Not Evaluated
8BR00263	Persimmon Road V	Prehistoric lithic scatter	Not Evaluated
8BR00264	Oak Bay	Prehistoric artifact scatter	Not Evaluated
8BR00265	Palm Ridge	Prehistoric lithic scatter	Not Evaluated
8BR00266	Treehouse Hill	Prehistoric shell midden	Not Evaluated
8BR00267	Lone Flake	Single artifact	Not Evaluated
8BR00268	Broken Vine	Prehistoric, low-density scatter	Not Evaluated
8BR00269	Anole Island 1	Single artifact	Not Evaluated
8BR00270	Anole Island 2	Prehistoric midden	Not Evaluated
8BR00271	Frozen Lizard	Prehistoric midden	Not Evaluated

Table 3-20 (continued): Previously Recorded Archaeological Sites

FMSF No.	Name	Description	SHPO Evaluation
8BR00272	Cement City	Prehistoric midden	Not Evaluated
8BR00273	Halfway Cabbage	Prehistoric midden and mound	Not Evaluated
8BR00274	Cox Creek Mound	Prehistoric midden and mound	Not Evaluated
8BR00275	Crooked Oak	Prehistoric midden and mound containing human remains	Not Evaluated
8BR00276	Pontoon Island	Prehistoric midden	Not Evaluated
8BR00568	UWF 5	Prehistoric artifact scatter	Ineligible for NRHP
8BR01786	Lake Washington Canoe	Prehistoric canoe	Not Evaluated
8BR01852	Pineda	Historic, low-density artifact scatter	Ineligible for NRHP
8BR01941	Viera Broken Glass Site	Historic, low-density artifact scatter	Ineligible for NRHP
8BR03278	Lake Florence Site	Prehistoric, lakeside site	Not Evaluated
8OR00009	Mulberry Mound 1	Prehistoric burial mound containing human remains	Not Evaluated
8OR00010	Mulberry Mound 2	Prehistoric burial mound containing human remains	Not Evaluated
8OR00021	Fort McNeil	Historic fort	Not Evaluated
8OR04280	Taylor Creek #1	Prehistoric midden and mound	Not Evaluated
8OR04311	Rock Knocker	Single artifact	Ineligible for NRHP
8OR04312	Ground Core	Prehistoric lithic scatter	Ineligible for NRHP
8OR09764	Ft. Christmas to Ft. McNeill Military Tr	Historic road segment	Not Evaluated
8OR10653	Taylor Creek Ranch	Twentieth century homestead	Not Evaluated
8OR10886	Taylor Creek #2	Prehistoric ceramic scatter	Not Evaluated
8OS00003	Ft. Taylor Midden	Prehistoric burial mound containing human remains	Not Evaluated
8OS00004	Ft. Taylor Mound	Prehistoric burial mound containing human remains	Not Evaluated
8OS00005	Carrollton	Prehistoric midden	Not Evaluated
8OS00040	Deer Stand	Prehistoric mound	Not Evaluated
8OS00070	Bed Springs	Prehistoric shell midden	Not Evaluated
8OS00071	Bettyhud Cliff	Prehistoric midden	Not Evaluated
8OS00072	Old Palms	Prehistoric midden and mound	Not Evaluated
8OS00073	Claiborne Mound	Prehistoric shell midden and mound	Not Evaluated
8OS00074	Henry Hill	Prehistoric midden and mound	Not Evaluated
8OS00076	Blind Turkey	Prehistoric shell midden and mound	Not Evaluated
8OS01865	Lake Preston Canoe	Prehistoric canoe	Not Evaluated
8OS02899	Sunbridge 3A Site	Prehistoric lithic scatter	Ineligible for NRHP
8OS02900	Sunbridge 5 Site	Prehistoric artifact scatter	Ineligible for NRHP
8OS02932	Sunbridge 3 Site 2	Prehistoric artifact scatter	Ineligible for NRHP
8OS02933	Sunbridge 3 Site 3	Historic artifact scatter	Ineligible for NRHP
8OS02934	Sunbridge 3 Site 4	Prehistoric artifact scatter	Ineligible for NRHP
8OS02935	Sunbridge 3 Site 5	Historic artifact scatter	Ineligible for NRHP

Archaeological surveys within the study area have been primarily limited to the eastern end near Lakes Washington, Winder, and Poinsett. These surveys show that prehistoric land use was heavily reliant on

freshwater resources, and the majority of the sites listed in **Table 3-20** are situated along the shores of these lakes and their active or relic drainages. A small but significant number of archaeological sites also have been recorded at the western end of the study area near Lakes Myrtle and Preston. Sixty (60) of the archaeological sites in the study area contain a prehistoric component. One site, Persimmon Mount (8BR00017), was listed in the NRHP in 1994. The artifact assemblage from this site indicates that the location was used for more than 4,000 years. A second prehistoric mound site, Moccasin Island (8BR00016), has been determined eligible for the NRHP. Eight (8) other sites in the study area (8BR00015, 8BR00019, 8BR00193, 8BR00275, 8OR00009, 8OR000010, 8OS00003, and 8OS00004) are also identified in the GIS database as containing human remains. Also notable are two (2) finds of prehistoric canoes in Lake Washington (8BR01786) and Lake Preston (8OS01865). Neither site has been evaluated for NRHP eligibility by the SHPO. The remaining sites have either not been evaluated by the SHPO for NRHP eligibility (n=41) or have been determined ineligible for the NRHP (n=7).

Historic land use appears to have been limited in comparison to prehistoric activity; only 12 archaeological sites in the study area contain a historic component, one (1) of which (8BR00179) also contains a prehistoric component. Two (2) historic sites relate to Fort McNeil, an American fort established during the Seminole Wars. The Ft. Christmas to Ft. McNeil Military Trail (8OR09764) includes the remains of a route to the fort, while the Fort McNeil site (8OR00021) contains the remains of the fort. Of the remaining historic sites, three (3) are artifact scatters related to the turpentine industry (8BR00256-8BR00258) and two (2) are historic homesteads (8BR00179 and 8BR00180) constructed atop prehistoric mounds. A third historic homestead also has been recorded along Taylor Creek (8OR10653). The remaining four (4) sites (8BR01852, 8BR01941, 8OS02933, and 8OS02935) are low-density scatters of historic ceramic, glass, or building materials.

Finally, two (2) sites (8BR00209 and 8BR00210) are listed on the FMSF database within the study area, but no information is available regarding their time period, excavation, or any further details on what the sites contain.

3.6.6 DEMOGRAPHICS CHARACTERISTICS

An analysis of minority and low-income populations (Environmental Justice or EJ populations) was conducted through a review of census data. According to 2018 Census data, the residential population in the study area is predominately white (87.5%); however, there is also a portion of the population that is comprised of individuals with Hispanic heritage (17.9%) (**Table 3-21**). A map showing the census tracts and block groups that are found either entirely within or partially within the study area is included on **Exhibit 3-21**.

Exhibit 3-21: 2018 United States Census Bureau Tracts

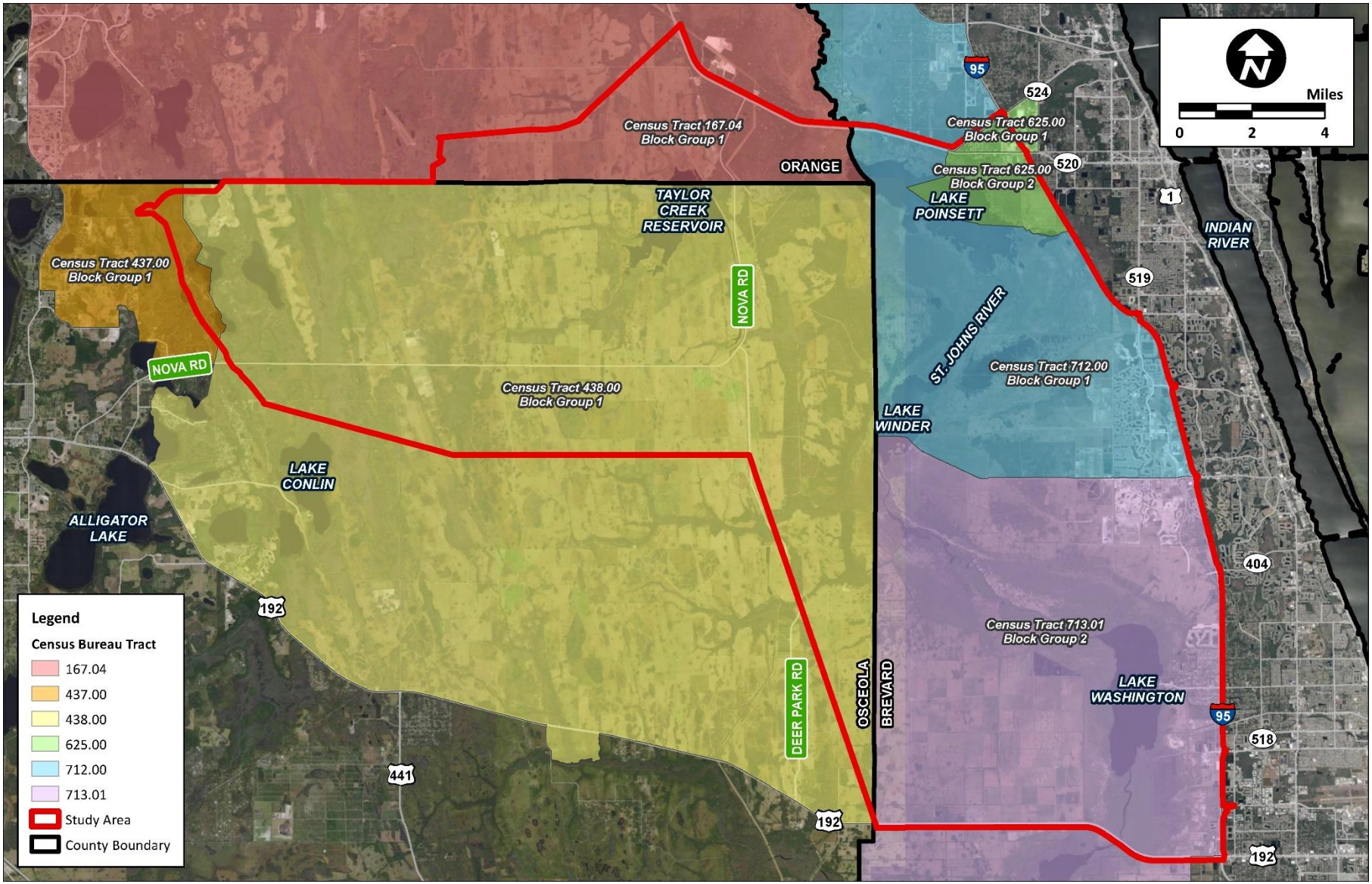


Table 3-21: Demographics within the Study Area

Geography	Census Block	2018 Population	Percent White	Percent Hispanic[1]	Percent Black	Percent Other[2]
Study Area (including entire block)	-	49,266	87.5%	17.9%	4.6%	7.9%
Census Tract 167.04	Block 1	22,964	76.3%	39.5%	9.6%	14.1%
Census Tract 437.00	Block 1	2,800	95.6%	36.0%	1.5%	2.9%
Census Tract 438.00	Block 1	5,326	94.2%	12.5%	3.6%	2.2%
Census Tract 625.00	Block 1	1,388	81.4%	13.9%	7.9%	10.7%
	Block 2	1,667	91.1%	4.3%	0.0%	8.9%
Census Tract 712.00	Block 1	11,045	90.0%	8.6%	1.5%	8.5%
Census Tract 713.01	Block 2	4,076	84.2%	10.3%	8.4%	7.4%

Source: US Census Bureau, 2018 American Community Survey 5-Year Estimates.
[1]Hispanic includes persons of any race with Hispanic or Latino family heritage.
[2]Other persons include: American Indian/Alaskan Native, Asian, Native Hawaiian, other single race, and two or more races.

Table 3-22 illustrates the Household Income Characteristics summarized from the 2018 American Community Survey (ACS) 5-year estimates. The ACS estimates indicate that the median household income of the study area is roughly $64,000, with approximately 11.6% of families having incomes below the federal poverty level. Analysis of the individual census tract populations indicates that the Census Tract and Block Group with the lowest median income and highest poverty rate is Tract 625.00, Block Group 1.

Table 3-22: Household Income Characteristics

Geography	Census Block	Median Household Income (Dollars)	Percentage of Households with Incomes Below Poverty Level
Study Area (including entire block)	-	64,295	11.6%
Census Tract 167.04	Block 1	85,377	7.6%
Census Tract 437.00	Block 1	74,000	8.0%
Census Tract 438.00	Block 1	67,836	7.0%
Census Tract 625.00	Block 1	30,515	32.3%
	Block 2	40,685	12.1%
Census Tract 712.00	Block 1	68,529	4.5%
Census Tract 713.01	Block 2	83,125	10.0%

Source: 2018 American Community Survey 5-Year Estimates

Table 3-23 illustrates the Employment Status summarized from the 2018 American Community Survey (ACS) 5-year estimates. Analysis of the individual census tract populations indicates that the Census Tract and Block Group with the highest unemployment rate is Tract 712.00, Block Group 1.

Table 3-23: Employment Status within the Study Area

Geography	Census Block	Percentage of Individuals Older than 16 in Labor Force Employed*	Percentage of Individuals Older than 16 in Labor Force Unemployed*
Study Area (including entire blocks)	-	97.5%	2.5%
Census Tract 167.04	Block 1	96.3%	3.7%
Census Tract 437.00	Block 1	98.1%	1.9%
Census Tract 438.00	Block 1	96.4%	3.6%
Census Tract 625.00	Block 1	97.9%	2.1%
	Block 2	100.0%	0.0%
Census Tract 712.00	Block 1	95.7%	4.3%
Census Tract 713.01	Block 2	97.8%	1.4%

Source: 2018 American Community Survey 5-Year Estimates
*These numbers do not include individuals within the Armed Forces.

3.6.7 AESTHETIC FEATURES

A large portion of the study area is undeveloped and therefore the topography consists of either relatively flat wetlands (i.e. low-lying marshes), native uplands or forested wetlands. In the portions that are developed, the topography consists primarily of residential use, along with single-story commercial buildings. Views within the area are restricted by vegetation and/or other structures.

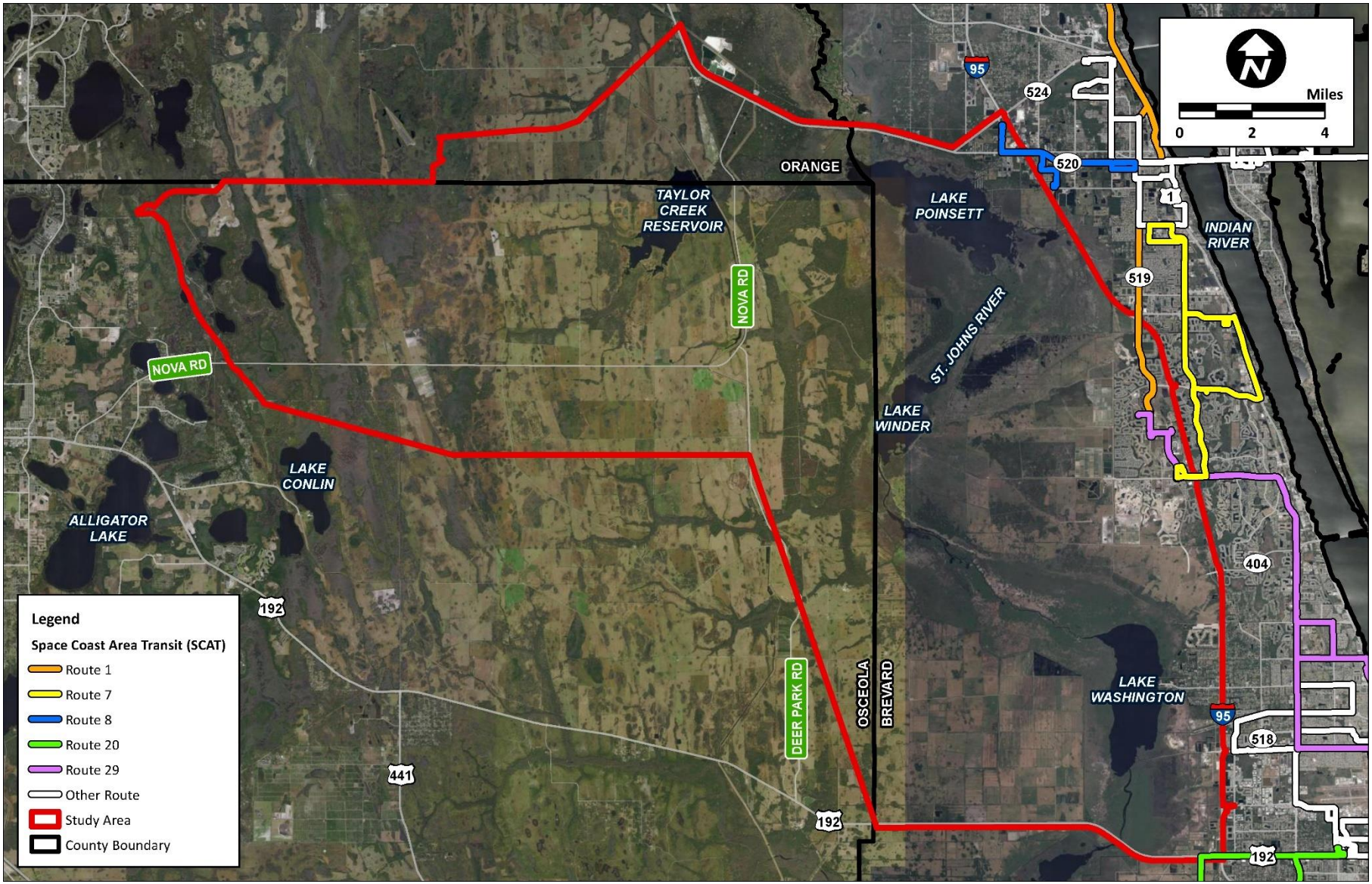
3.6.8 TRANSIT FACILITIES

No transit service is provided within the Osceola or Orange County portions of the study area.

In Brevard County, Space Coast Area Transit (SCAT) provides the following bus routes within the project study area (see **Exhibit 3-22)**:

- Route 1: Titusville/Viera – travels along Stadium Parkway to the north
- Route 7: Rockledge/Viera – extends from Viera to the east and north along N. Wickham Road.
- Route 8: West Cocoa – extends along SR 520 to the east of I-95
- Route 20: Heritage-West Melbourne – travels along St. Johns Heritage Parkway to US 192, then east of I-95
- Route 29: Melbourne/Viera – extends from Viera to the east along N. Wickham Road

Exhibit 3-22: Existing Transit Facilities



3.6.9 FREIGHT AND INTERMODAL CENTERS

There are several Strategic Intermodal System (SIS) facilities within, or adjacent to the study area, including SR 528, I-95, and SR 404 (Pineda Causeway, a SIS Connector). Orlando International Airport is an adjacent SIS airport and Melbourne International Airport is a Strategic Growth Airport. There are no designated intermodal facilities within the study area.

3.6.10 PEDESTRIAN AND BICYCLE FACILITIES

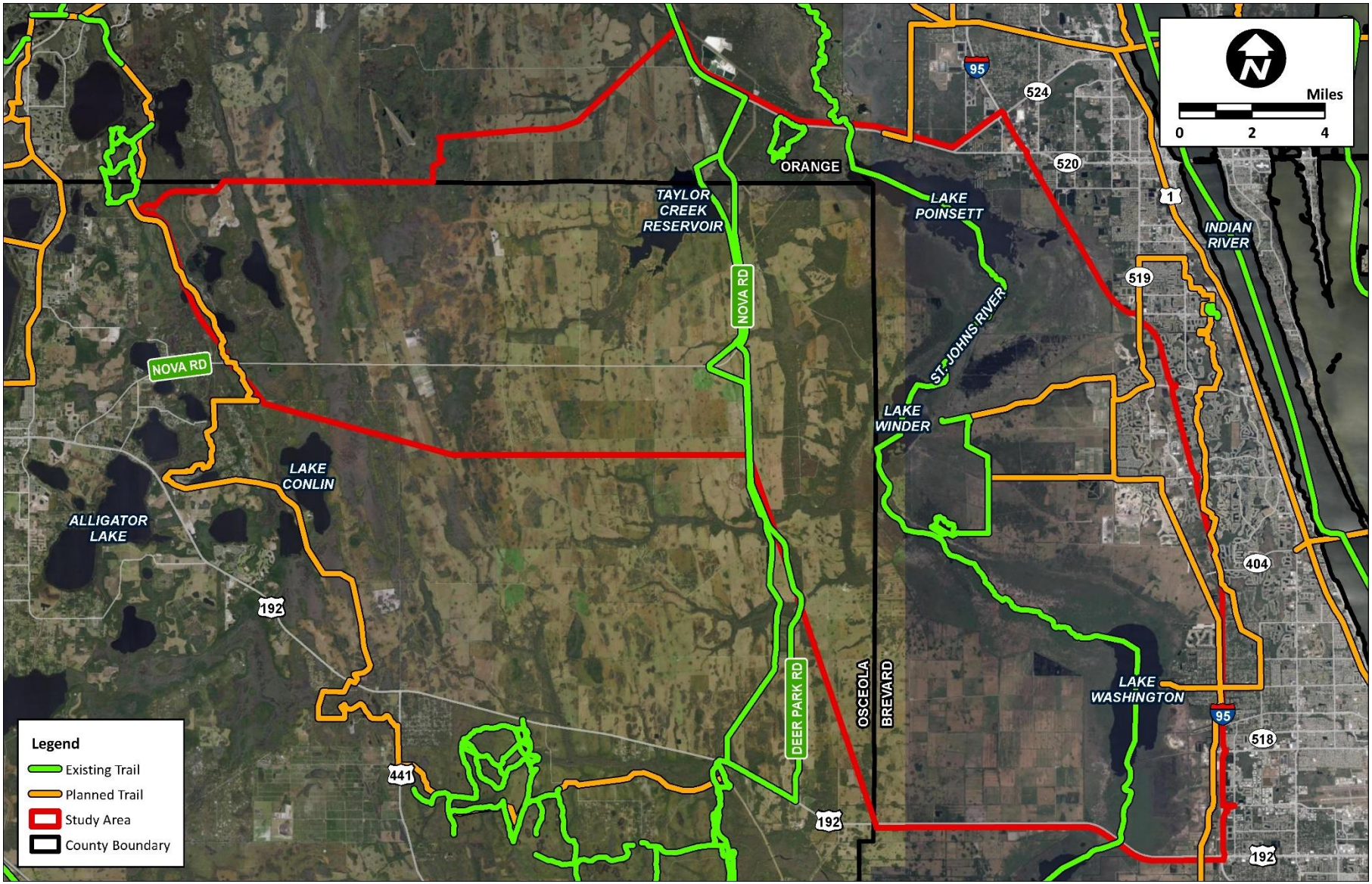
The study area includes existing and planned trails, as identified on **Exhibit 3-23** and as listed below:

Existing Trails
Taylor Creek Loop Trail (hiking)
Deseret Ranch Trail (hiking)
River Trail (hiking)
White Trail (hiking)
St. Johns River Blueway (paddling)

Planned Trails
Brevard Zoo Linear Trail Corridor
St. Johns River Corridor

While the Florida National Scenic Trail planning corridor previously ran along the western edge of the study boundary, the U.S. Forest Service communicated in March 2021 that the revised planning corridor lies entirely outside of the study area.

Exhibit 3-23: Existing and Planned Trails



3.6.11 TRANSPORTATION PLANS

Transportation plans and studies were reviewed for relevance to this study, including:

- ECFCTF Final Report
- MetroPlan Orlando 2045 Metropolitan Transportation Plan
- Space Coast Transportation Planning Organization (TPO) 2045 Long Range Transportation Plan (LRTP)
- CFX 2040 Master Plan
- Osceola County Comprehensive Plan
- Brevard County Comprehensive Plan
- Orange County Comprehensive Plan
- LYNX Transit Development Plan
- SCAT Transit Development Plan
- Central Florida Regional Transit Study
- Washingtonia Drive Extension Study

ECFCTF Final Report

In 2014, the ECFCTF evaluated a study area that ran from Orlando and Kissimmee to Cape Canaveral and Palm Bay and recommended improving existing corridors and evaluating potential new corridors. FDOT is taking the lead on evaluating existing corridors, and the CFX is taking the lead in evaluating potential new corridors. Recommendations from the Final Report for evaluating potential new corridors included:

Conduct one or more Evaluation Studies of potential new east-west corridors between Orange, Osceola, and Brevard counties. The proposed study or studies should consider:

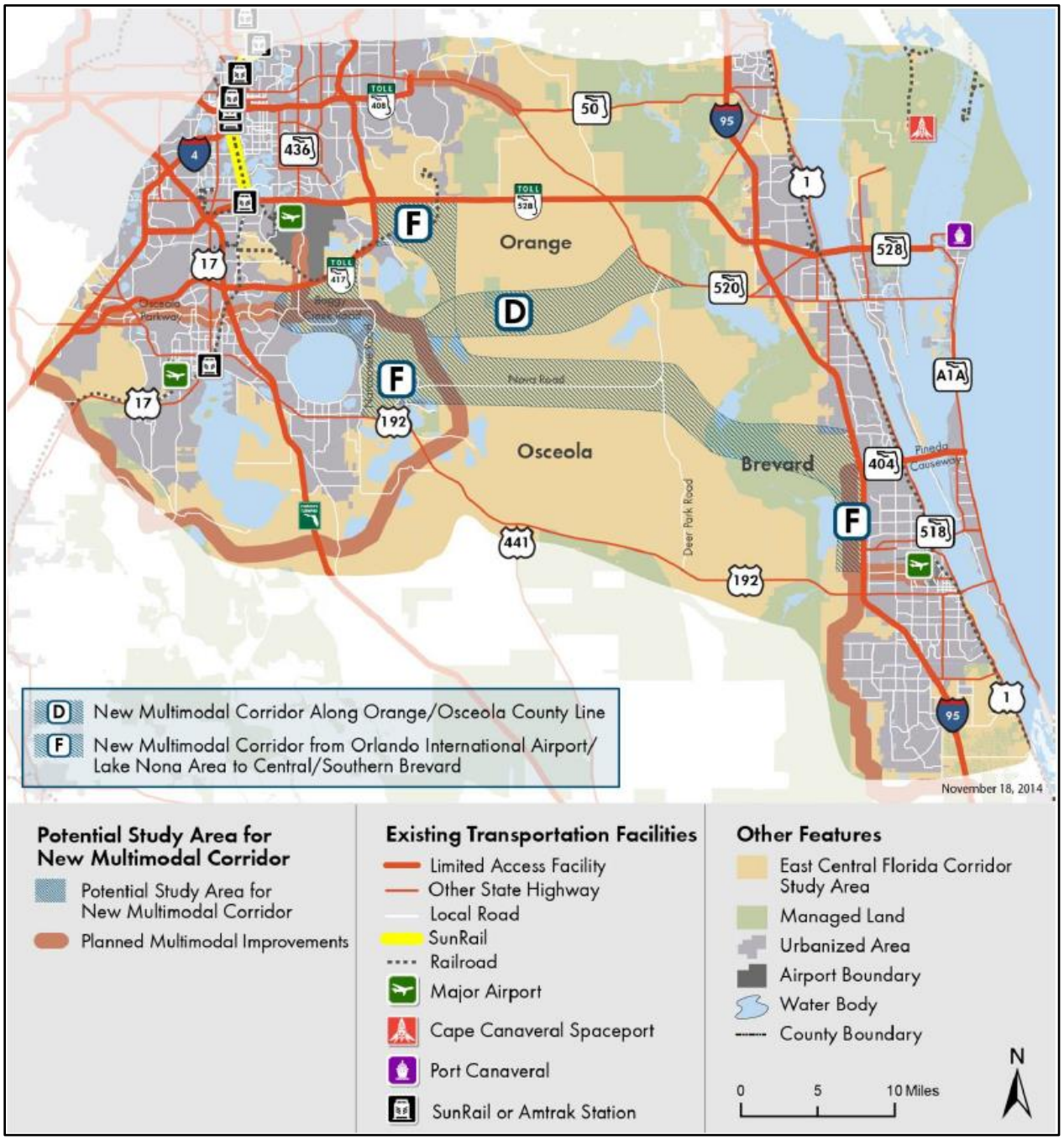
- *A multimodal corridor along the Orange/Osceola county line to provide connectivity between the Orlando International Airport/Lake Nona area, the Northeast District of Osceola County, the North Ranch Master Plan, and the SR 520 corridor (Alternative D); and*
- *A multimodal corridor from the Orlando International Airport/Lake Nona area through the proposed North Ranch Master Plan to central/southern Brevard County, including the potential need for an additional crossing of the St. Johns River (Alternative F).*

Conduct one or more Evaluation Studies of potential new north-south corridors in eastern Orange and Osceola counties. The proposed study or studies should consider:

- *Continuation of the project development process for the Northeast Connector Expressway and extension of this expressway from its planned terminus at SR 534 to the SR 528 corridor, including potential multimodal improvements (Alternative H); and*
- *A new multimodal corridor serving planned population centers on the North Ranch and connecting to existing east-west corridors, including US 192, Nova Road, SR 520, SR 528, and SR 50/408 (Alternative I).*

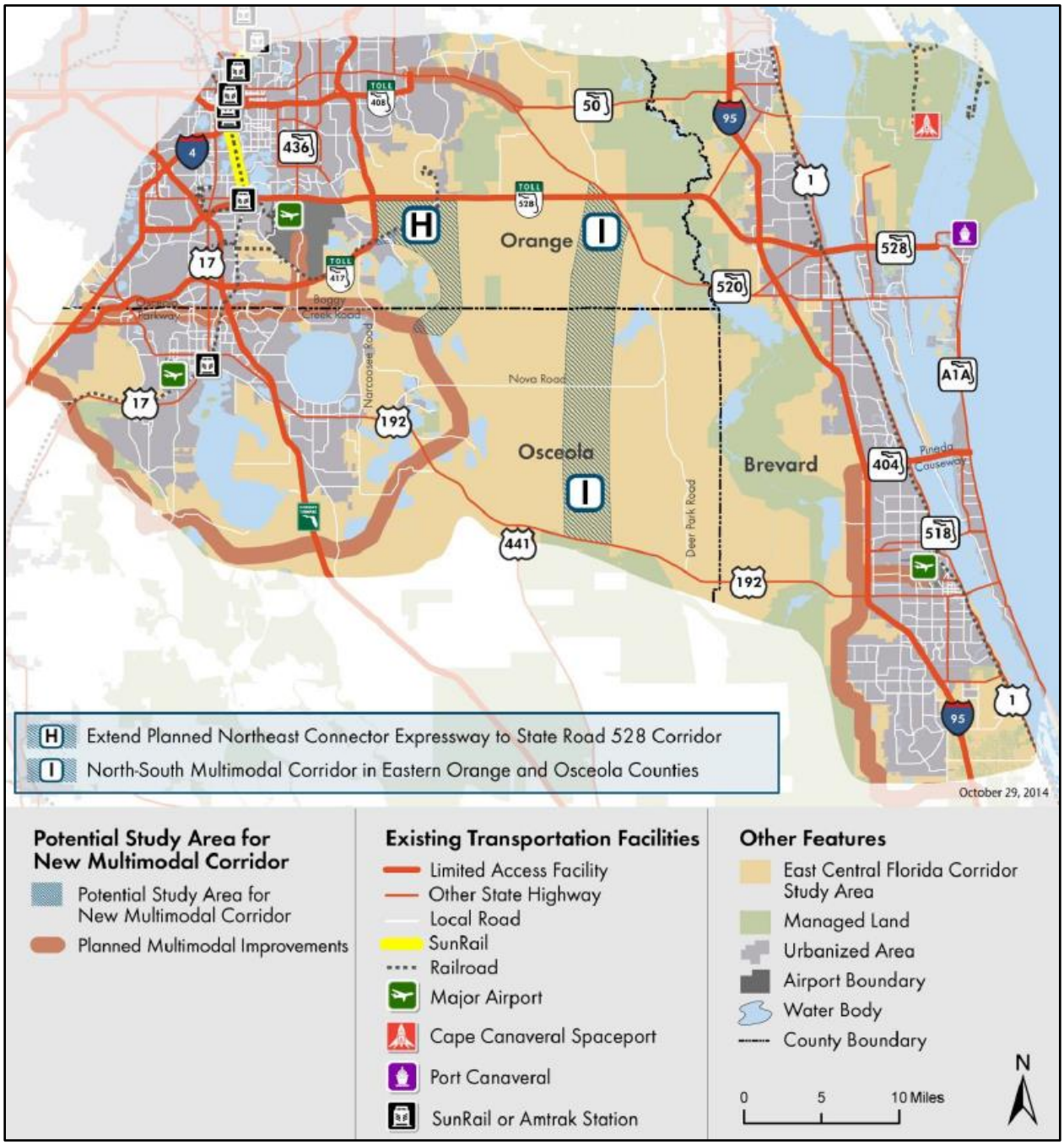
Corridors D and F are illustrated on **Exhibit 3-24**. Corridors H and I are illustrated on **Exhibit 3-25**.

Exhibit 3-24: ECFCTF Recommended Study Areas for New East-West Transportation Corridors



Source: ECFCTF Final Report, December 1, 2014

Exhibit 3-25: ECFCTF Recommended Study Areas for New North-South Transportation Corridors



Source: ECFCTF Final Report, December 1, 2014

MetroPlan Orlando 2045 Metropolitan Transportation Plan (MTP)

The MetroPlan Orlando 2045 MTP was adopted on December 9, 2020. The MTP incorporates corridors from the CFX 2040 Master Plan and specifically includes Corridor D and Corridor F that are the focus of this study.

Space Coast TPO 2045 LRTP

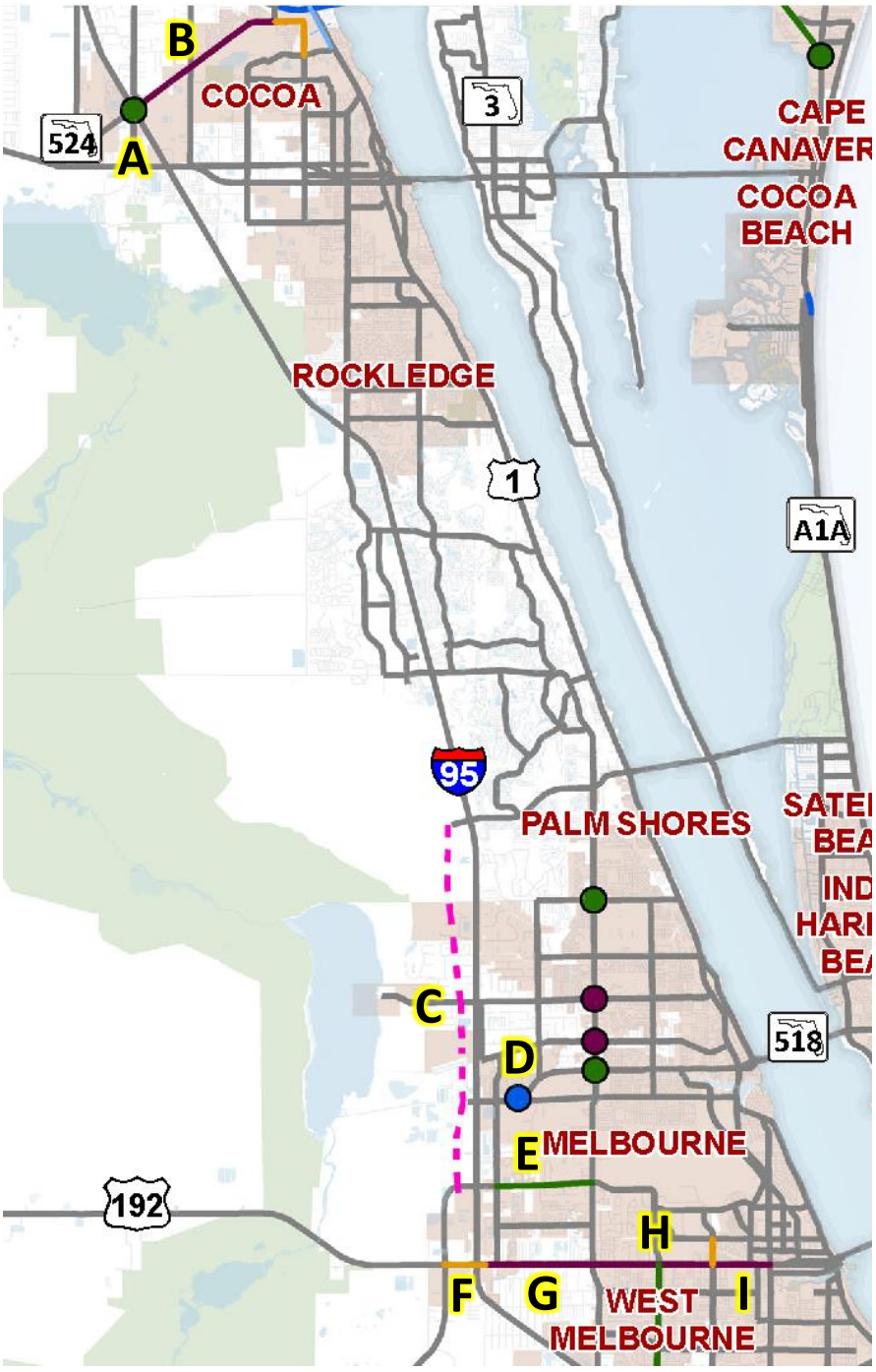
The Space Coast TPO's 2045 LRTP was adopted on September 10, 2020. **Table 3-24** and **Exhibit 3-26** include the cost feasible projects that are within or adjacent to the study area. As illustrated on **Exhibit 3-27**, the Vision component of the LRTP acknowledges this current study and past recommendations of the Task Force by including a potential OBCC corridor from the west.

Table 3-24: Space Coast TPO 2045 LRTP Cost Feasible Projects

Map ID	Roadway	From	To	Improvement	Year Funded Through Construction
A	SR 524	At I-95 Interchange	N/A	Operational Improvement	Unfunded [1]
B	SR 524	S. Friday Road	Industry Road	Widen to 4-lanes	2045
C	Washingtonia Drive Extension	Ellis Road	SR 404	New 2-lane Road	Unfunded [2]
D	SR 518	At Sarno Road	N/A	Operational Improvements	2035
E	Ellis Road	John Rhodes Boulevard	W of Wickham Road	Widen to 4-lanes	2030
F	US 192	St. Johns Heritage Parkway	Coastal Lane	Widen to 6-lans/ interchange improvements	2040
G	US 192	Coastal Lane	Wickham Road	Widen to 6-lanes	2045
H	US 192	Wickham Road	Dairy Road	Widen to 6-lanes	2045
I	US 192	Dairy Road	SR 507	Widen to 6-lanes	2045

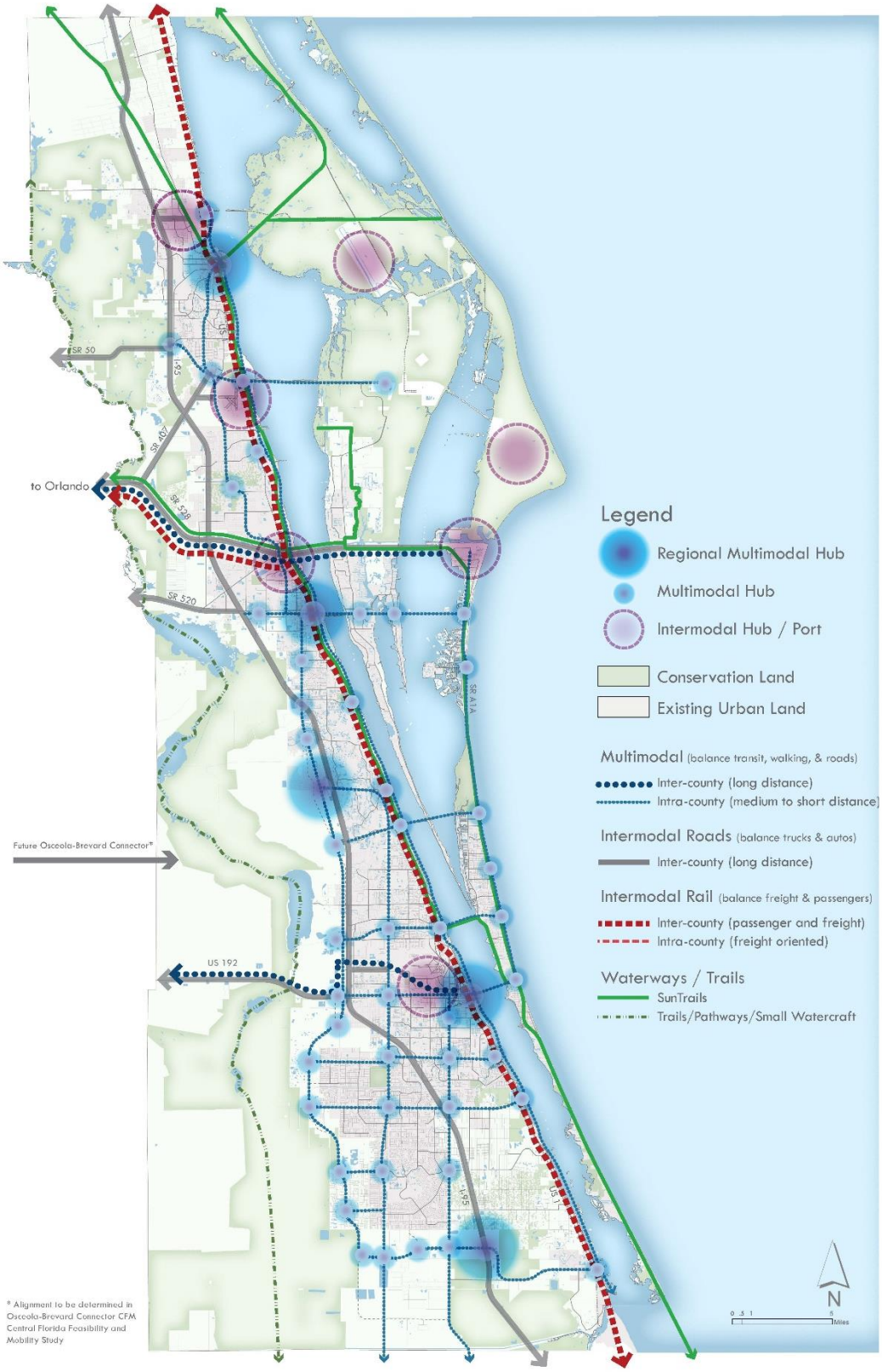
1 – Funded through PD&E
2 – Funded through Design

Exhibit 3-26: Space Coast TPO 2045 LRTP Cost Feasible Projects



Source: Space Coast TPO 2045 LRTP

Exhibit 3-27: Adopted Space Coast TPO 2060 Vision

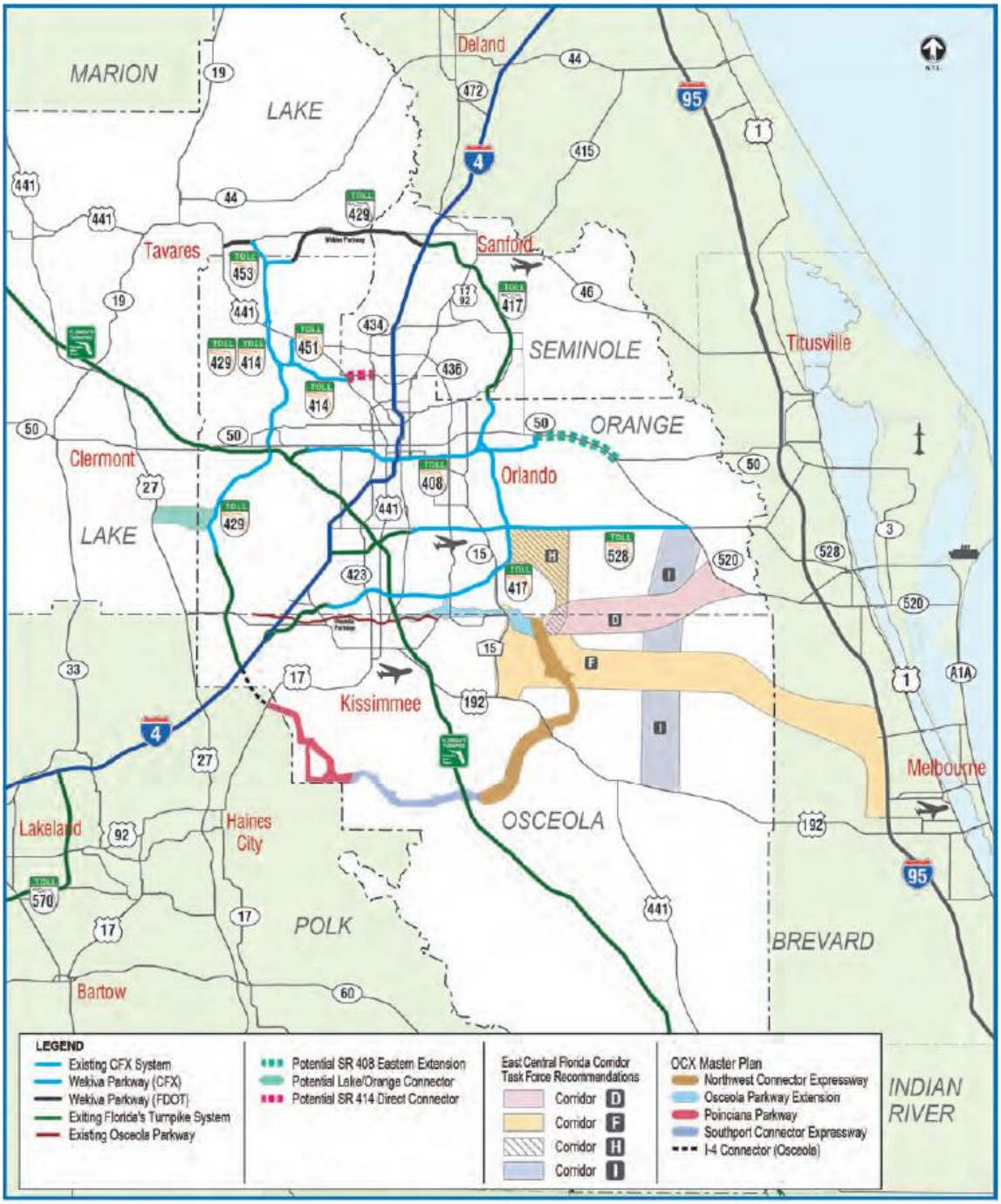


Source: Space Coast TPO 2045 LRTP

CFX 2040 Master Plan

Following the ECFCTF recommendations, CFX included Corridors D, F and I as potential new expressway projects in their 2040 Master Plan (see **Exhibit 3-28**). The current OBCC CF&M Study is evaluating Corridor D and Corridor F. CFX's previous (July 2019) Northeast Connector Expressway Extension CF&M Study addressed Corridor I.

Exhibit 3-28: CFX Potential New Expressway Projects

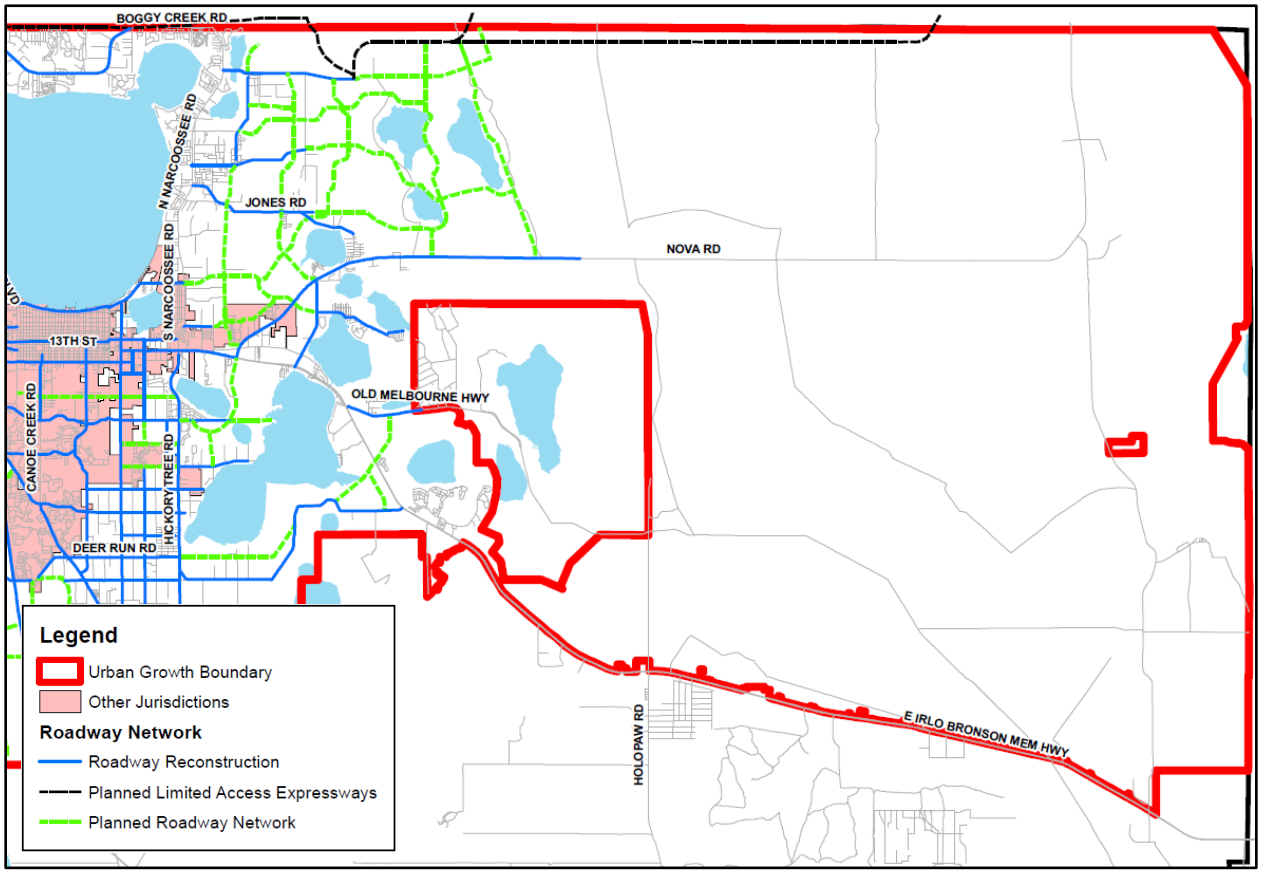


Source: CFX Visioning + 2040 Master Plan

Osceola County Comprehensive Plan

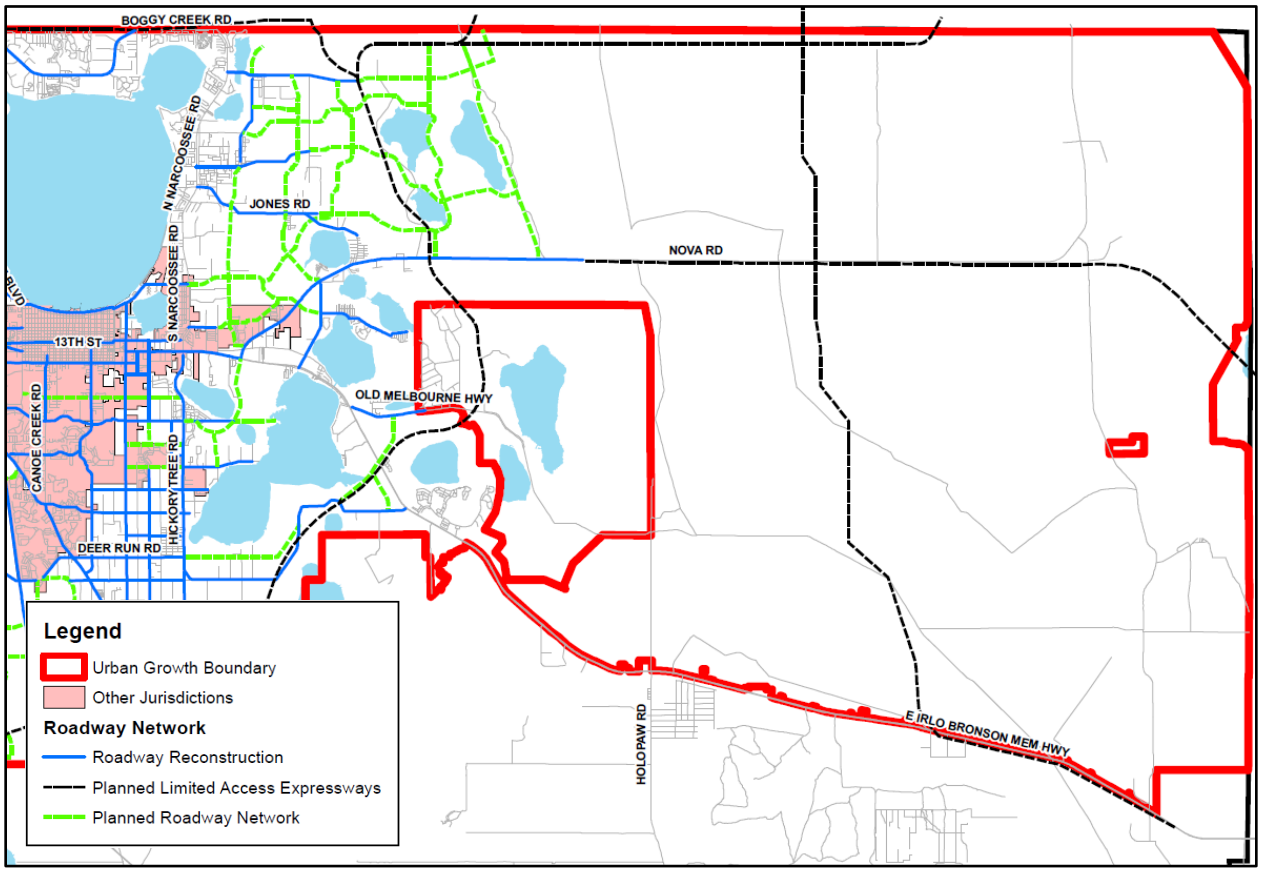
The Osceola County Comprehensive Plan (Transportation Element, May 6, 2019) includes maps for the future roadway network. The 2040 map includes SR 534 and a planned limited-access expressway in Corridor D (see **Exhibit 3-29**). It also includes a planned roadway network in the Northeast District as well as reconstruction of Nova Road to the Econlockhatchee River. The 2080 map (see **Exhibit 3-30**) adds planned limited-access expressways in Corridor F, Corridor I, and the Northeast Connector Expressway. The 2080 map also adds planned premium transit corridors along SR 534, the Northeast Connector Expressway, Corridor D, Nova Road/Corridor F, Corridor I, and US 192.

Exhibit 3-29: Osceola County Roadway Network - 2040



Source: Osceola County Comprehensive Plan

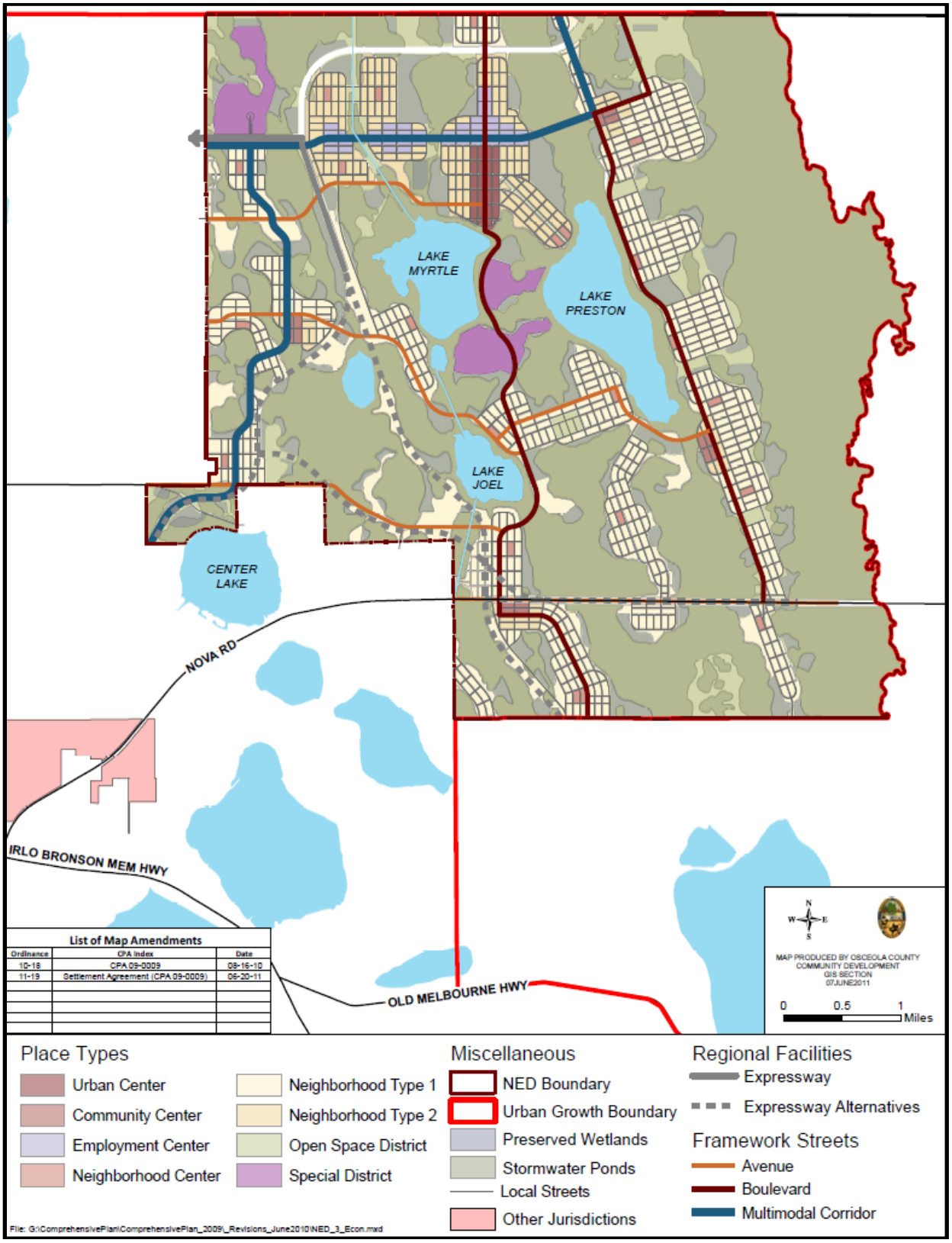
Exhibit 3-30: Osceola County Roadway Network - 2080



Source: Osceola County Comprehensive Plan

The Northeast District Element (May 6, 2019) of Osceola County's Comprehensive Plan and the Northeast District Conceptual Master Plan provide additional details for the Northeast District Sector Plan. It is noted that changes to the alignment of SR 534 as well as the donation of conservation parcels are different than reflected in the Conceptual Master Plan. The Conceptual Master Plan does include an expressway in Corridor D. An east-west and a north-south multi-modal corridor are included in the Conceptual Master Plan (see **Exhibit 3-31**).

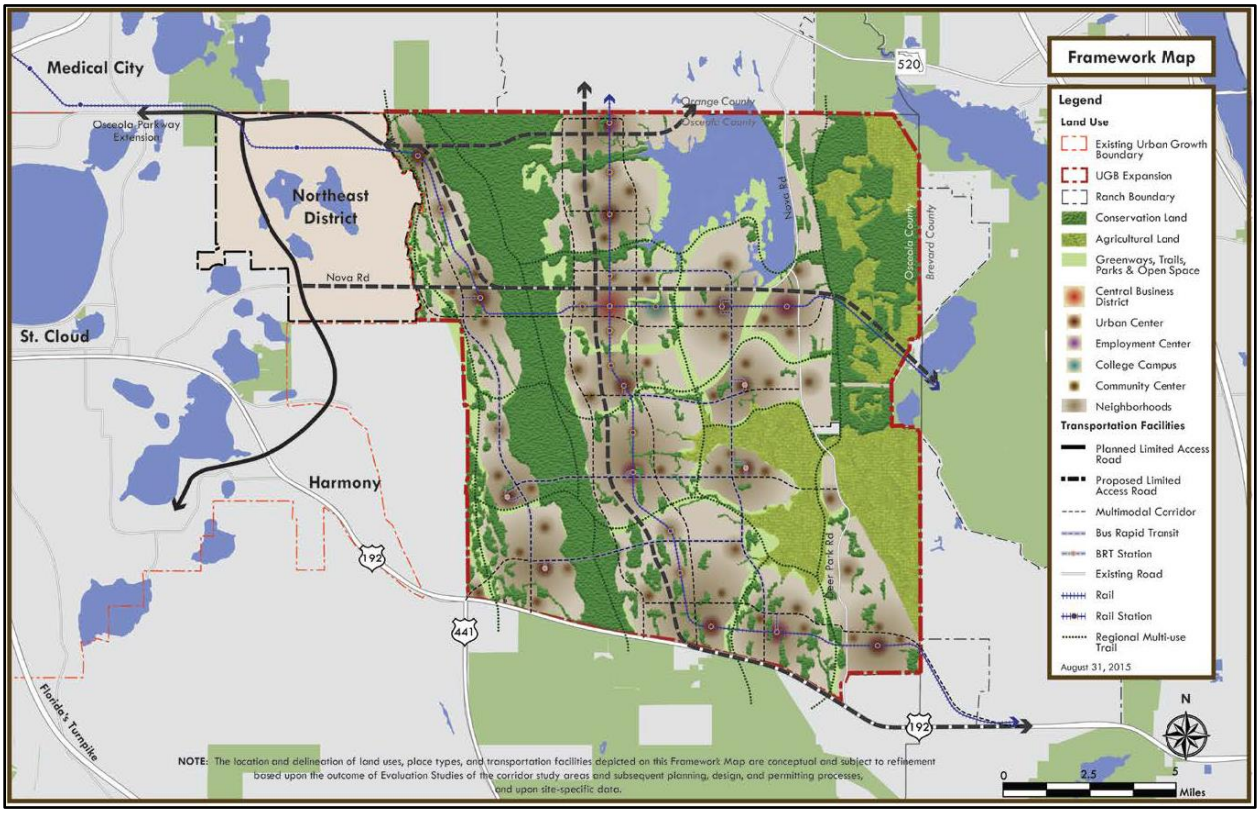
Exhibit 3-31: Northeast District Framework Streets



Source: Northeast District Element, August 16, 2010

The North Ranch Element (May 6, 2019) of Osceola County's Comprehensive Plan provides additional details for the North Ranch Sector Plan, including a framework plan of the supporting multi-modal transportation system that includes limited-access expressways in Corridors D, F and I (see **Exhibit 3-32**). Rail is also included in Corridors F and I.

Exhibit 3-32 North Ranch Framework Plan



Source: North Ranch Element, September 21, 2015

Brevard County Comprehensive Plan

The Brevard County Comprehensive Plan (Transportation Element, December 2011) includes maps of Future Transportation Corridors. It includes St. Johns Heritage Parkway and Ellis Road (west of I-95), including the recently opened Ellis Road interchange with I-95. There are no future expressways connecting to I-95 and extending west within the study area.

Orange County Comprehensive Plan

The Orange County Comprehensive Plan 2010 – 2030 (adopted May 19, 2009, and amended July 18, 2019) Map 1 Transportation Element Orange County 2030 Long Range Plan includes Sunbridge Parkway and Tavistock Road which enter the study area just west of the TM-Econ Mitigation Bank. There are no future expressways within Corridor D identified in this map.

LYNX Transit Development Plan

The LYNX Transit Development Plan, 2020 Annual Update, Plan Years FY 2020-2029 (September 2019) does not include any new transit service within the study area.

Space Coast Area Transit (SCAT) Transit Development Plan

The SCAT 2018-2027 Transit Development Plan (October 2017) includes the 2040 Strategic Plans – Transit System Plan, which identifies Inter-County (long-distance) multi-modal service to the west of Brevard County along US 192 and the Pineda Road Extension with both connecting to an Intermodal Hub at the Melbourne International Airport. The SCAT Transit Development Plan, FY 2018 Annual Progress Report (March 2019) does not identify any changes to the 2040 Strategic Plans – Transit System Plan.

Central Florida Regional Transit Study

The ECFCTF recommended the development of a regional transit system plan to identify and set priorities for long-term transit investments in the three study area counties (Orange, Osceola and Brevard Counties) and the broader Central Florida Region. In 2018, FDOT in coordination with the Central Florida MPO Alliance completed the Central Florida Regional Transit Study (RTS). The intent of the RTS was to support transit agencies, MPO, TPOs, and FDOT to coordinate transit planning efforts and to support LRTP development.

The Interim Term Vision for 2040 included Intercity Rail along SR 528 (i.e., Brightline) and express bus service along SR 50 and SR 520. The Long Term Vision for 2060 added future transit service to the area of the study area that is west of the St. Johns River. While specific funding for the visions is in place, the RTS identified potential sources. The RTS recommended that the governmental entities within the region, as well as the transit agencies, work together to prioritize projects based upon, in part, project need, anticipated impact, area-wide benefit, and local funding.

Washingtonia Drive Extension Study

In 2017, FDOT District 5 conducted a study for extending Washingtonia Drive from St. Johns Heritage Parkway to North Wickham Road. As part of this study, a total of eight initial corridors were developed with appropriate data through the Land Suitability Mapping process. The eight (8) corridors included alternatives located immediately east and west of I-95, east and west of Lake Washington, and along Wickham Road. However, due to the results of the traffic analysis, this project was put on hold and these corridors were not vetted through the ETDM process.

3.7 HIGHWAY TRAFFIC NOISE

Traffic noise associated with new roadways or corridors is one of the key items to consider when evaluating the existing and future aspects of the physical environment. Noise impacts are also a recurring concern expressed by project stakeholders. While noise considerations and abatement measures vary based on the environmental setting, effective evaluation of potential noise impacts requires consideration of existing and future land uses, and the relation of the study area and ultimately the proximity of new roadway corridors. Because this is a CF&M Study, the scope of the noise evaluations is to identify potential noise sensitive locations within the study area and identify the corresponding Noise Abatement Criteria (NAC) categories. The NAC categories establish the different types of noise sensitive locations that must be considered for impact and abatement analysis. As corridors are developed, noise impacts will be evaluated on a qualitative low, medium, and high ranking system, which will be further evaluated during a potential PD&E Study(s).

Noise Abatement Criteria (NAC) Categories are described below, along with the sound level (measured in dB(A)) at which the different categories are considered impacted:

- NAC A [56dB(A)] – Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
- NAC B [66dB(A)] – Residential
- NAC C [66dB(A)] – Exterior uses at active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, and other similar noise sensitive locations.
- NAC D [51dB(A)] – Interior of some NAC C sites that have no exterior use.
- NAC E [71dB(A)] – Exterior uses at hotels, motels, offices, restaurants, bars, and other developed lands, properties, or activities not included in A-D or F.
- NAC F – Not noise sensitive such as retail, industrial, airports, and agricultural land
- NAC G – Undeveloped Lands – Provide Noise Contour Analysis for local governments.

As part of the existing conditions analysis, preliminary noise sensitive locations have been identified. This involved reviewing aerial imagery and existing and future land uses. The remaining sections provide an overview of the baseline conditions associated with these sites in Osceola, Orange, and Brevard Counties.

3.7.1 OSCEOLA & ORANGE COUNTY

The portion of the study area west of the St. Johns River, primarily located in Osceola County, is currently undeveloped agricultural land. This area is now owned and managed by Deseret Ranches and is planned for future development as a part of Osceola County's North Ranch Sector Plan. The western portion of the study area is shown on **Exhibit 3-18**.

The portion of the study area in Osceola County involves substantial new development containing a mix of residential, commercial, and recreation centers. As this is currently undeveloped land, it would be considered as NAC G (undeveloped land) and would not be evaluated for impacts or noise abatement. However, during a potential PD&E phase, noise contours would be developed to help establish how far from a future roadway corridor noise impacts would be expected. These noise contours would be provided to local governments as a part of a PD&E phase Noise Study Report to promote compatibility between future land use planning and the viable corridors associated with the OBCC. During a potential future PD&E Study(s), another review of potential noise sensitive sites would be conducted to assess any developments that may have occurred since the original evaluations. As a part of a potential future PD&E phase, a full noise analysis would be completed and a Noise Study Report created documenting noise impacts and any potential noise abatement measures.

A small section of the project area is located in Orange County. This area consists mostly of an extension of the Deseret Ranches holdings, the Tosohatchee Wildlife Management Area, and a number of non-noise sensitive industrial and utility land uses.

3.7.2 BREVARD COUNTY

East of the St. Johns River, the main area of development is the master-planned community of Viera. Immediately north of Viera are a few isolated residences and the Country Woods Village Apartments adjacent to the I-95 and SR 519 interchange. Further to the north, near Lake Poinsett, are residential communities including Fern Meadows, Maplewood, Poinsett Shores, and a number of potential special use sites including the Cocoa Expo Sports Complex, Leroy Wright Recreation Area, F. Burton Smith Regional Park, Central Life Church, Holiday Inn Express Pool Area, and a senior living center.

South of Viera, between Lake Washington and I-95, are a number of residential communities including The Willows, Chestnut Run, Woodshire Preserve, Enclave At Lake Washington, Lake Washington Acres, Lakewood Manor, Oak Hammock Estates, Fawn Cove, Flora & Fauna Estates, and scattered single-family residences at the southern end of the project area near US 192. There is also an outdoor recreation area at Lake Washington Park and a few potential NAC E noise sensitive sites at businesses and restaurants near Eau Galle Boulevard. The eastern portion of the study area is shown on **Exhibit 3-18**.

The Viera Community includes a mix of single-family home developments, multi-family townhome, condominium, and apartment communities, parks and recreation facilities, schools, and retail facilities. Within the Viera Community, the area north of Wickham Road is where most of the existing development has occurred, with construction on up to six new single-family developments underway south of Wickham Road. In addition, Viera's current master plan map indicates future development is planned to the south and west of existing developments.

West of the Viera Community is a large tract of land surrounding the St. Johns River that is owned by the SJRWMD. This land is part of the River Lakes Conservation Area. This conservation area is open to public use but only has public facilities that would qualify as areas of frequent outdoor use at Lake Washington County Park.

In areas where there is no development, these areas would be considered NAC G undeveloped land and would not be evaluated for impacts or noise abatement. During a potential future PD&E phase, noise contours would be developed for NAC land to help establish how far from a roadway corridor noise impacts would be expected. These noise contours would be provided to local governments to promote compatibility between future land use planning and the viable corridors associated with this project. Other areas with existing developments would be analyzed using TNM modeling software and future impacts would be predicted for all noise sensitive sites according to the NAC of each noise sensitive site. As a part of a potential future PD&E phase, a full noise analysis would be completed and a Noise Study Report created documenting noise impacts and any potential noise abatement measures. There are currently a large number of NAC B residential neighborhoods within the overall Viera development. In addition, there are scattered NAC C and D non-residential noise sensitive locations such as schools, parks, restaurants, and other similar locations within the Viera development that could be impacted, depending on the final alignment(s) within the study area.

3.7.3 TRAFFIC NOISE EVALUATION

Traffic noise impacts will be evaluated during a potential future PD&E phase and will be determined by the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) modeling software and depend on the existing and predicted future traffic volumes, traffic speed of the roadway, and the distance and configuration of the surrounding areas. In order for noise abatement, such as a noise barrier system, to be justified, it must be considered feasible and reasonable according to the criteria established by the FDOT in the PD&E Manual, Part 2, Chapter 18 (FDOT, July 1, 2020). To be considered feasible it must:

- Demonstrate that it will benefit at least two (2) impacted receptors by providing a reduction in traffic related noise of at least 5 dB(A);
- Take into consideration a number of additional feasibility factors including: Design and Construction, Safety, Access, ROW, Maintenance, Drainage, and Utility factors.

To be considered reasonable it must:

- Take into consideration the viewpoints of the benefitted property owners and residents;
- The cost of the noise barrier must not exceed $42,000 per benefited residential receptor. This is the upper cost limit established by FDOT. A benefited receptor is defined as a receptor that would experience at least a 5 dB(A) reduction in noise levels as a result of providing a noise barrier. The current unit cost used to evaluate cost reasonableness is $30 per square foot for all noise barriers. This cost covers barrier materials and labor. Non-residential sites have a special process that is detailed in the FDOT research publication A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations; and
- Satisfy the FDOTs Noise Reduction Design Goal of 7 dB(A). Therefore, a noise barrier must provide a noise reduction of at least 7 dB(A) for at least one benefited receptor.

This generally means that there must be a number of impacted noise sensitive sites in close proximity so that a noise barrier could be constructed at a reasonable cost. Residences, or non-residential noise sensitive sites, that are widely separated have a hard time meeting the cost per benefitted receptor reasonableness criteria.

3.8 CONTAMINATION

Contamination concerns in the study area include cattle grazing operations that may have incorporated cattle dip vats and cattle pens or barns (arsenic). However, the majority of the contamination concerns are located along I-95 in Cocoa and Viera, at the east end of the study area. The Cocoa portion of the study area is characterized by light industrial and commercial development comprised of numerous auto repair and gas station operations that can generate contamination impacts to soil and/or groundwater. Similarly, facilities identified in the Viera portion of the study area include light industrial and commercial operations, including auto repair, gas stations, public utility facilities, and medical centers. Utilizing aerial photographs, a Google Earth railroad map layer, and FDEP's Map Direct website, potential contamination concerns were identified in the study area that will be considered in the evaluation of alignment alternatives. The following potential contamination sites are shown on **Exhibit 3-33**:

- Cattle grazing
- Four cattle pen sites
    - One site has documented contamination impacts
- 74 petroleum tank sites
    - Nine (9) sites have documented contamination impacts
- 10 hazardous material sites
- 14 solid waste, landfill, disaster debris management sites
- One (1) planned Brevard County landfill
- Two (2) Brownfield Areas
- One (1) permitted oil and gas well
- One (1) historical railroad

No Comprehensive Environmental Resource, Compensation, and Liability Act (CERCLA) or Superfund sites were found within one mile.

A predominant indicator of potential contamination in the study area is the presence of 74 petroleum tank sites. 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 including 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.

Four (4) cattle pen sites have been identified and may have associated cattle dip vats or pesticide usage that would result in chemical impacts. One (1) of the cattle pens has documented soil and groundwater contamination impacts.

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 development project. The purpose of the preliminary contamination site evaluation will be the early identification of potential contamination sites that could impact alignment selection. The sites and land uses listed above will be further evaluated during the contamination screening process to assess their impact on alignment alternatives.

3.9 UTILITIES

Twenty-one (21) Utility Agency/Owners (UAO) have been identified within the project study area through Sunshine 811 Design Ticket and initial utility coordination efforts. These utilities are described in the following sections. Major utilities are illustrated on **Exhibit 3-34**.

Exhibit 3-33: Potential Contamination Sites

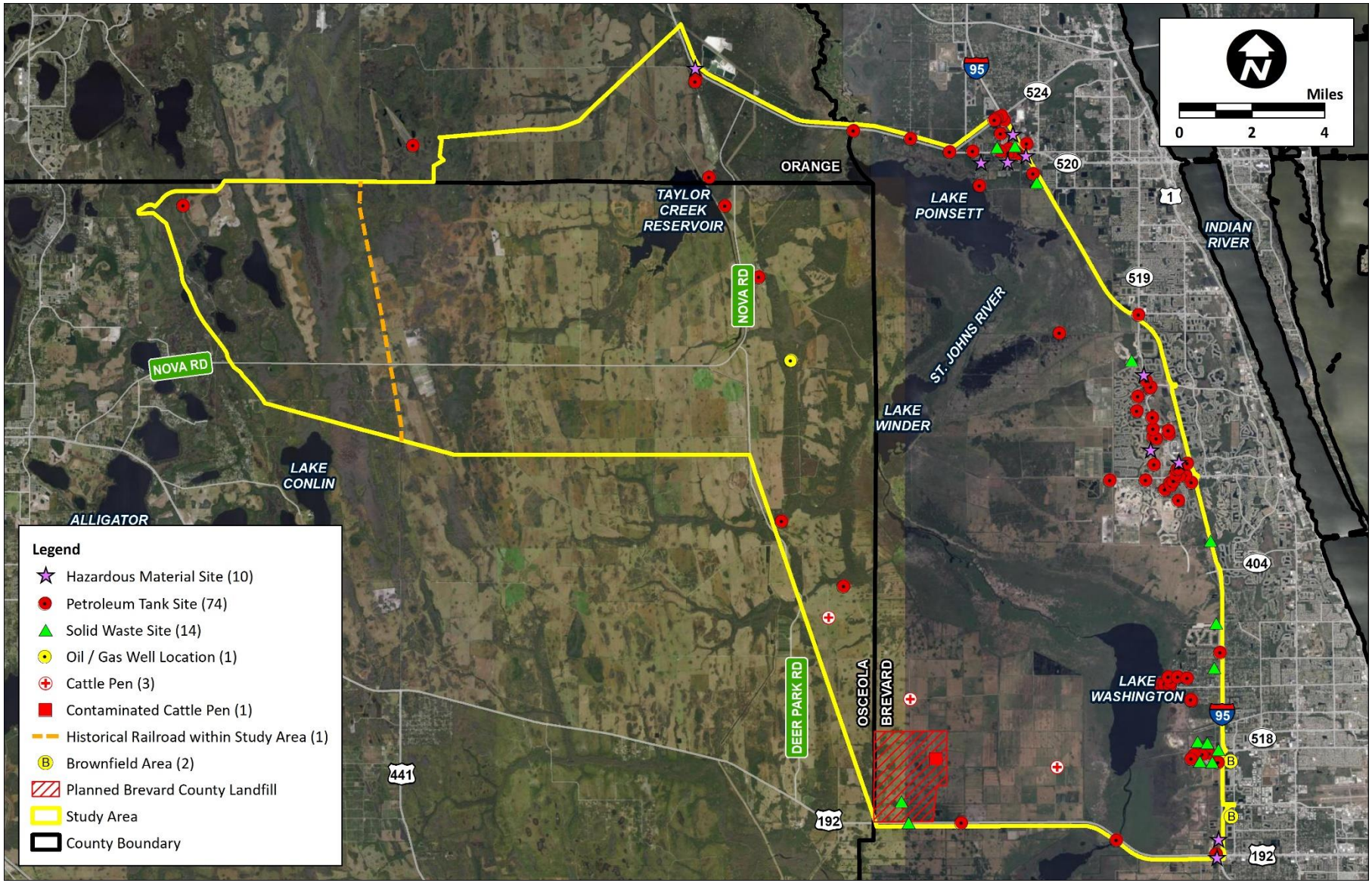
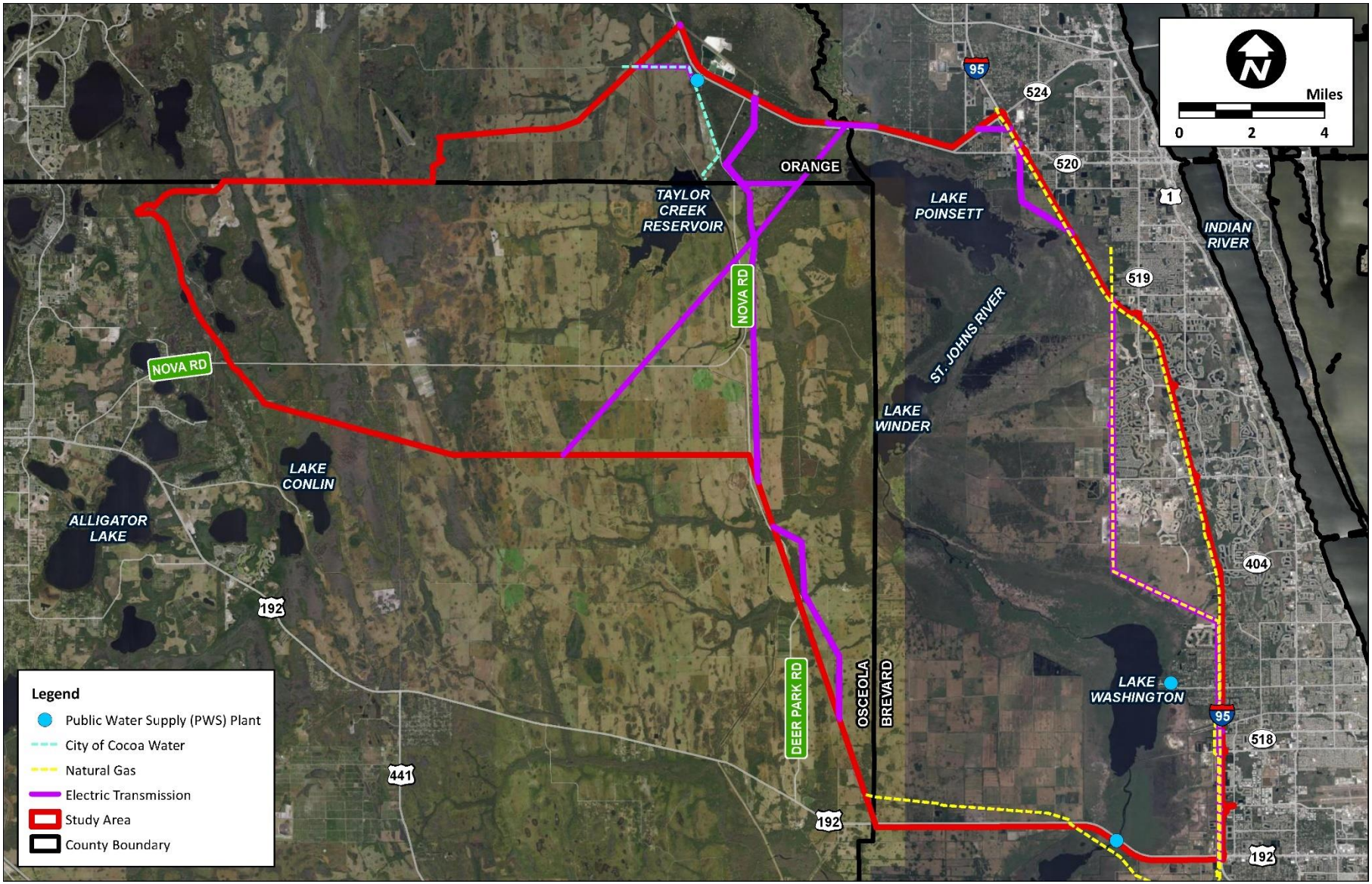


Exhibit 3-34: Major Utilities



3.9.1 ELECTRICAL

Six (6) electrical UAOs have been identified within the project study area, including transmission and distribution facilities. **Table 3-25** identifies these UAOs and provides a general description of their facilities located within the study area.

Table 3-25: Existing Electrical Utilities

Utility Company	Facility	Description
Duke Energy-Transmission	Transmission Electric	• 69-kV transmission electric line in an easement that crosses the study area to the east of Sungrove Lane • 230-kV transmission electric line in an easement that crosses the study area 6.45 miles west of the Osceola-Brevard County Line • Two 500-kV transmission electric line in an easement that crosses the study area 3.3 miles west of the Osceola-Brevard County Line
Duke Energy-Distribution	Distribution Electric	• Distribution electric within Osceola County
OUC-Trans. Electric	Transmission Electric	• To be determined
OUC-Electric	Distribution Electric	• Distribution electric within Osceola County
FP&L-Transmission	Transmission Electric	• Two 230-kV and two 138-kV transmission lines in a 170-foot easement along Power Line Road to a Substation • Substation on the west side of Power Line Road • From substation, three 230-kV transmission lines in a 170-foot easement along Power Line Road and then shifts east to continue south along the west side of Washingtonia Road
FP&L-Distribution	Distribution Electric	• Distribution electric within Brevard County

3.9.2 NATURAL GAS

Two (2) natural gas UAOs have been identified within the project study area, including transmission and distribution facilities. **Table 3-26** identifies these UAOs and provides a general description of their facilities located within the study area.

Table 3-26: Existing Natural Gas

Utility Company	Facility	Description
Florida Gas Transmission	Natural Gas Pipeline	• Florida Gas Transmission (FGT) currently maintains 26-inch and 8-inch high pressure natural gas pipelines located within two separate easements and permitted ROW adjacent to western limits of the I-95 limited-access ROW. • The 26-inch pipeline is located in a 50-foot easement and the 8-inch pipeline is located in a 30-foot easement. • The existing Washingtonia Drive and Lakeside Avenue roadways are located within FGT's existing easements by agreement. • A portion of the existing 26-inch gas main along the existing Washingtonia Drive north of Lake Washington Road was installed by FDOT Permit under the project name "Frontage Road". • 20-incha and 30-inch pipeline in an easement along the north side of US 192
Florida City Gas	Gas	• Distribution gas services for Brevard County within the project corridor.

3.9.3 OTHER UTILITIES

Thirteen (13) other UAOs have been identified within the project study area, including cable television (CATV), phone, fiber, water and sewer utilities. **Table 3-27** identifies these UAOs and provides a general description of their facilities located within the study area.

Table 3-27: Existing Other Utilities

Utility Company	Description
Brevard County Water	• Reuse/Water/Sewer
CenturyLink	• Fiber
Comcast	• CATV
East Central Florida Services	• Water
AT&T Distribution	• Phone
Bright House Networks	• Fiber
City of Cocoa	• Water
City of Melbourne Utilities	• Water/Sewer
City of West Melbourne	• Water/Sewer
Crown Castle	• Fiber
MCI	• Fiber
Sandhill Communications	• Fiber
Uniti Fiber LLC	• Fiber

3.9.4 UTILITY MITIGATION AND COST

Major utility facilities with the potential to be impacted include natural gas pipelines owned and operated by FGT. In addition, Duke Energy and Florida Power & Light maintain transmission electric lines and substations in the study area that will need to be considered.

Mitigation measures should be taken during the study phase of the project to minimize impacts to the existing utilities to the fullest extent possible. If impacts are unavoidable, design alternatives would be reviewed to allow for relocation of impacted facilities in a manner that minimizes cost to the UAO and disruption to their customers.

Since relocations of facilities located in easements and on private property would likely be eligible for reimbursement, all measures will be taken to avoid impacting the existing utility facilities identified in easements or privately-owned parcels. Though relocation of other facilities within the existing ROW are anticipated, all efforts will be made during the study to minimize impacts to existing pipelines, substations, and transmission facilities, to the greatest extent possible.

3.10 RAILROADS

There are no railroads located in the study area.

4.0 TRAFFIC CONSIDERATIONS

4.1 HISTORICAL AND CURRENT TRAFFIC

Osceola, Orange, and Brevard counties have experienced significant growth over the past two decades. According to the U.S. Census, the population in Osceola County grew more than two and a half times from 1990 to 2019, from 110,000 to 375,750 residents, a 242 percent increase; Orange County doubled in population from 684,000 to 1,393,000 residents, a 104 percent increase; and Brevard County has grown by 50 percent from 403,000 to 602,000 residents. A majority of the growth has occurred in the fringes of the urban areas, with developments like Lake Nona and Medical City along the Narcoossee Road corridor, and Viera along I-95. In addition, new developments are planned and existing developments are continuing to expand within the Northeast District and the North Ranch developments in Osceola County. In Brevard County this includes future phases of the Viera development and infill development in Palm Bay along the planned St. Johns Heritage Parkway in Brevard County.

The Florida Traffic Online (2019) website was used to identify count stations with historical traffic data in the study area. The results are summarized in **Table 4-1** showing the locations, 2019 annual average daily traffic (AADT), the historical straight-line growth rate, years of traffic data considered, the R-squared value of historical count data, and the FDOT count station identification number. To measure growth rates, data from 5 to 10 years was pulled from the traffic databases and an R-squared value was determined. R-squared is a statistical measure of goodness of fit for a linear relation in the annual counts. A value closer to 100 percent indicates a straight line or consistent rate of growth, while a lower percentage reflects a less consistent growth pattern. Average growth rates in the study area are low, between one and five percent, except for limited-access facilities such as SR 528, SR 407, I-95, and sections of local roads including Stadium Parkway, Wickham Road, and SR 518 (Eau Gallie Boulevard) which have higher annual growth rates.

Table 4-1: Existing Traffic Conditions

Roadway		2019 AADT	Historical Growth	Years of Data	R^2	Count Station ID
From	To					
East Colonial Drive (SR 50)						
SR 520	Taylor Creek Road	12,400	1.0%	10	52%	751008
Taylor Creek Road	I-95	12,600	1.7%	10	58%	700383
SR 520						
E Colonial Drive (SR 50)	Beachline Expwy (SR	18,000	1.5%	10	87%	751009
Beachline Expwy (SR	SR 524	19,800	4.0%	10	76%	700367
SR 524	I-95	24,500	3.4%	10	80%	700385
Martin Andersen Beachline Expressway (SR 528)						
SR 417	Dallas Boulevard	64,000	6.67%	10	84%	750618
Dallas Boulevard	SR 520	56,500	4.9%	10	91%	750336
SR 520	SR 407	48,700	39.1%	5	68%	970402
SR 407	I-95	41,000	34.6%	5	61%	970399

Table 4-1 (continued): Existing Traffic Conditions

Roadway		2019 AADT	Historical Growth	Years of Data	R^2	Count Station ID
From	To					
US 192 (SR 500)						
Nova Road (CR 532)	CR 500A/Old	17,800	0.3%	10	23%	920302
CR 500A/Old	Hickory Tree Road	16,800	4.3%	10	80%	920304
Hickory Tree Road	Holopaw Road	11,600	4.8%	10	97%	920065
Holopaw Road	Deer Park Road (CR	7,400	3.7%	10	82%	921008
Deer Park Road (CR	I-95	7,700	2.9%	10	60%	700090
Deer Park Road (CR 419)						
US 192	Nova Road (CR 532)	350	4.2%	7	75%	928069
Nova Road (CR 532)						
US 192	Sun Grove Lane	3,900	3.8%	10	89%	927041
Sun Grove Lane	SR 520	1,550	3.6%	9	83%	928050
Taylor Creek Road						
SR 520	E Colonial Drive (SR	600	12.5%	5	75%	758089
SR 407						
SR 528	I-95	9,800	41.7%	5	79%	702042
SR 524						
SR 528	I-95	5,900	5.7%	10	89%	700425
Interstate I-95						
SR 407	Port St. Johns Parkway	48,500	3.9%	5	39%	700401
Port St. Johns Parkway	SR 528	46,500	22.4%	5	7%	700439
SR 528	SR 524	69,000	5.3%	5	58%	700368
SR 524	SR 520	52,000	7.5%	5	97%	707037
SR 520	Pluckebaum Road	85,500	15.7%	5	83%	700365
Pluckebaum Road	SR 519	88,700	3.8%	5	94%	709919
SR 519	SR 404	86,000	10.5%	5	96%	700388
SR 404	SR 518	94,000	4.0%	5	98%	700415
SR 518	US 192	84,500	23.6%	5	84%	700372
Stadium Parkway/Fiske Boulevard						
Wickham Road	I-95	19,300	15.1%	6	83%	708155
I-95	Roy Wall Boulevard	26,500	1.6%	6	46%	700431
Viera Boulevard						
Powerline Road	I-95	18,900	6.0%	10	95%	264536
Wickham Road						
Powerline Road	Lake Andrew Drive	14,500	9.1%	6	96%	513392
Lake Andrew Drive	I-95	45,500	17.1%	6	78%	707071
Pineda Causeway (SR 404)						
I-95	St. Andrews Boulevard	32,100	9.4%	8	96%	416570
Eau Gallie Boulevard (SR 518)						
I-95	N John Rodes Boulevard	42,500	10.1%	10	77%	700419

Table 4-1 (continued): Existing Traffic Conditions

Roadway		2019 AADT	Historical Growth	Years of Data	R^2	Count Station ID
From	To					
Ellis Road						
John Rodes Boulevard	Wickham Road	15,200	7.1%	9	98%	322322

4.2 ROADWAY OPERATIONAL CONDITIONS

Table 4-2 summarizes the existing roadway operating conditions within the study area. All of the roadways are currently operating with a volume to capacity (v/c) ratio of less than one (1) which indicates sufficient capacity and no congestion, except for SR 518 (Eau Gallie Boulevard) from I-95 to N. John Rodes Boulevard, which is operating just over 1.0 v/c ratio. The capacities were based on the FDOT Quality/Level of Service Handbook (2020) Generalized Tables. According to FDOT Policy 000-525-006, the level of service (LOS) target for the State Highway System is LOS D in urbanized areas and LOS C for rural areas for peak hour travel, but these LOS targets were considered for daily volumes for this analysis. All of the facilities in the study area operate at acceptable levels.

Table 4-2: Existing Operational Analysis

Roadway		# of Lanes	Type	Area Type	2019 AADT	2019 v/c
From	To					
East Colonial Drive (SR 50)						
SR 520	Taylor Creek Road	4	Uninterrupted Highway	Rural	12,400	0.28
Taylor Creek Road	I-95	4	Uninterrupted Highway	Rural	12,600	0.28
SR 520						
E Colonial Drive (SR 50)	Beachline Expwy (SR 528)	4	Uninterrupted Highway	Rural	18,000	0.40
Beachline Expwy (SR 528)	SR 524	4	Uninterrupted Highway	Rural	19,800	0.44
SR 524	I-95	4	Uninterrupted Highway	Rural	24,500	0.55
Martin Andersen Beachline Expressway (SR 528)						
SR 417	Dallas Boulevard	4	Limited-Access Roadway	Transitioning	64,000	0.91
Dallas Boulevard	SR 520	4	Limited-Access Roadway	Transitioning	56,500	0.80
SR 520	SR 407	4	Limited-Access Roadway	Transitioning	48,700	0.69
SR 407	I-95	4	Limited-Access Roadway	Transitioning	41,000	0.58

Table 4-2 (continued): Existing Operational Analysis

Roadway		# of Lanes	Type	Area Type	2019 AADT	2019 v/c
From	To					
US 192 (SR 500)						
Nova Road	CR 500 A – Old Melbourne Hwy	4	Uninterrupted Highway	Rural	17,800	0.40
CR 500 A – Old Melbourne Hwy	Hickory Tree Road	4	Uninterrupted Highway	Rural	16,800	0.37
Hickory Tree Road	Holopaw Road (SR15)/ US441	4	Uninterrupted Highway	Rural	11,600	0.26
Holopaw Road (SR15)/ US441	Deer Park Road (CR 419)	4	Uninterrupted Highway	Rural	7,400	0.16
Deer Park Road (CR 419)	I-95	4	Uninterrupted Highway	Rural	7,700	0.17
Deer Park Road (CR 419)						
US 192	Nova Road (CR 532)	2	Uninterrupted Highway	Rural	350	0.04
Nova Road (CR 532)						
US 192	Sun Grove Lane	2	Uninterrupted Highway	Rural	3,900	0.45
Sun Grove Lane	SR 520	2	Uninterrupted Highway	Rural	1,550	0.18
Taylor Creek Road						
SR 520	E Colonial Drive (SR 50)	2	Uninterrupted Highway	Rural	600	0.07
SR 407						
SR 528	I-95	2	Uninterrupted Highway	Transitioning	9,800	0.42
I-95						
SR 407	Port St. Johns Parkway	6	Limited-Access Roadway	Urban	48,500	0.39
Port St. Johns Parkway	SR 528	6	Limited-Access Roadway	Urban	46,500	0.38
SR 528	SR 524	6	Limited-Access Roadway	Urban	69,000	0.56
SR 524	SR 520	6	Limited-Access Roadway	Urban	52,000	0.42
SR 520	Rest Area	6	Limited-Access Roadway	Urban	85,500	0.69
Rest Area	SR 519	6	Limited-Access Roadway	Urban	88,700	0.72
SR 519	SR 404	6	Limited-Access Roadway	Urban	86,000	0.70
SR 404	SR 518	6	Limited-Access Roadway	Urban	94,000	0.76
SR 518	US 192	6	Limited-Access Roadway	Urban	84,500	0.68

Table 4-2 (continued): Existing Operational Analysis

Roadway		# of Lanes	Type	Area Type	2019 AADT	2019 v/c
From	To					
Stadium Parkway/Fiske Boulevard						
Wickham Road	I-95	2/4	Urban Minor Arterial	Urban	19,300	0.48
I-95	Roy Wall Boulevard	4	Urban Principal Arterial	Urban	26,500	0.67
Viera Boulevard						
Powerline Road	I-95	2/4	Urban Minor Arterial	Urban	18,900	0.47
Wickham Road						
Powerline Road	Lake Andrew Drive	2/4	Urban Minor Arterial	Urban	14,500	0.36
Lake Andrew Drive	I-95	4	Urban Principal Arterial – Other	Urban	45,500	1.40
Pineda Causeway (SR 404)						
I-95	St Andrews Boulevard	4	Urban Principal Arterial – Other	Urban	32,100	0.81
Eau Gallie Boulevard (SR 518)						
I-95	N John Rodes Boulevard	4	Urban Principal Arterial – Other	Urban	42,500	1.07
Ellis Road						
John Rodes Boulevard	Wickham Road	2	Urban Minor Arterial	Urban	15,200	0.86

4.3 SAFETY/CRASH ANALYSIS

Crash data was obtained for the 20 roadway segments within the study area from the *Signal Four Analytics* crash database which compiles statewide crash data from the Florida Highway Patrol (FHP), consisting of both long-form and short-form crash records. A crash analysis was completed based on data from January 1, 2014 through December 31, 2018 (2018 is the most recent year for which the Florida Department of Transportation (FDOT) has crash data certified).

Crash rates, expressed as the number of crashes per million vehicle-miles of travel (VMT), were calculated to account for the wide variation in area type, laneage, and AADT among the roadway segments within the study area. Since crash rates consider traffic volumes and length, comparing crash rates provides a more appropriate comparison of crash trends across the 20 study segments. Calculated crash rates were compared to statewide average crash rates reported by FDOT in 2018 for corresponding roadway classifications to identify roadway segments experiencing a significantly higher number of crashes.

Table 4-3 displays the five-year average crash rate calculated for each segment in the study area. Highlighted cells in **Table 4-3** identify roadway segments with calculated crash rates higher than the statewide average crash rate (2018) observed along similar roadways.

Table 4-3: Crashes and Crash Rates by Segment

#	Roadway		Length (miles)	Total Crashes (2014-2018)	5-Year Crash Rate	Statewide Average Crash Rate (2018) for Similar Facilities
	From	To				
	SR 528					
1	SR 417	Innovation Way	3.37	173	0.44	0.47
2	Innovation Way	Dallas Boulevard	4.86	207	0.41	0.47
3	Dallas Boulevard	SR 520	7.04	268	0.37	0.47
4	SR 520	SR 407	6.12	249	0.45	0.47
5	SR 407	I-95	4.79	106	0.30	0.47
	SR 520					
6	SR 528	Nova Road	6.29	95	0.42	0.78
7	Nova Road	SR 524	5.98	82	0.38	0.78
8	SR 524	I-95	1.94	151	1.74	3.92
	SR 524					
9	SR 520	I-95	1.65	80	4.52	4.06
	Nova Road					
10	US 192	Eden Drive	3.34	36	1.44	4.06
11	Eden Drive	Deer Park Road	16.01	42	0.93	0.82
12	Deer Park Road	SR 520	7.18	21	1.34	0.82
	I-95					
13	US 192	SR 518	2.91	299	0.67	0.98
14	SR 518	Pineda Causeway Ext.	4.94	413	0.49	0.98
15	Pineda Causeway Ext.	N Wickham Road	2.67	235	0.56	0.98
16	N Wickham Road	Viera Boulevard	2.60	105	0.26	0.98
17	Viera Boulevard	SR 519	2.08	155	0.47	0.98
18	SR 519	SR 520	5.65	394	0.45	0.98
19	SR 520	SR 524	1.13	87	0.81	0.98
	Deer Park Road					
20	US 192	Nova Road	13.15	13	1.81	0.82

Within the study area, 4 of the 20 study segments experienced a higher crash rate than the statewide average for similar facilities in 2018:

- SR 524 from SR 520 to I-95
- Nova Road from Eden Drive to Deer Park Road
- Nova Road from Deer Park Road to SR 520
- Deer Park Road from US 192 to Nova Road

The remaining 16 segments have a lower crash rate than statewide averages. All study segments located along tolled expressway (SR 528) or other limited-access (I-95) facilities experienced five-year crash rates lower than 2018 statewide averages.

Of the four study segments that experienced higher average crash rates, all were two-lane, undivided roadways with AADTs ranging between 300 vehicles per day (VPD) to 5,900 VPD. The study segment of SR 524 is in an urban area, while the study segments of Nova Road and Deer Park Road with higher crash rates are in rural areas.

SR 524 from SR 520 to I-95

The section of SR 524 from SR 520 to I-95 experienced a five-year crash rate of 4.52 crashes per million VMT, while the 2018 statewide average for urban, undivided 2/3-lane roadways was 4.06 crashes per million VMT. A total of 80 crashes occurred between 2014 and 2018 along the 1.65-mile urban minor arterial, including 4 fatal crashes, resulting in four fatalities, and 44 injury crashes, resulting in 72 injuries. Overall, crashes were most concentrated along the segment of SR 524 from Precious Boulevard to the I-95 interchange (70 percent).

Nearly 73 percent of the crashes were intersection-related, with crash concentrations at the intersections of SR 524 at Adamson Road (17 crashes), at Friday Road (10 crashes), and at the I-95 interchange (38 crashes). The predominant crash types along the study section of SR 524 were left-turn crashes (34 percent), run-off-the-road (ROTR) crashes (14 percent), and angle crashes (11 percent). Left-turn crashes were most concentrated at the two interchange nodes, which were converted from unsignalized to signalized in the late portion of the five-year analysis timeframe, while angle crashes were most concentrated at the interchange nodes as well as at the intersection of SR 524 at Friday Road. Similar to overall crashes along the study section, ROTR crashes were most concentrated along the segment of SR 524 from Precious Boulevard to the I-95 interchange.

Nova Road from Eden Drive to Deer Park Road

The section of Nova Road from Eden Drive to Deer Park Road experienced a five-year crash rate of 0.93 crashes per million VMT, while the 2018 statewide average for rural, undivided 2/3-lane roadways was 0.82 crashes per million VMT. A total of 42 crashes occurred between 2014 and 2018 along the 16.01-mile rural minor arterial, including no fatal crashes and 19 injury crashes, resulting in 25 injuries. Crashes were primarily single-vehicle crashes (81 percent), and only three crashes (7 percent) were intersection related.

The predominant crash types along the section of Nova Road from Eden Drive to Deer Park Road were hit animal crashes (31 percent), ROTR crashes (19 percent), and overturned crashes (19 percent). An additional 17 percent of crashes were coded as “other” or “unknown.” No location trends were observed across the ROTR and overturned crashes.

Nova Road from Deer Park Road to SR 520

The section of Nova Road from Deer Park Road to SR 520 experienced a five-year crash rate of 1.34 crashes per million VMT, while the 2018 statewide average for rural, undivided 2/3-lane roadways was 0.82 crashes per million VMT. A total of 21 crashes occurred between 2014 and 2018 along the 7.18-mile rural minor arterial, including no fatal crashes and 11 injury crashes, resulting in 21 injuries. While crash rates are used as a comparison tool since they take length and daily volumes into consideration, the crash rate along this study section is partially due to the low daily volumes along the segment (1,200 VPD). Overall crash frequency along the segment is low (approximately 4.2 crashes per year and fewer than 3 crashes per mile).

Over 71 percent of the crashes were single-vehicle crashes, and the predominant crash types were ROTR crashes (24 percent), overturned crashes (24 percent), and hit animal crashes (24 percent). Only one crash was intersection related, though a small cluster of crashes occurred within 0.5 mile of the intersection of Nova Road at Maplehead Road (7 crashes). Another small cluster of crashes occurred along the horizontal curve north of the Orange County/Osceola County line (4 crashes).

Deer Park Road from US 192 to Nova Road

The section of Deer Park Road from US 192 to Nova Road experienced a five-year crash rate of 1.81 crashes per million VMT, while the 2018 statewide average for rural, undivided 2/3-lane roadways was 0.82 crashes per million VMT. A total of 13 crashes occurred between 2014 and 2018 along the 13.15-mile rural major collector, including 1 fatal crash, resulting in one fatality, and 7 injury crashes, resulting in 10 injuries. While crash rates are used as a comparison tool since they take length and daily volumes into consideration, the crash rate along this study section is higher because of the very low daily volumes along the segment (300 VPD). Overall crash frequency along the segment is low (approximately 2.6 crashes per year and fewer than 1 crash per mile).

The predominant crash type along the section of Deer Park Road from US 192 to Nova Road was a hit animal crash (5 crashes). Four additional single-vehicle crashes were reported over the five-year history, including two ROTR crashes and two crashes coded as "other."

Aside from the intersection-related crashes along the study segment of SR 524, the primary area of concern in the study area is single-vehicle crashes along rural, two-lane roadways. If developed, an Osceola/Brevard County Connectors (OBCC) corridor could enhance mobility by providing a limited-access connection to I-95, which should divert traffic from the rural, two-lane roadways in the study area that are experiencing higher-than-average crash rates. Limited-access facilities are required to meet the highest design standards and typically experience lower crash rates than other facilities, which is illustrated by the existing five-year crash rates along the study segments of SR 528 and I-95.

4.4 TRAVEL DEMAND MODELING

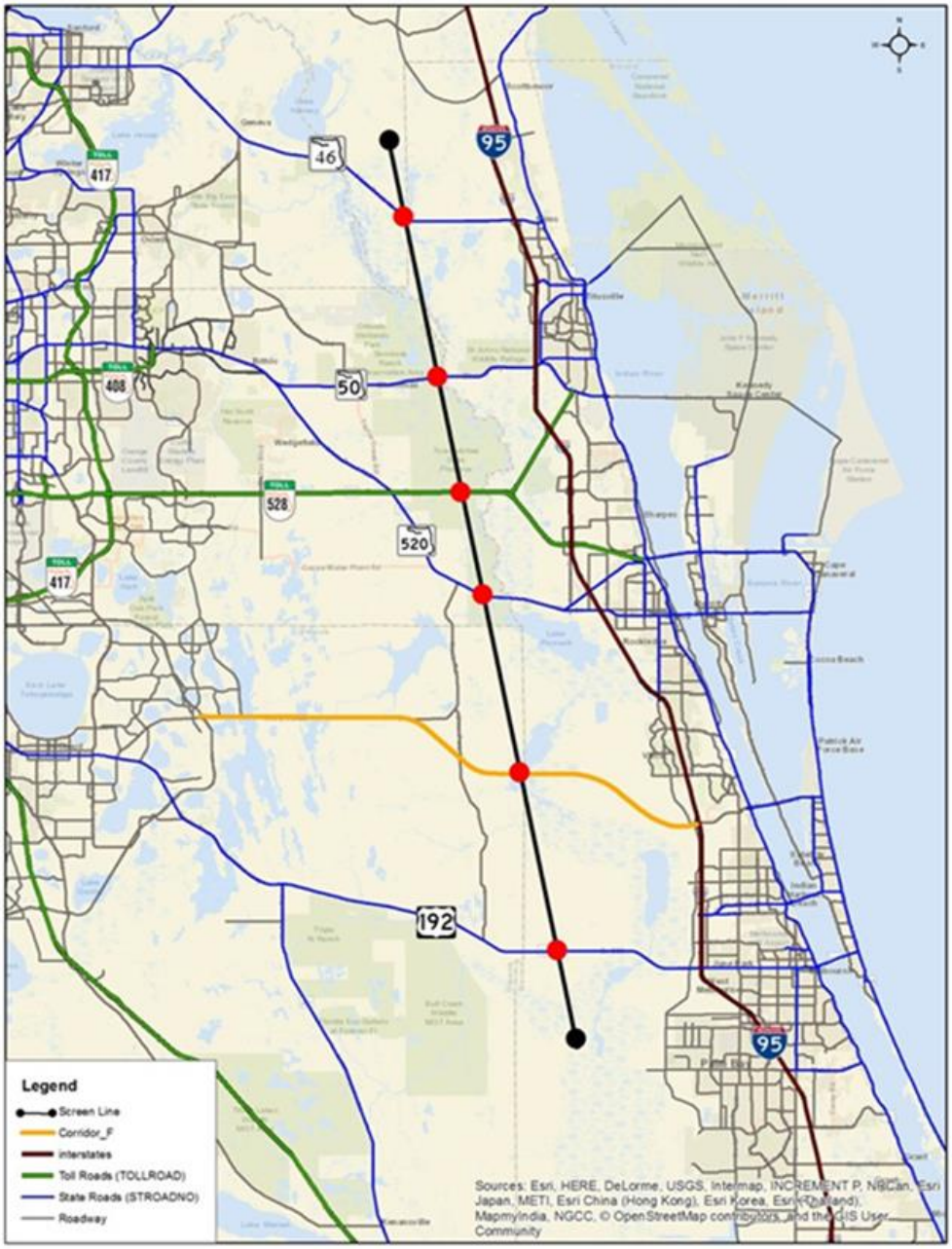
The traffic forecasts used to analyze the Osceola/Brevard County Connectors (OBCC) project for the Concept, Feasibility, & Mobility (CF&M) Study are based on an updated and improved travel demand model created specifically for the Osceola County Expressway (OCX) Master Plan Projects. The new project-specific model was used to estimate the expected traffic based on input data such as socioeconomic data (i.e., land use, population, employment) and transportation network data (e.g., number of lanes, facility types, trip rates). The primary forecasting tool used over the last 30 years in Florida has been the Florida Standard Urban Transportation Model Structure (FSUTMS), using the Cube Voyager operating system. Within the FSUTMS, toll modeling originated by establishing specific toll amounts for appropriate network links and a coefficient to convert tolls to travel time impedance, based on the value of travel time savings.

CDM Smith, the Central Florida Expressway Authority (CFX) General Traffic and Earnings Consultant, had developed a daily model for the Central Florida region due to expansion of the CFX jurisdictional area and the need to study the OCX Master Plan projects in this expanded area. This model, the CFX Model 3.0, is based on the Central Florida Regional Planning Model (CFRPM) version 6.1, in Cube Voyager, because of the larger study area and updated socioeconomic data sets. The development of this model was documented under separate cover for the CF&M Final Reports for each of the four OCX projects. A project specific model was developed from CFX Model 3.0 to evaluate the SR 534 project. For the evaluation of the OBCC project, the project-specific model that was used to analyze OPE was the starting point. The following documents the model assumptions made for the OPE model and additional changes for the OBCC project specific model. Please refer to **Appendix D** for additional clarification on the development of the traffic demand model.

4.4.1 BASE YEAR MODEL (2015)

For this model, an important measure of success in base year validation is the volume of traffic crossing a screenline, or cut line, within the study area. The critical screenline for the study area is the St. Johns River screenline that runs north-south through the study area between Seminole, Orange, Osceola, and Brevard Counties. Five east-west running highways cross this screenline: SR 46, SR 50, SR 528, SR 520, and US 192. The screenline and a representative OBCC corridor are shown on **Exhibit 4-1**.

Exhibit 4-1: Screenline for OBCC Project



The initial base year model did not replicate 2015 traffic counts along the screenline, so several changes to the model were tested including network changes (speed/capacity checks on I-95, SR 520, US 192, and SR 528), global K-factor adjustments, and select link analysis (SLA) K-factor adjustments for specific corridors. The base year (2015) screenline results with the different model changes are shown in **Table 4-4**. This table contains a summary of 2015/2016 traffic counts, the original 2015 base year model volumes, and the 2015 model-predicted traffic volumes for each of the facilities at the St. Johns River crossing location with the different model tests. The base year K-factor adjustment of 3.5 on select links was selected as the best representative base year model for this study analysis.

Table 4-4: Screenline Counts and Forecasts

	Counts (2015/ 2016)	Original Base 2015	Base 2015 (with I-95 Capacity change)	Base 2015 (K Factor Change 0.5)	Base 2015 (K Factor Change 2)	Base 2015 (K Factor Change 4 SLA)	Base 2015 (K Factor Change 4 SLA)	Base 2015 (K Factor Change 3 SLA)	Base 2015 (K Factor Change 3.5 SLA)
Corridor F / D	0	-	-	-	-	-	-	-	-
SR 46	7,100	9,800	9,800	10,000	10,400	10,200	10,100	10,000	10,000
SR 50	10,300	9,500	9,400	6,100	14,400	9,400	8,200	8,200	8,100
SR 528	42,600	32,000	33,400	22,400	53,700	68,600	60,200	57,100	58,800
SR 520	16,400	400	400	300	600	1,600	10,600	4,700	8,700
SR 192/Space Coast	8,100	8,500	6,900	4,600	4,200	4,000	5,400	7,900	7,800
Total Screenline	**84,500**	**60,200**	**59,900**	**43,400**	**83,300**	**93,800**	**94,500**	**87,900**	**93,400**

4.4.2 CFX 3.0 FUTURE YEAR MODEL (2045/2060)

The CF&M study is considering the OBCC as a future corridor with a design year of 2060, since it is not anticipated that the Northeast District will be fully developed in that timeframe, and the North Ranch Sector Plan will not start development until 2060. Even though the OBCC project is anticipated outside the 2045 horizon year, the 2045 model was used because it is the best available model for planning purposes. By starting with the OPE project-specific model, the 2045 future year model retains all the updates and enhancements created for the CFX Model 3.0 and OPE Future Year Models. To create a 2060 model, several features of the 2045 model were modified to replicate a 2060 condition. These include zone disaggregation and additional roadway network in the North Ranch area, as well as additional socioeconomic (SE) data in the North Ranch area and adjustments to the SE data in Brevard County. These changes are described in the following sections.

4.4.3 ZONAL STRUCTURE

Given that the study area is currently rural in nature, specifically the North Ranch Sector Plan area, the traffic analysis zones (TAZ) were rather large. Disaggregation was needed for the OBCC model to accommodate the project alignments and supporting road network. As part of the study, 148 zones were added to the OPE Model to incorporate the SE data and local roadway network proposed in the North Ranch Sector Plan. The zone disaggregation allows for the SE data to be distributed in multiple zones and distribution of traffic on the network. No additional zone disaggregation was needed for the OBCC project.

4.4.4 SOCIOECONOMIC DATA

The model wide socioeconomic data forecast for 2045 was based on the CFX Model 3.0 which included the independent socioeconomic data forecast for Orange and Osceola Counties developed by Fishkind & Associates for the OCX Master Plan projects.

Additional development was added to the 2045 data set to address potential population and employment in the study area anticipated in 2060. This approach included two additions to the data set for the North Ranch Sector Plan in Osceola County and the potential development along the St. Johns Heritage Parkway Corridor in Brevard County. For the North Ranch Sector Plan, approximately 20 percent of the SE data provided by representatives from the North Ranch was incorporated into the model as the OBCC alternatives are expected to serve this future development. The North Ranch Sector Plan is a very large development, with an expected build out of nearly 500,000 population.

The planned St. Johns Heritage Parkway is a 22-mile arterial road around the western boundary of the City of Palm Bay, providing needed access to platted lands in this area. The St. Johns Heritage Parkway will connect to I-95 at a new interchange 15 miles south of US 192 and the new I-95/Ellis Road interchange on the north. A portion of the St. Johns Heritage Parkway is constructed from US 192 to Malabar Road, approximately 6 miles, as well as the I-95 interchange with another 1.5-mile portion. The 14-mile gap in the St. Johns Heritage Parkway is currently under an Alternatives Corridor Evaluation study to be completed in Spring of 2022. The changes to the SE data set for this area were based on the environmentally protected lands and the platted lots in the City of Palm Bay. The data changes assumed an average of densities and intensities for this area of Brevard County from the existing SE data set. These densities averaged 2 dwelling units/acre and 2 persons per household for ZDATA1, and the intensities averaged a Floor Area Ratio of 15 percent and 1 employee per 1,000 sq feet for ZDATA 2. The increase in 2060 population, dwelling units, and employment for both the North Ranch Sector Plan and the Brevard County/St. Johns Heritage Parkway area are shown in **Table 4-5**. A total of 28,246 dwelling units were added for the North Ranch and 25,087 were added for the Brevard County/St. Johns Heritage Parkway area, equaling a population of 67,700 and 62,544, respectively. The employment adjustments for the North Ranch equaled 24,306 employees and for the Brevard County/St. Johns Heritage Parkway area equaled 3,372 employees.

Table 4-5: SE Data Adjustment to Model for 2060

Regional SE Data Set	Total 2060 Population	Total 2060 Dwelling Units	Total 2060 Employment
CFX 3.0 Model	7,296,879	3,290,319	3,759,610
Increases for 20% of North Ranch Sector Plan	67,700	28,246	24,306
Increases for Brevard County/St. Johns Heritage Parkway Changes	62,544	25,087	3,372
CFX 3.0 Model with additional SE data	**7,427,123**	**3,343,652**	**3,787,288**

The distribution of the SE data set from the North Ranch Sector Plan is consistent with the Year 2060 SE data sets from the sector plan model. As stated above, 20 percent of the SE data for Osceola County was included in the North Ranch study area for the OBCC analysis. The distribution of the North Ranch and Brevard County population is shown on **Exhibit 4-2** and the distribution of employment is shown on **Exhibit 4-3**. The red dots represent the 2045 SE data set from the CFX 3.0/OPE model, and the blue dots represent the added SE data to represent 2060 conditions in the study area.

Exhibit 4-2: Distribution of SE data for Population in the North Ranch and Brevard Study Areas

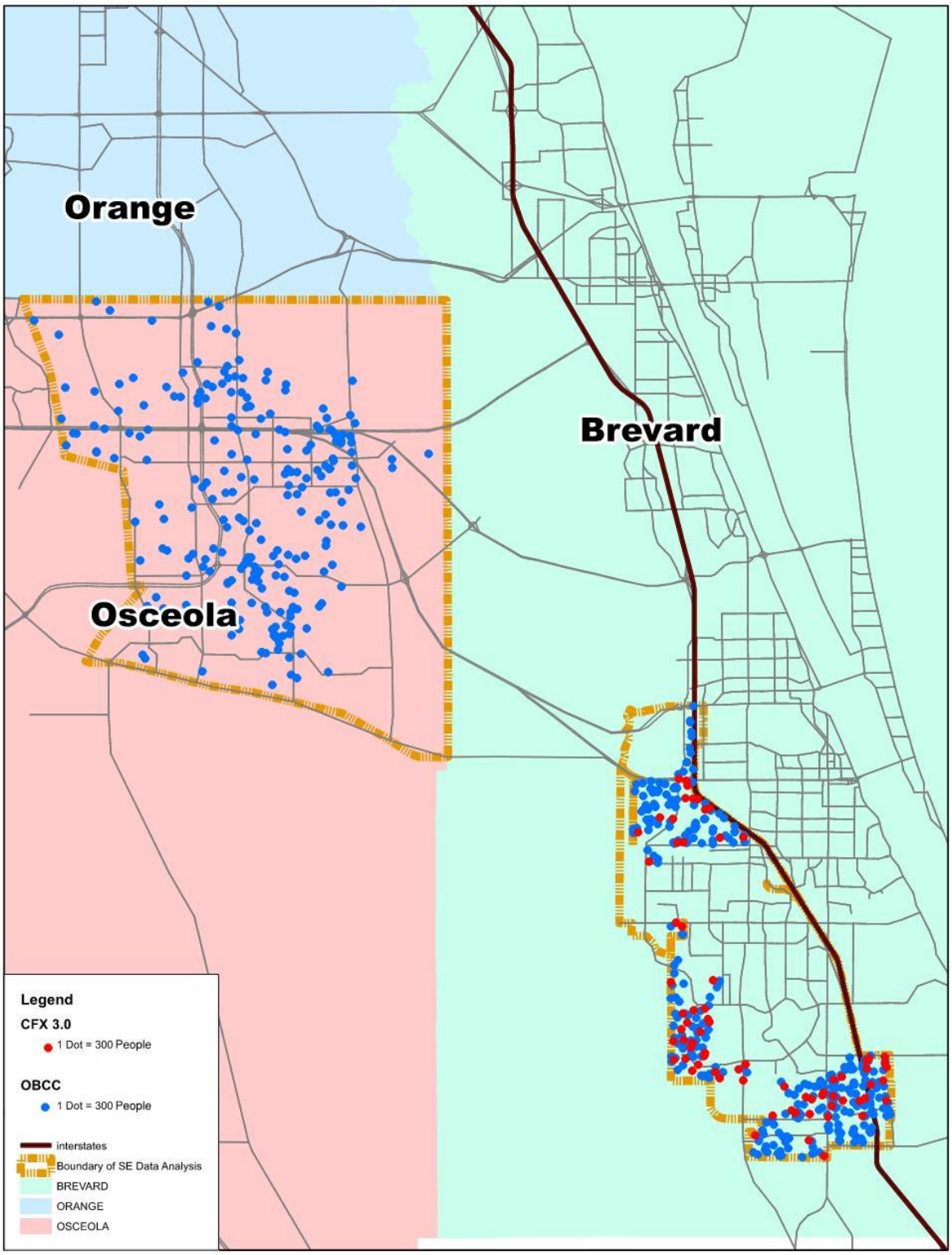
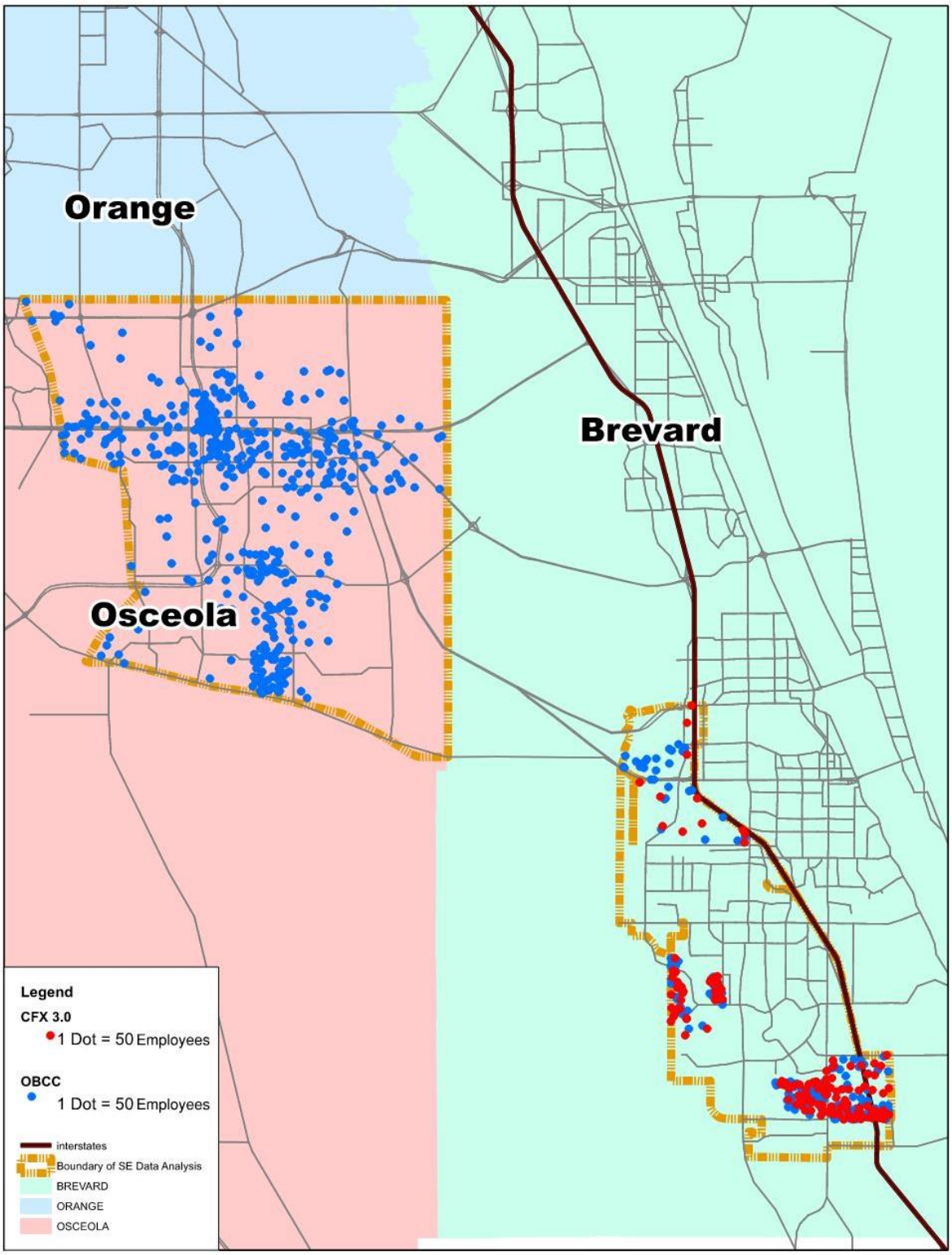


Exhibit 4-3: Distribution of SE data for Employment in the North Ranch and Brevard Study Areas



4.4.5 HIGHWAY NETWORK – DESIGN NETWORK (2045/2060)

The 2045 future year network for the CFX Model contained the transportation improvements identified in the CFX, FDOT, and county work programs, as well as the improvements included in the CFX 2040 Master Plan and the 2040 cost feasible plans from the Metroplan Orlando and Space Coast TPO's. Since the transportation plans do not extend to 2060, these plans we used to create a future 2060 network. The major planned transportation improvements from these plans are listed below:

- SR 528 Widening from SR 436 to Innovation Way: 6 to 8 lanes
- SR 528 Widening from Innovation Way to SR 520: 4 to 6 lanes
- Poinciana Parkway from Cypress Parkway to Ronald Reagan Parkway: widen 2 to 4 lanes
- Poinciana Parkway Extension from Ronald Reagan Parkway to CR 532: new 4-lane expressway
- Poinciana Parkway Extension from CR 532 to I-4: new 4-lane expressway
- Southport Connector Expressway from Poinciana Parkway to Florida's Turnpike: new 4-lane Expressway
- Northeast Connector Expressway from Florida's Turnpike to US 192: new 4-lane expressway
- Northeast Connector Expressway from SR 417 to Nova Road: new 4-lane expressway
- Corridor I from US 192 to SR 520: new 4-lane expressway
- Network Streets in North Ranch Sector Planning Area
- St. Johns Heritage Parkway from US 192 to I-95
- SR 524 Widening from I-95 Interchange to South Industry Road: 2 to 4 lanes
- Washingtonia Extension from Ellis Road to Pineda Causeway: new 4-lane road parallel and west of I-95
- Malabar Road Widening from St. Johns Heritage Parkway to Minton Road: 2 to 4 lanes
- Babcock Street Widening from St. Johns Heritage Parkway to Malabar Road: 2 to 4 lanes
- US 1 from Pineda Causeway to Park Avenue: widen to 6 lanes and intersection improvements at Pineda (SR 404)
- US 1 Widening from Malabar Road to RJ Conlan Boulevard: 4 to 6 lanes
- St. Johns Heritage Parkway from Babcock Street to I-95 Interchange (South): new 4 lane road parallel and west of I-95
- Babcock Street Widening from Indian River County Line to St. Johns Heritage Parkway: 2 to 4 lanes
- US 192 Widening from St. Johns Heritage Parkway to Wickham Road: 4 to 6 lanes
- US 192 Widening from Wickham Road to Dairy Road: 4 to 6 lanes
- SR 405 (South Street) Widening from existing 4 lane section to SR 50: 2 to 4 lanes

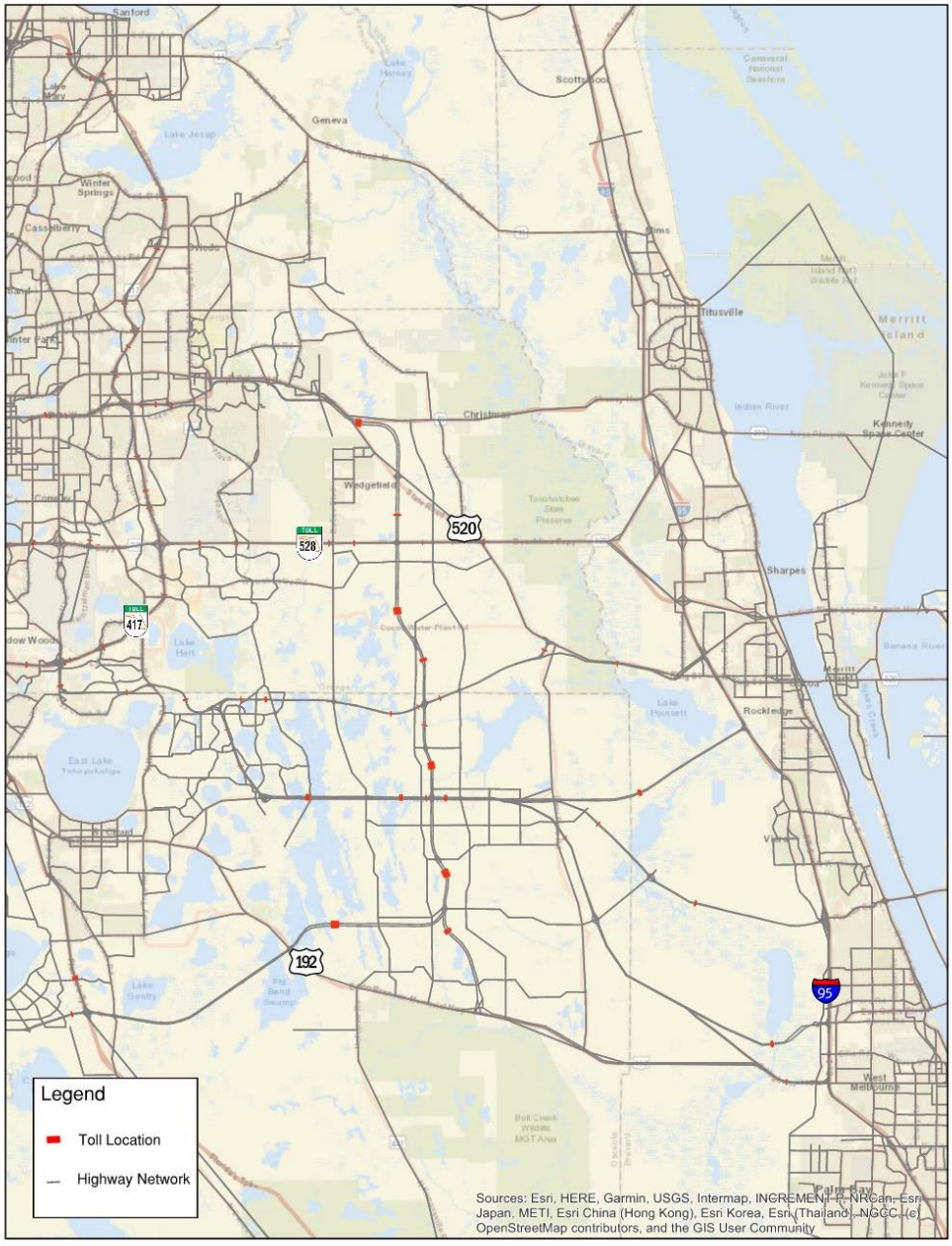
The traffic forecasts used for design traffic are developed so that the projects will be adequately sized to serve customers through their useful life. As such, the design network was developed to constrain the potential competitor facilities so future local road improvements in Osceola County were limited to the 2025 LRTP network. In addition, a few additional improvements were removed for the design network, including:

- Boggy Creek Road from Simpson Road to Narcoossee Road: 2 to 4 lanes
- Cyrils Road from Narcoossee Road to Absher Road: 2 to 4 lanes
- Simpson Road from Osceola Parkway to Boggy Creek Road: 2 to 4 lanes

- Lakeshore Boulevard from Boggy Creek Road to Narcoossee Road: 2 to 4 lanes
- US 192 from Partin Settlement to Brown Chapel Road: 4 to 6 lanes
- Narcoossee Road from Boggy Creek Road to US 192: 4 to 6 lanes
- Lake Wilson Road from Sinclair Road to Osceola Polk Line Road (CR 532): 2 to 4 lanes

To ensure proper loading and distribution of trips on the OBCC study alternatives, additional collector roads from the Northeast District Sector Plan and North Sector Plan Area were added to the travel demand model 2045 to replicate a 2060 network. The highway network for the OBCC study area is shown on **Exhibit 4-4**.

Exhibit 4-4: Future Design Network



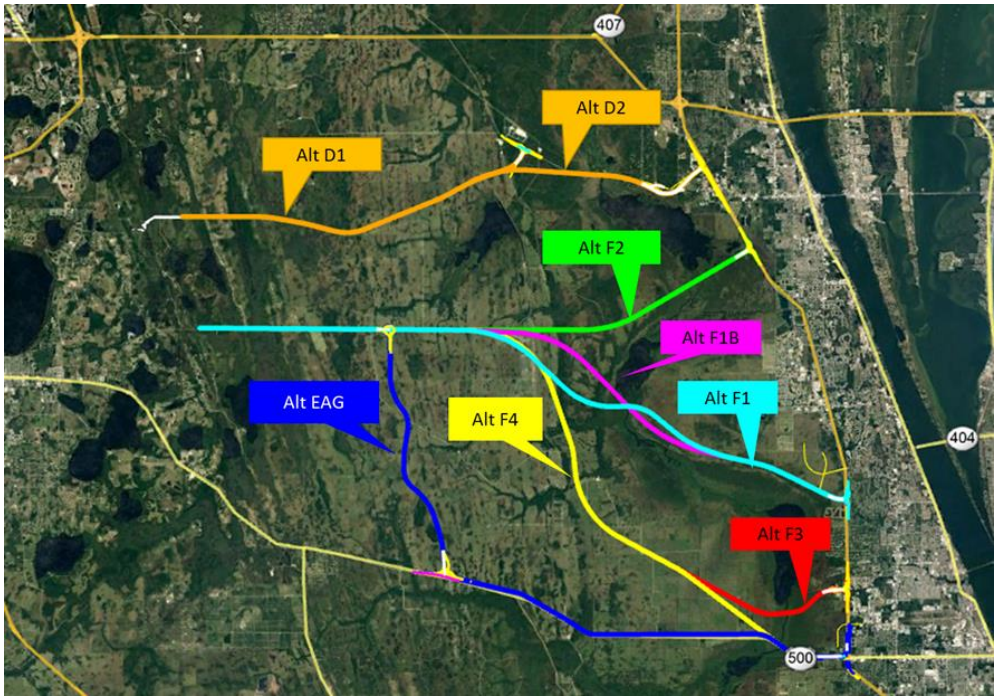
4.4.6 TOLL RATES

Future year toll rates in the project model reflect current toll amounts and agency policies concerning future toll rate adjustments. For the OBCC alternatives, the toll rate was set at $0.18 per mile in 2018 dollars consistent with the toll rate established for all projects under CF&M studies. Toll rates were escalated at 1.5 percent per year according to CFX's Customer First Toll Policy. Tolls were applied to each alternative on a per segment basis with one assumed gantry location between each access point or interchange. These projects will be operated as all-electronic facilities.

4.4.7 FUTURE YEAR DAILY TRAFFIC

The future year daily traffic was run for each alternative including No-Build, Alternatives D1, D2, F1/F1b, F2, F3, F4, and the EAG Alternative. The project alternatives are shown on **Exhibit 4-5**.

Exhibit 4-5: Project Alternatives



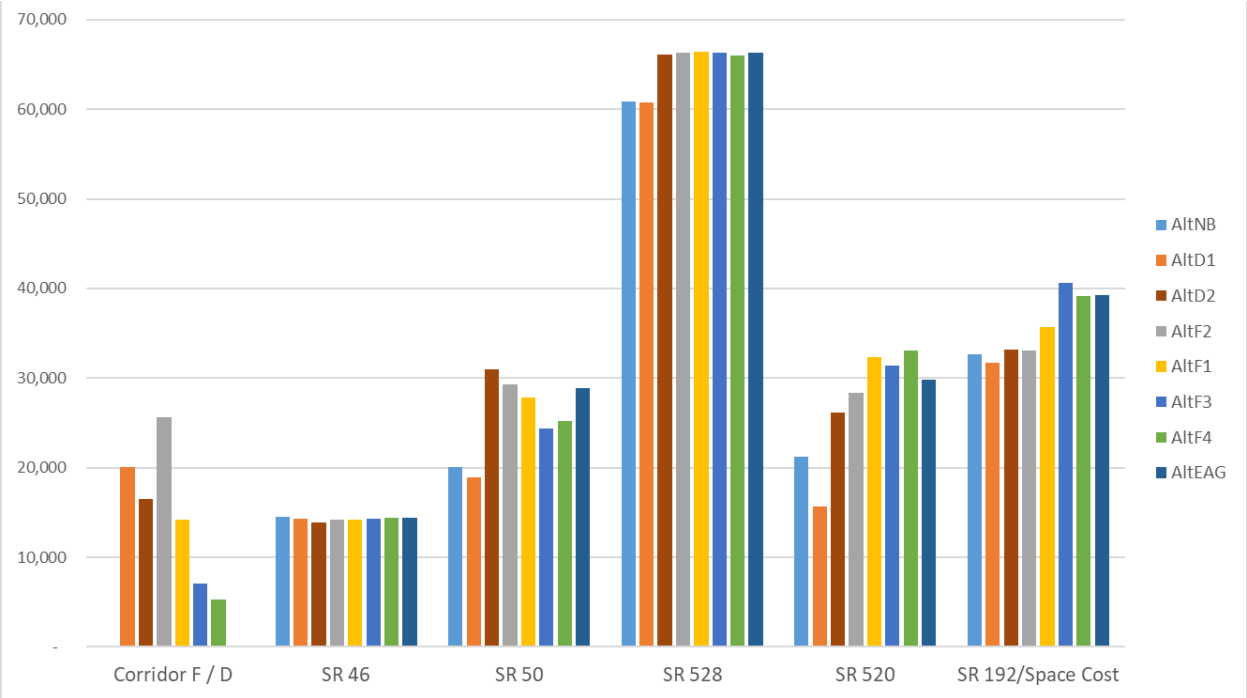
Using the screenline analysis, the alternative results can be compared against the base year and the No-Build and checked for reasonableness. The results of the future year (2060) alternatives with the Base year and No-Build results are shown in **Table 4-6**.

Table 4-6: Future Year (2045/2060) Daily Volumes for the St. Johns River Screenline

Corridor	Counts 2015/2016	No Build	Alt. D1	Alt. D2	Alt. F1/F1b	Alt. F2	Alt. F3	Alt. F4	EAG Alt
Corridor F / D			20,100	16,500	14,200	25,600	7,100	5,300	
SR 46	7,100	14,500	14,300	13,900	14,200	14,200	14,300	14,400	14,400
SR 50	10,300	20,100	18,900	31,000	27,800	29,300	24,400	25,200	28,900
SR 528	42,600	60,900	60,800	66,100	66,400	66,300	66,300	66,000	66,300
SR 520	16,400	21,200	15,700	26,100	32,300	28,400	31,400	33,100	29,800
SR 192/Space Cost	8,100	32,600	31,700	33,200	35,700	33,100	40,600	39,100	39,300
Screenline Total	**84,500**	**149,300**	**161,500**	**186,800**	**190,600**	**196,900**	**184,100**	**183,100**	**178,700**

A full model run was completed for each alternative corridor as the origin and terminus locations of each corridor are geographically different and cause different trip patterns. The total volume crossing the St. Johns River varies slightly. The traffic distribution along the screenline is consistent between the No-Build and the Build Scenarios, as shown on **Exhibit 4-6**. Most of the traffic diversion to Corridor D1 and D2 are from SR 520 and SR 528. There is little diversion from SR 46 in any of the alternatives, and little diversion from SR 528 in the F Corridor alternatives. The results also show that with the F Alternatives, more traffic is attracted from US 192 and SR 520 because these are non-toll options with capacity parallel to the tolled expressway. The EAG alternative has very little volume (demand) as it mainly runs parallel to non-toll routes including US 192 and North Ranch arterials.

Exhibit 4-6: Future Year (2045/2060) Screenline for OBCC Alternative



5.0 DESIGN CRITERIA

5.1 ROADWAY DESIGN STANDARDS

The design criteria described in **Table 5-1** was used in the development of alternatives.

Table 5-1: Roadway Design Standards

Design Element	Design Standard	Source
Design Year	2045	- Scope of Services
Design Vehicle	WB-62FL/WB-67	AASHTO 2004, Pg. 18 FDM Part 2, Sect. 201.5
Design Speed		
Limited-Access Facilities		
Rural & Urban	70 mph	FDM Part 2, Tbl. 201.4.1
Urbanized	50-70 mph	
Arterials and Collectors		
C1 Natural	55-70 mph	
C2 Rural	55-70 mph	
C2T Rural Town	25-45 mph	
C3 Suburban	35-55 mph	
C4 Urban General	30-45 mph	
C5 Urban Center	25-35 mph	
C6 Urban Core	25-30 mph	
Ramps		FDM Part 2, Sect. 201.4.1.1
Directional	50 mph	
Loop	30 mph	
Lane Widths		
Freeway	12-ft	FDM Part 2, Sect. 211.2
Ramp		FDM Part 2, Sect. 211.2.1
1-lane	15-ft	
2-lane	24-ft	
Turning Roadway	Case dependent	FDM Part 2, Tbl 211.2.1
Arterial	10-12-ft	FDM Part 2, Tbl. 210.2.1
Collector/Service Road	10-12-ft	
Bicycle		
Rural/Urban	7-ft	FDM Part 2, Sect. 223.2.1.1
Cross Slope (lanes 1-way)		
Roadway		FDM Part 2, Fig. 210.2.1, 211.2.1
2-lane (2)	-0.02 ft/ft (2)	
3-lane (3)	-0.02 ft/ft (2), -0.03 ft/ft (1)	
4-lane (4)	+0.02 ft/ft (2)(1), -0.02 ft/ft (2), -0.03 (2)(1)	
4-lane (4) – DS = ≥65 mph	-0.02 ft/ft (2), -0.03 (2)	
Bridge Section	-0.02 (typical, uniform, no slope break, straight-line rate)	FDM Part 2 Sect. 210.2.4, 211.2.2
Max. Lane "Roll-over"	4.0%	FDM Part 2, Fig. 210.2.1, 211.2.1
DS ≥ 35 mph	5.0% (between through lane & aux. lane)	FDM Part 2, Tbl. 210.2.2, 211.2.2
DS < 35 mph	6.0% (between through lane & aux. lane)	
Median Width		FDM Part 2, Tbl. 210.3.1, 211.3.1
Freeway		
DS ≥ 60 mph	60 to (64-ft*)	
DS < 60 mph	40-ft	
All, with barrier	26-ft (with barrier)	
Arterial & Collector		
DS ≥ 45 mph ≥ 50 mph	22-ft, 30- 40-ft	
DS < 45 mph <50 mph	40-ft , 15.5-22-ft	

Table 5-1 (continued): Roadway Design Standards

Design Element	Design Standard				Source
	Total (ft)		Paved (ft)		
Shoulder Width (lanes 1-way)	Outside	Left	Outside	Left	FDM Part 2, Tbl. 210.4.1, 211.4.1
Freeway					Fig 211.4.1, 211.4.2, 210.4.2, 210.4.3
3-lane or more	12	12	10	10	
2-lane	12	8	10	4	
Ramp					
1-lane	6	6	4	2	
2-lane	10	8	8	4	
Aux. Lane	12	8	10	4	
Arterial & Collector (Norm. volume)					
2-lane divided	10	8	5	0	
2-lane undivided	10	8	5	0	
Service Road, 2-Lane, 2-Way, Undivided	10	10	5	5	
Shoulder Cross Slope	0.06	0.05	-	-	FDM Part 2, Sect. 210.4.1, 211.4.2
Max. Shoulder "Roll-over"	7.0%	7.0%	-	-	Fig 210.4.2, 211.4.1
Bridge section (lanes 1-way)					FDM Part 2, 260.3, Fig 260.1.1, 260.1.2
2-lane	10	6	-	-	
3-lane or more	10	10	-	-	
1-lane ramp	6	6	-	-	
2-lane ramp	10	6	-	-	
Service Road, 2-Lane, 2-Way, Undivided	10	10	-	-	
Border Width					FDM Part 2, Sect. 211.6
Freeway	94-ft, (94-ft desirable)				*- (CFX Policy)*
Ramp					
DS = 60 mph Urban	94-ft, (L.O.C. plus 10-ft as minimum)				
Arterial/Collector					
DS = 45 mph ≥50	40-ft (if ≥50)				
DS = 45 mph 40	33-ft				
Arterial/Collector (Curb & Gutter)					FDM Part 2, Sect 210.7, Tbl 210.7.1
C1 Natural	35-ft				
C2 Rural	35-ft				
C2T Rural Town	12-ft				
C3 Suburban	12-ft				
C4 Urban General	12-ft				
C5 Urban Center	12-ft				
C6 Urban Core	14-ft				
	Fill Height (ft)		Rat		
Roadside Slopes					FDM Part 2, Tbl. 215.2.3
Front Slope	0.0-5		1:6		
	5-10		1:6 to CZ & 1:4		
	10-20		1:6 to CZ & 1:3		
	>20		1:2 with guardrail		
			(Use 10-ft bench at half the height of fill)		*- (CFX Policy)* *Use 1:3 slopes, avoid 1:2 slopes except where as necessary*
Front slope (curb & gutter)	All		1:2 not flatter than 1:6		
Back slope	All		1:4 or 1:3 w/ standard width trap ditch & 1:6 front slope		
Back slope (curb & gutter)			1:2 not flatter than 1:6		
Transverse slope	All		1:10 or flatter (freeway/interstate)		
Transverse slope (curb and gutter)	All		1:4		

Table 5-1 (continued): Roadway Design Standards

Design Element	Design Standard		Source
	Max. Grade	Max Change in	
Max. Grade / Max. Change in Grade		(70 mph/60 mph)	FDM Part 2, Tbl. 210.10.1, 210.10.2, 211.9.1
Freeway (Rural/Urban)	3.0%	0.20% / 0.40%	
Ramp			
Directional	5.0%	0.60%	
Loop	7.0%	1.00%	
Arterial			
C1 Natural	4.0%	0.50%	
C2 Rural	4.0%	0.50%	
C2T Rural Town	8.0%	1.00%	
C3 Suburban	7.0%	0.90%	
C4 Urban General	8.0%	1.00%	
C5 Urban Center	8.0%	1.00%	
C6 Urban Core	8.0%	1.00%	
Min. Grade Curb & Gutter	0.3%	-	FDM Part 2, Sect. 210.10.1.1
	Dsgn. Speed (mph)	Distance (ft)	
Minimum Stopping Sight Distance	70	730	FDM 210.11.1
(Grades 2.0%)	60	570	
	55	495	
	50	425	
	45	360	
	30	200	
	Dsgn. Speed (mph)	Distance (ft)	
Decision Sight Distance	70	780-1445	-AASHTO Exh. 3-3
(Per avoidance maneuver)	60	610-1280	
	55	535-1135	
	50	465-1030	
	45	395-930	
	30	220-620	
Horizontal Curve Length	V = Design Speed		FDM Part 2, Tbl 211.7.1
Freeway	30V (desirable)		
Others	15V (min.)		
Max. Curvature (Degree of Curve)			FDM Part 2, Tbl 210.9.1, 210.9.2
Freeway			
DS = 70 mph Rural	3° 30’ 00”		
DS = 60 mph Urban	5° 15’ 00”		
Arterial			
DS = 55 mph Rural	6° 30’ 00”		
DS = 45 mph Urban	8° 15’ 00”		
Collector			
DS = 45 mph Frontage Road	8° 15’ 00”		
DS = 50 mph Service Road	8° 15’ 00”		
Ramp			
DS = 50 mph Directional	8° 15’ 00”		
DS = 30 mph Loop	24° 45’ 00”		

Table 5-1 (continued): Roadway Design Standards

Design Element	Design Standard	Source
Superelevation Transition		
Tangent	80% (50% min.)	FDM Part 2, Sect. 210.9
Curve	20% (50% min.)	- *(CFX Policy)*
Spirals	*(Curves <1°30' 00" do not use spirals)*	
Superelevation Transition Rates		FDM Part 2, Tbl. 210.9.3
$e_{max} = 0.10$		
2-lane	1:200 (45-50 mph) 1:225 (55-60 mph) 1:250 (65-70 mph)	- Design Standards Ind. No. 510, 511 - AASHTO Exh. 3-28
3-lane	1:150 (45-50 mph) 1:170 (55-60 mph) 1:190 (65-70 mph)	
4-lane or more	1:100 (25-35 mph) 1:125 (40 mph) 1:150 (45 mph)	
$e_{max} = 0.05$ (all lanes)		

Vertical Curves	Dsgn. Speed (mph)	K-value Crest	K-value Sag	Source
Length , L = KA	70	401	181	FDM Part 2, Tbl 211.9.2 - AASHTO Exh. 3-72 (crest), 3-75 (sag) - *CFX Policy* *Note: FDOT K-values for "ALL OTHER FACILITIES" are desirable*
Mainline	60	245	136	
	55	185	115	
	50	136	96	
	45	98 N/A	79 N/A	
	30	31 N/A	37 N/A	
Ramps	70	401	181	
	60	245	136	
	50	136	96	
	45	98	79	
	30	31	37	

Minimum Lengths	Crest	Sag		Source
Freeway				FDM Part 2, Tbl 211.9.3
DS = 70 mph Rural	1000-ft	800-ft	*Crest = 1800-ft within	
DS = 60 mph Urban	1000-ft	800-ft	interchange	
Arterial				
DS = 55 mph Rural	350-ft	250-ft		
DS = 45 mph Urban	135-ft	135-ft		
Collector				
DS = 45 mph Frontage Road	135-ft	135-ft		
DS = 50 mph Service Road	300-ft	200-ft		
Ramp				
DS = 50 mph Directional	300-ft	200-ft		
DS = 30 mph Loop	90-ft	90-ft		

Lane Drop Taper		
	L = WS (DS = 45 mph)	- Design Standards Ind. No. 525, 526
	$L = WS^2/60$ (DS ≤ 40 mph)	
	50:1 min, 70:1 desirable (freeways)	- AASHTO Pg. 818

Table 5-1 (continued): Roadway Design Standards

Design Element	Design Standard		Source
Clear Zone	Travel Lanes	Auxiliary Lanes	
Freeway DS = 70 mph Rural DS = 60 mph Urban	36-ft	24-ft	FDM Part 2, Sect. 210, 211, 215 FDM Tbl 215.2.1
Arterial DS = 55 mph Rural	30-ft 4-ft (Curb & Gutter)	18-ft	
DS = 45 mph Urban	24-ft 4-ft (Curb & Gutter)	14-ft	
Collector DS = 45 mph Frontage Road	24-ft	14-ft	
DS = 50 mph Service Road	24-ft	14-ft	
Ramp DS = 50 mph Directional 1 to 2-lane	18-ft	8-ft	
DS = 30 mph Loop 1 to 2-lane	6-ft	6-ft	
Vertical Clearance Over Roadway Over Railroad Sign over Roadway Over Water	 16'-6" FDM 16.5 23'-6" FDM 23.5 17'-6" FDM 17.5 12'-0" min. FDM 12'-0"		 FDM 260.6 FDM Overhead Sign 210.10.3 FDM Waterway 260.8.1

Ramp Operations

a. Two thousand (2,000) feet between entrance and exit terminals - full freeways
b. Six hundred (600) feet between exit and entrance terminals
c. Entrance Ramp Taper of 900 feet (1° - convergence)
d. Exit Ramp Taper of 550 feet (3° - divergence)

Right-of-way (ROW)

e. Ten (10) feet from back of walls or limit of construction
f. Two (2) feet from back of sidewalk on frontage roads
g. Drainage and construction easements as required
h. Ninety-four (94) feet from ramp or mainline traveled way desirable for limited-access ROW
i. Limited-access ROW limits per Index 450

5.2 DRAINAGE DESIGN STANDARDS

The Osceola/Brevard County Connectors (OBCC) basins are open basins located within Orange, Osceola, and Brevard counties. The criteria used for design is set by Central Florida Expressway Authority (CFX), South Florida Water Management District (SFWMD), St. Johns River Water Management District (SJRWMD), Florida Department of Environmental Protection (FDEP), Florida Department of Transportation (FDOT), Brevard County, Osceola County, and Orange County. The most stringent criteria will govern the design.

Resources are listed below:

- SFWMD Environmental Resource Permit (ERP) Applicant's Handbook Volumes I and II, May 2016
- SJRWMD ERP Applicant's Handbook, Volumes I and II, June 2018
- FDOT Drainage Manual, January 2021
- FDOT Drainage Design Guide, January 2021
- FDOT Design Manual, January 2021
- Natural Resources Conservation Service (NRCS) Urban Hydrology for Small Watersheds - TR-55, June 1986

5.2.1 POND DESIGN

Peak Runoff Rates
Calculated using the Regression Method.

Attenuation Criteria

- The post-developed peak rate of discharge must not exceed the pre-developed peak rate of discharge for the 25-year/72-hour [SFWMD] or 25-year/24-hour [SJRWMD] storm.
- Outlet design additionally checked for the 10-year/24-hour storm in the Upper St. Johns River Hydrologic Basin [SJRWMD]
- Attenuation of the mean annual 24-hr peak discharge (if 50% or more impervious area) [SJRWMD]
- Attenuation of the 25-yr/24-hr peak discharge (unless there is separate basin criteria) [SJRWMD]
- Basin Diversion away from Upper St. Johns River is not allowed [SJRWMD] - Upper St. Johns River Basin Criteria
- Meet peak discharge requirement for the mean annual 24-hr storm with rainfall depth of 4.5 inches [SJRWMD] - Econlockhatchee River Hydrologic Basin

Treatment Volume Criteria
Water Quality (SFWMD and SJRWMD) - Provide wet detention volume for the greater of:

- First inch of runoff from the project area
- 2.5 inches of runoff over the impervious area
- An additional 50% of the water quality treatment volume for discharges to Outstanding Florida Waters (OFW)

Nutrient Reduction Criteria

Basin Management Action Plan (BMAP) - Lake Okeechobee and impaired waterbodies Jim Creek, Lake Winder Drain, Lake Washington Drain, St. John's River, Crane Creek, Melbourne-Tillman Canal, and Econlockhatchee River:

- Limit post-development discharge loading rates to meet pre-development rates for the impaired nutrient. Specific loading rate criteria will require meetings with the water management districts to provide greater detail for project within impaired waterbodies.
- Presumptive criteria - An additional 50% water quality treatment is required in all the basins as a best management practice to address impaired waters.

Control Devices/Bleed-down

- Maximum discharge of 1/2 of the detention volume in 24 hours [SFWMD].
- Discharge of 1/2 of the required treatment volume within 24 to 30 hours [SJRWMD].
- Devices greater than 6 square inches cross-sectional area, 2" minimum dimension [SFWMD and SJRWMD].

Permanent Pool Volume

- Permanent pool shall be sized to provide at least a 14-day average residence time during the wet season (June to October) [SJRWMD].
- At least 30% of pond surface area shall consist of littoral zone. Alternatively, increase permanent pool volume to provide a 21-day residence time [SJRWMD].
- Minimum 6-foot depth at control elevation [SFWMD].
- Maximum 12-foot depth at control elevation and mean depth between 2 and 8 feet [SJRWMD].

Pond Configuration

- 0.5 acre minimum and minimum width of 100 feet for linear areas in excess of 200 feet [SFWMD].
- Length to width ratio must be at least 2:1 to minimize short circuiting [SJRWMD].
- Side slopes no steeper than 1V:4H from top of bank to a minimum depth of two feet below the control elevation [SJRWMD].
- 20-foot wide maintenance easement provided beyond control elevation and connect to a public road. [FDOT]
- Maintenance berms with cross slope of 1:15 (V:H) or gentler, with back slopes no steeper than 1:3. [FDOT]
- Pond must be designed so that the average pond side slope measured between the control elevation and two feet below the control elevation is no steeper than 3:1 (H:V). [SJRWMD]
- Design high water levels shall meet base clearance requirements of 3 feet for mainline and 1 foot for ramps for a period of greater than 24 hours. [FDOT]
- One foot of freeboard between design high water level and the minimum berm elevation. [FDOT]

5.2.2 FLOODPLAIN IMPACTS

FEMA has developed Flood Insurance Rate Maps (FIRMs) for the study area as listed below:

Orange County (2020)	Osceola County (2017)	Brevard County (2018)
12095C0465G	12097C0375G	12009C0505G
12095C0675G	12097C0115G	12009C0580G
12095C0500F	12097C0200G	12009C0440G
12095C0475F	12097C0325G	12009C0575G
12095C0525F	12097C0175G	12009C0590G
	12097C0285G	12009C0400G
	12097C0500G	12009C0518G
	12097C0105G	12009C0515G
	12097C0110G	12009C0583G
	12097C0475G	12009C0595G
	12097C0150G	12009C0300G
	12097C0120G	12009C0425G
	12097C0350G	12009C0500G
	12097C0525G	12009C0325G
		12009C0579G
		12009C0581G
		12009C0514G
		12009C0430G
		12009C0510G
		12009C0320G
		12009C0516G
		12009C0577G

- No net encroachment into the floodplain, between the average wet season water table and that encompassed by the 100-year event. Compensating storage will be provided for the impacts. [SFWMD]
- No net encroachment for the 10-year event, for floodplains located downstream of at least 5 square miles contributing basin. [SJRWMD]
- No net reduction in flood storage within the 100-yr floodplain of Econlockhatchee or its tributaries with an upstream drainage area of 1-sq. mi. or greater. [SJRWMD]

5.2.3 CROSS DRAINS

The maximum allowable headwater for design flood frequency is at or below the edge of the shoulder.

Peak Runoff Rates

- Basins 0 to 600 Acres: Rational Method - IDF Curves Zone 7
- Basins 600+ Acres: U.S. Geological Survey (USGS) Regression Equations - Florida Region 3
- Watershed model may be used with approval.

Design Frequency

- High Use or Essential Highway: 50 Year Storm
- FEMA regulated Floodplains: 100 Year Storm

- No regulated floodways
- Show no adverse impacts to Zone A floodplains

5.2.4 CANAL CRITERIA

Unregulated Canals

- The minimum vertical clearance must be between the design flood stage and low member of a bridge is 2 feet. No drift clearance required for box culverts. [FDOT]
- If navigable the minimum vertical clearance that must be provided is 6 feet above the Normal High Water. This could also require a Coast Guard permit. [FDOT]

6.0 MOBILITY ALTERNATIVES EVALUATION

6.1 NO-BUILD ALTERNATIVE

The No-Build Alternative assumes no Osceola/Brevard County Connector (OBCC) exists in the design year 2060. In this case, travel demand would be accommodated by the existing and currently planned regional roadway network. It should be noted this project is not anticipated to be developed until after the year 2040 when land use associated with the North Ranch Master Plan begins to develop. A true no-build analysis related to regional travel demand and capacity was not performed for this study; however, it is anticipated that a traditional no-build traffic analysis would be performed in subsequent reevaluations and project development studies for this project.

The future year (2045/2060) average daily traffic (ADT) was run for the No-Build Alternative. The designation 2045/2060 represents model results using 2045 socioeconomic data from the adopted regional travel demand model plus additional development anticipated by 2060 within the North Ranch Sector Plan and in Brevard County around the St. Johns Heritage Parkway (see Section 4.0 of this report for additional information). **Table 6-1** summarizes projected traffic conditions for east-west facilities at the St. Johns River. All existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-1: No-Build Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,500	0.51
SR 50	4	Uninterrupted Highway	Rural	20,100	0.32
SR 528	4	Freeway	Transitioning	60,900	0.84
SR 520	4	Uninterrupted Highway	Rural	21,200	0.34
US 192	4	Uninterrupted Highway	Rural	32,600	0.52

6.2 TRANSIT, INTERMODAL, MULTIMODAL ALTERNATIVES

Potential multimodal improvements were identified and evaluated for consistency with the Central Florida Expressway Authority (CFX) Multimodal Policy. The development of alternative mobility programs included an assessment of mass transit technology and intermodal facilities.

6.2.1 CFX MULTIMODAL POLICY

On March 9, 2017, the CFX Board amended the 2040 Master Plan to include the following policy statement pertaining to multimodal projects:

> *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. Candidate projects must comply with CFX's Master Bond Resolution and CFX's enabling legislation [s. 348.753, F.S.].*

This policy recognized two types of multimodal initiatives:

1. Projects with direct benefits to CFX toll users – "Cost Equals User Benefits."
2. Projects meeting financial or revenue tests but not of direct benefit to CFX toll users – "Costs Equals Revenue."

6.2.2 POTENTIAL MULTIMODAL IMPROVEMENTS

The Center for Urban Transportation Research (CUTR) at the University of South Florida conducted a multimodal investment assessment for CFX and identified the following types of multimodal improvements as candidate projects (any potential projects would also need to meet CFX financial and/or revenue requirements):

- Rapid transit, trams, or fixed guideways located within the CFX right-of-way (ROW).
- Project consistent with the MPO LRTP.
- Intermodal facility/facilities within CFX ROW, or multimodal corridor/corridors within CFX ROW, which improve the level of service on the expressway system. Connections to the CFX system can also be constructed up to one mile from the system.

As defined by CFX (in the 2040 Master Plan), the term "intermodal" usually means facilities, such as when transportation modes and services are brought together to promote the seamless transfer of travel between two or more modes. This can include, but is not limited to, vehicles and parking facilities (including park-and-ride lots); transit (e.g., buses, local rail, and intercity rail); taxis; rental cars; and shuttle vans. Furthermore, the term "multimodal" typically refers to a corridor serving a combination of cars and trucks, buses, fixed guideways, trams, and bicycles.

The CUTR assessment identified seven potential projects for further consideration through a multimodal project development and evaluation program. The list below illustrates the types of projects recommended for consideration.

- SR 408: Bus Rapid Transit/Express Bus Treatment/Higher Education Connectivity
    - Supported by MPO 2040 LRTP and would support new downtown UCF Campus.
- I-Drive/Florida Mall to Orlando International Airport via SR 528: High Capacity Transit Evaluation
    - Supported by MPO 2040 LRTP and CFX 2040 Master Plan (improvement to SR 528).

- SR 417: Express Bus Accommodation
    - Included in MPO 2040 LRTP and CFX 2040 Master Plan (improvement to SR 417).
- Area Wide: Parking Structure Funding Feasibility
    - Alleviate expressway congestion and potential revenue generation.
- Area Wide: lntegrated Regional Fare/Toll Services
    - Facilitate regional mobility and potential revenue benefit or neutrality.
- Area Wide: Variable Pricing Study/Future Funding Options
    - Congestion mitigation measure and potential multimodal funding stream.
- Area Wide: Transit Joint Development Opportunities
    - Contribution to regional mobility and potential revenue generation.

Based on this information, the following types of multimodal improvements are candidates for inclusion in the OBCC Mobility Programs.

- Multimodal improvements in the MPO MTP or Space Coast TPO LRTP
- New multimodal improvements in CFX ROW
- New multimodal improvements within one mile of CFX ROW

6.2.2.1 POTENTIAL METROPLAN/SPACE COAST TPO MTP/LRTP MULTIMODAL IMPROVEMENTS

The MetroPlan 2045 MTP Cost Feasible Plan does not include any multimodal transit improvements within the OBCC study area. The Osceola County Comprehensive Plan's North Ranch Element identifies two passenger rail lines: 1) from Orlando International Airport which runs south of Nova Road and across the St. Johns River into Brevard County; and 2) along the East Central Florida Corridor Task Force (ECFCTF) Corridor I, then east (running north of US 192) into Brevard County. Bus Rapid Transit (BRT) would also serve portions of the planned development within the North Ranch.

The Space Coast TPO 2045 Cost Feasible LRTP does not include any multimodal transit improvements within the OBCC study area. Their LRTP does identify several unfunded BRT projects along the eastern edge of the OBCC study area, including along SR 520 (east of I-95), I-95 (from Viera to the Orlando Melbourne International Airport), Fiske Boulevard/Stadium Parkway (from Viera to SR 520), and Viera Boulevard (from Viera to the east and south).

Based on this review, there are no multimodal transportation improvement candidate projects within the MetroPlan/Space Coast TPO MTP/LRTP to include in the OBCC Mobility Programs.

6.2.2.2 POTENTIAL NEW MULTIMODAL IMPROVEMENTS

While no multimodal improvements are in the MetroPlan/Space Coast TPO MTP/LRTP, it is possible for new multimodal improvements to be developed by CFX within the ROW of a planned expressway; however, the multimodal improvement would need to meet CFX financial and/or revenue requirements. Currently, LYNX and SunRail require financial assistance (i.e., state, federal, and local funding) to cover expenses. Therefore, it is unlikely that new rapid transit, trams, or fixed guideways would meet CFX's financial and revenue requirements. Based on this review, there are no multimodal transportation improvement candidate projects to include in the planned ROW for the OBCC.

6.2.2.3 POTENTIAL NEW MULTIMODAL IMPROVEMENTS WITHIN ONE MILE OF CFX RIGHT-OF-WAY

Potential multimodal improvements within one mile of the CFX ROW need to benefit CFX system users. However, no multimodal improvements are currently viable within the OBCC ROW. If rapid transit within OBCC ROW was viable, additional transit, bicycle, and pedestrian improvements which improve connections to the rapid transit stations could be considered. Park-and-ride lots are one potential intermodal improvement; however, these would only meet the CFX Multimodal Policy financial requirements if the expressway segment demand is exceeding capacity to the point that removing a toll-paying vehicle from the expressway benefits other users (i.e., decreasing the level of congestion, increasing travel speeds, and increasing level of service). Initial travel demand modeling projects that no segments will experience congestion to the point that a park-and-ride lot would provide appropriate relief to meet the CFX Multimodal Policy requirement. Based on this review, there are no multimodal transportation improvement candidate projects to include within one mile of the OBCC.

6.2.3 RECOMMENDED MULTIMODAL CONSIDERATIONS

Based on this review, there are currently no multimodal improvements recommended for consideration as part of the Mobility Program Alternatives. As described in the CUTR Multimodal Investment Assessment, CFX is in the beginning stages of the multimodal financier partnership model. Characteristics supportive of this model include densely developed areas with limited ability to provide additional highway capacity. Thus, while portions of the CFX service area are supportive of this model, the expansion of expressways into the OBCC study area is not. There will likely come a time when multimodal considerations will be appropriate for this area; however, it is premature to consider them now.

6.3 TOLLED LIMITED-ACCESS ALTERNATIVE

Constructing a tolled limited-access expressway is a potentially viable response to the project need and purpose.

6.4 CORRIDOR DEVELOPMENT PROCESS

The corridor development process began with recommendations from previous studies and included the development of new alignments.

6.4.1 PREVIOUS STUDY CORRIDORS

In 2014, the ECFCTF evaluated a study area that ran from Orlando and Kissimmee to Cape Canaveral and Palm Bay and recommended improving existing corridors and evaluating potential new corridors. FDOT is taking the lead on evaluating existing corridors, and the CFX is taking the lead in evaluating potential new corridors. Recommendations from the Task Force's Final Report for evaluating potential new corridors included:

- Corridor D – A new east-west multimodal corridor along the Orange/Osceola county line to provide connectivity between the Orlando International Airport/Lake Nona area, the Northeast District of Osceola County, the North Ranch Master Plan, and the SR 520 corridor;
- Corridor F – A new east-west multimodal corridor from the Orlando International Airport/Lake Nona area through the proposed North Ranch Master Plan to central/southern Brevard County, including the potential need for an additional crossing of the St. Johns River; and,

- Corridor I – A new north-south multimodal corridor serving planned population centers on the North Ranch and connecting to existing east-west corridors, including US 192, Nova Road, SR 520, SR 528, and SR 50/408.

Osceola County and Farmland Reserve, Inc. (an entity of Deseret Ranches of Florida) developed the North Ranch Sector Plan, which was adopted in October 2015, to be consistent with the Task Force recommendations. This sector plan covers approximately 133,000 acres and represents the majority of the Osceola County portion of the OBCC Study Area. The transportation plan for the sector plan includes expressways in Corridors D, F, and I from the ECFCTF.

In 2019, CFX completed the Northeast Connector Expressway Extension (NECEE) CF&M Study which evaluated the Corridor I identified by the ECFCTF and also addressed the Task Force's objectives for Corridor H (i.e., Continuation of the project development process for the Northeast Connector Expressway and extension of this expressway from its planned terminus at the Osceola Parkway Extension (now referred to as SR 534) to the SR 528 corridor, including potential multimodal improvements). This study evaluated multiple alignments and concluded that no "fatal flaws" were identified with engineering and environmental issues. It recommended that as development within or near the study area progresses, a more comprehensive study should be conducted to identify a preferred alternative that will serve the needs of the community.

6.4.2 DEVELOPMENT OF OBCC CORRIDORS

The development of corridors to be evaluated in the OBCC Study was significantly influenced by input from study stakeholders. Originally, the OBCC Study was to evaluate alternatives within the ECFCTF Corridor F, with the study area expanded north to add options for connecting to I-95. Based on requests from stakeholders early in the process, the study was expanded to include the ECFCTF Corridor D. And in response to comments from stakeholders, the study area for Corridor F was extended further south to US 192 to again provide more options for connecting to I-95.

6.4.2.1 ENVIRONMENTAL AND SOCIAL CONSTRAINTS MAPS

A base map was prepared for the study area using existing aerial photography. This base map was used to create the Environmental Constraints Map and the Social Constraints Map.

The social constraints map identifies existing and planned developments, reservoirs, major utilities, the planned Brevard County landfill, and interchanges with I-95 (see **Exhibit 6-1**).

The environmental constraints map identifies mitigation banks, conservation lands, surface waters, wetlands, flood plains, Outstanding Florida Waters (OFW), Everglades Headwaters National Wildlife Refuge (NWR), prime farmlands, eagle nests, wading bird nests, and water management district boundaries (see **Exhibit 6-2**).

Exhibit 6-1: Social Constraints

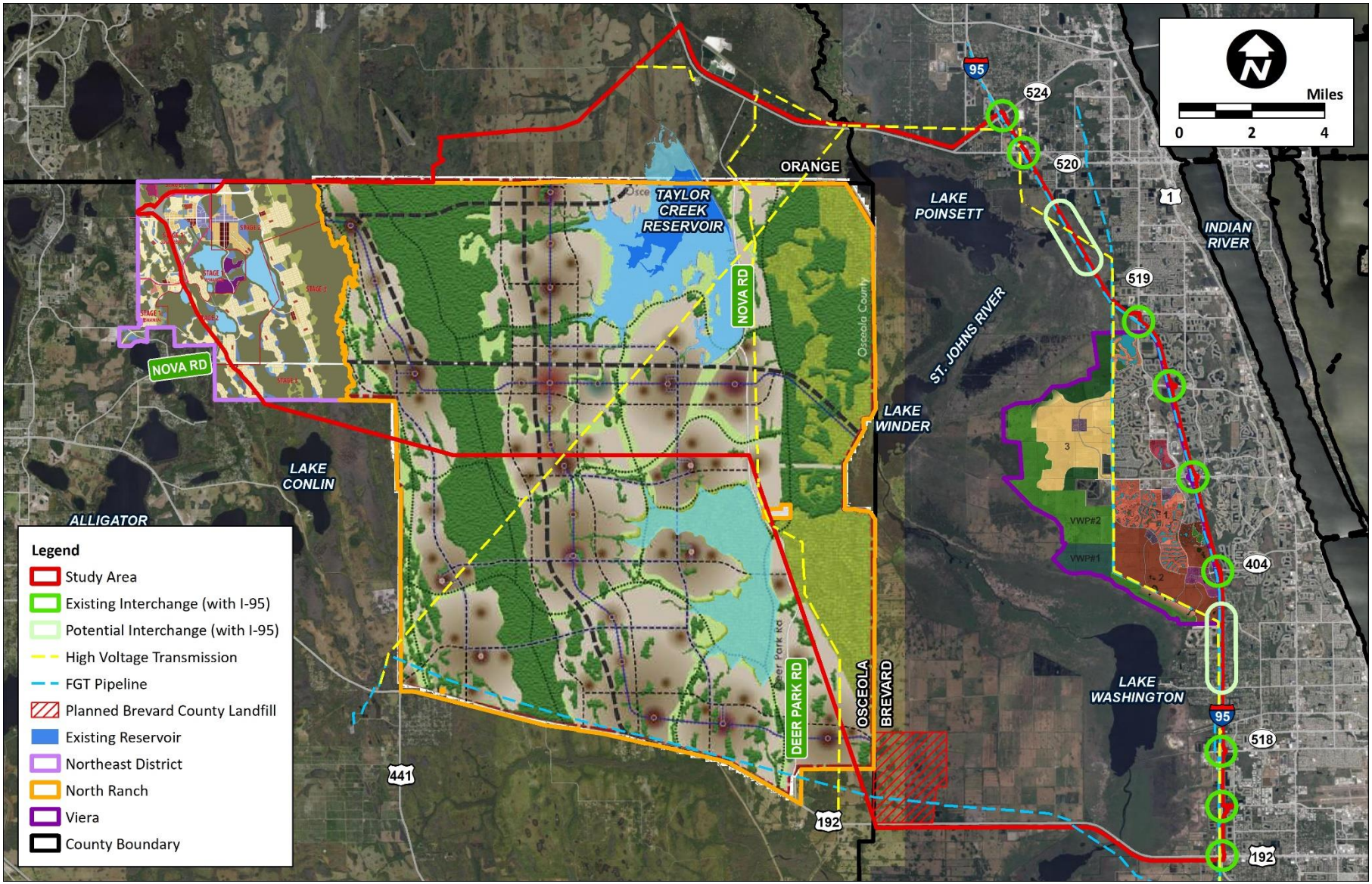
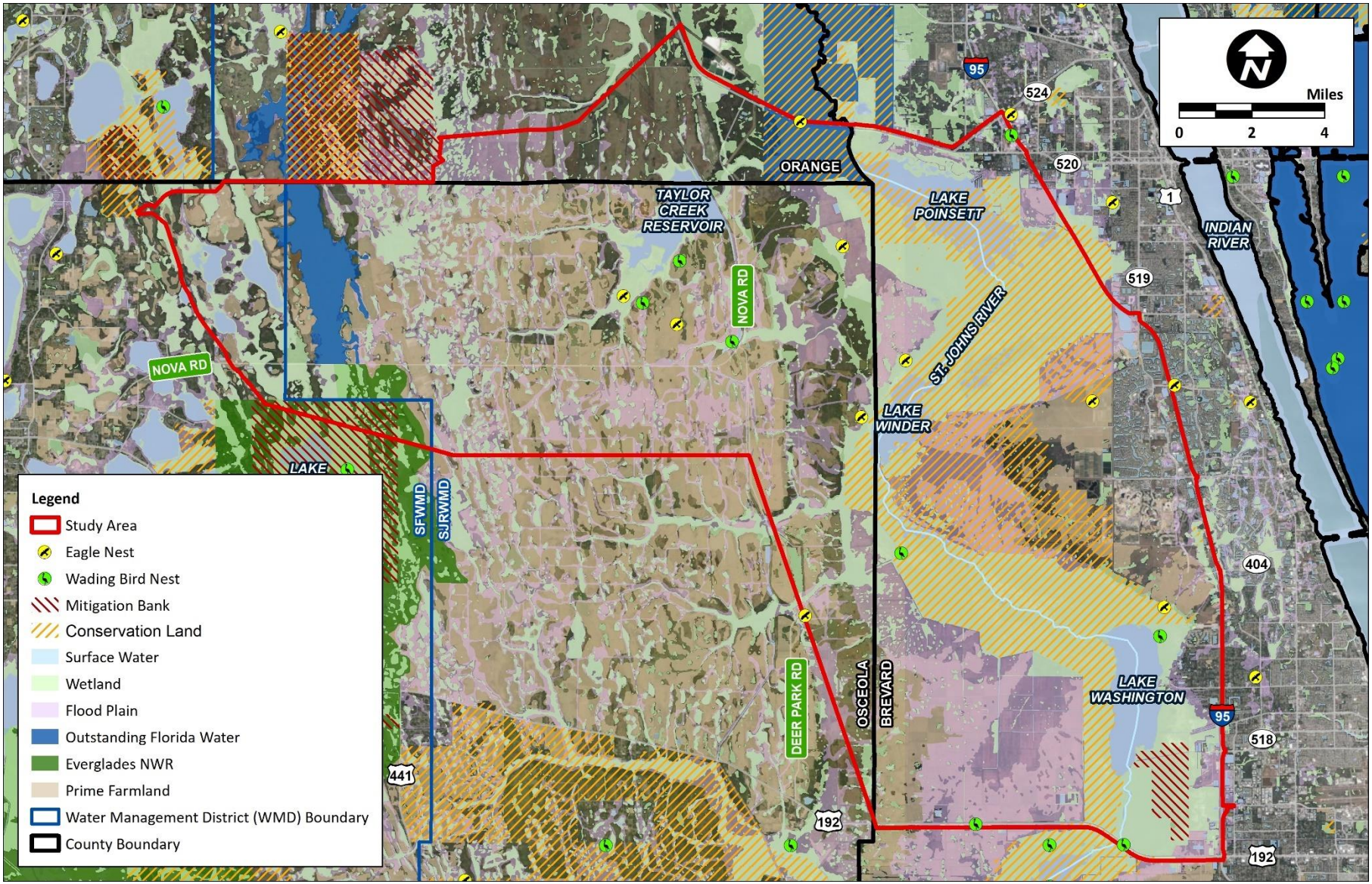


Exhibit 6-2: Environmental Constraints



6.4.2.2 OBCC STUDY CORRIDORS

After considering the ECFCTF recommendations, previous planning studies, current development plans, and social and environmental constraints, alternative alignments were developed which conform to CFX design criteria and provide alternatives for comparing impacts to the social and natural environments in balance with addressing the need and purpose for the project.

Seven alternatives were developed, including:

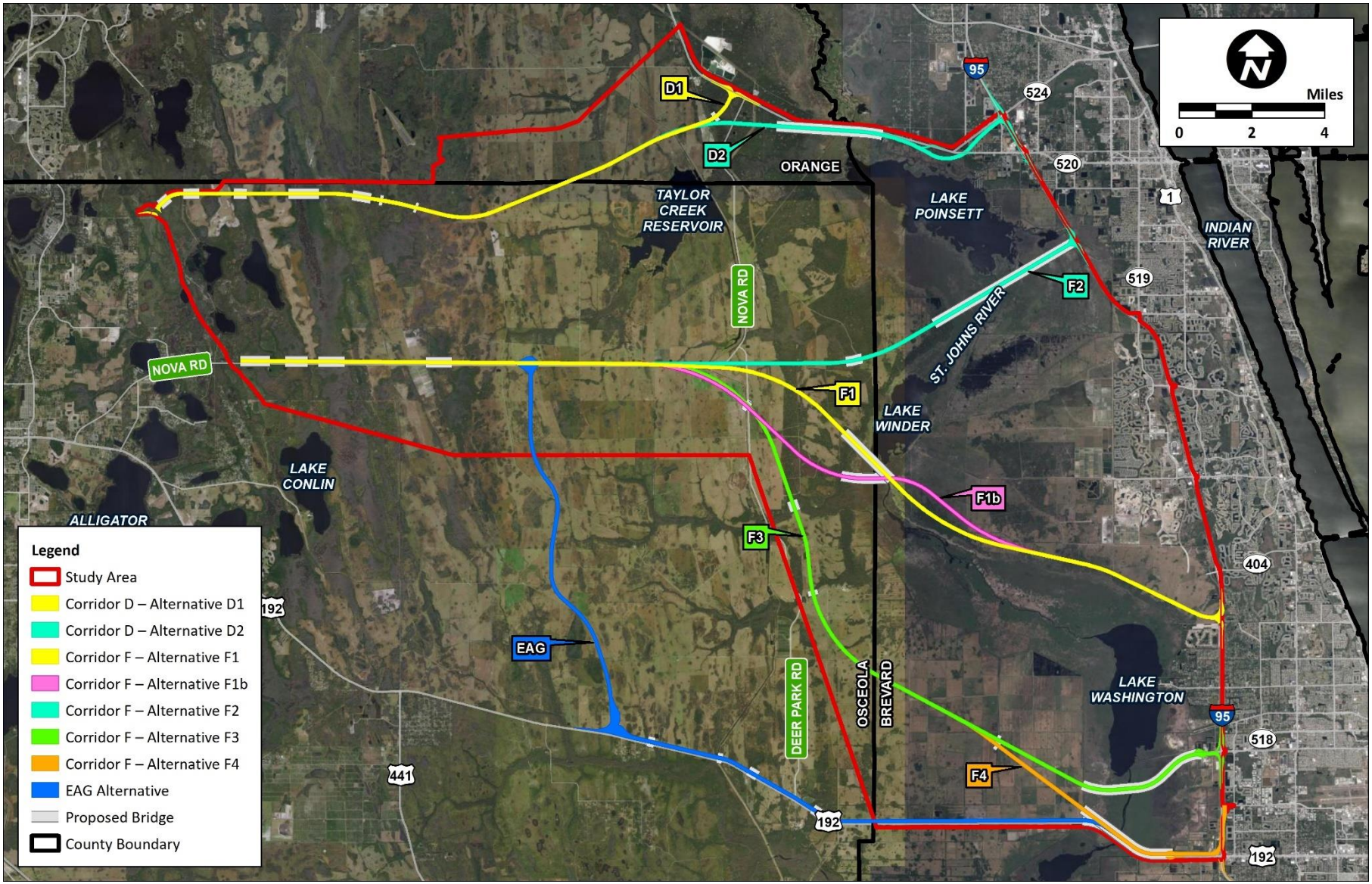
- Alternative D1
- Alternative D2
- Alternative F1
- Alternative F1b
- Alternative F2
- Alternative F3
- Alternative F4

During the first Environmental Advisory Group (EAG) meeting on September 1, 2020, an eighth alternative was recommended which utilized a portion of a corridor developed as part of the CFX NECEE Study which extends south from the Alternative F concepts, to US 192. This alternative would then travel parallel to US 192 to I-95. This eighth alternative is referred to as the EAG Alternative.

6.5 ALTERNATIVE NARRATIVE

The eight alternatives are illustrated on **Exhibit 6-3** and are described in the following sections.

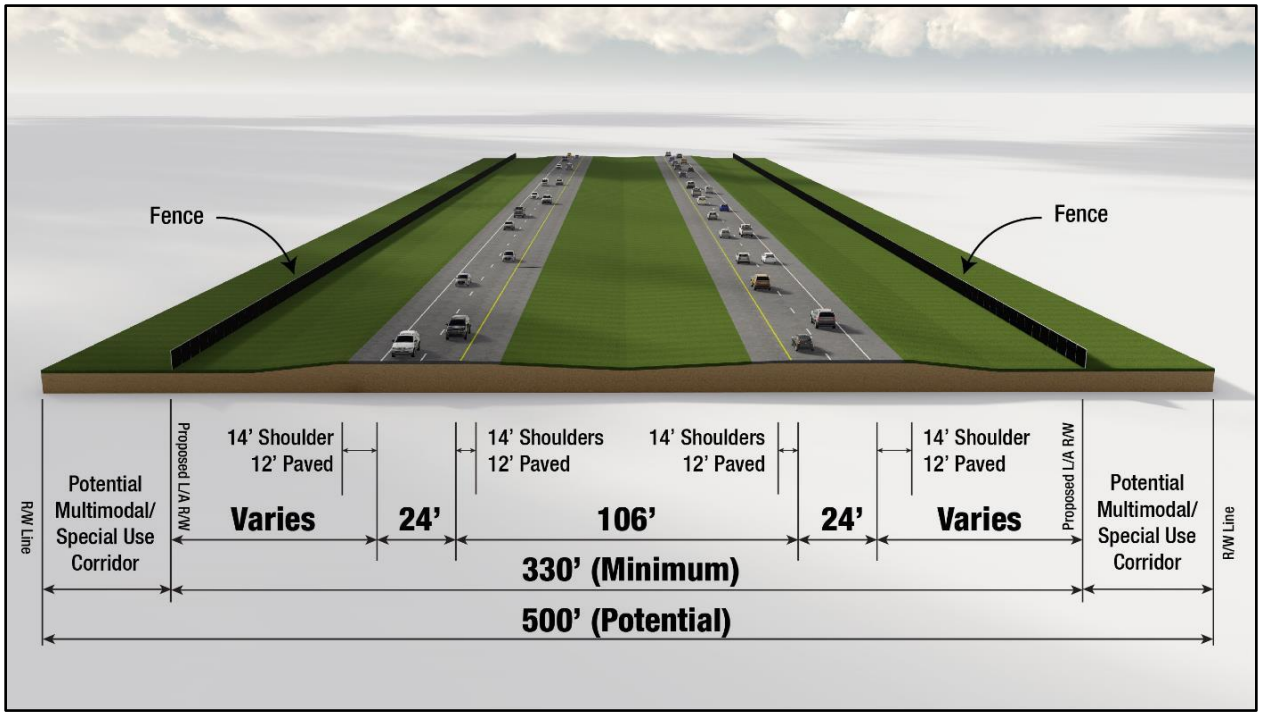
Exhibit 6-3: OBCC Build Alternatives



6.5.1 PROPOSED TYPICAL SECTIONS

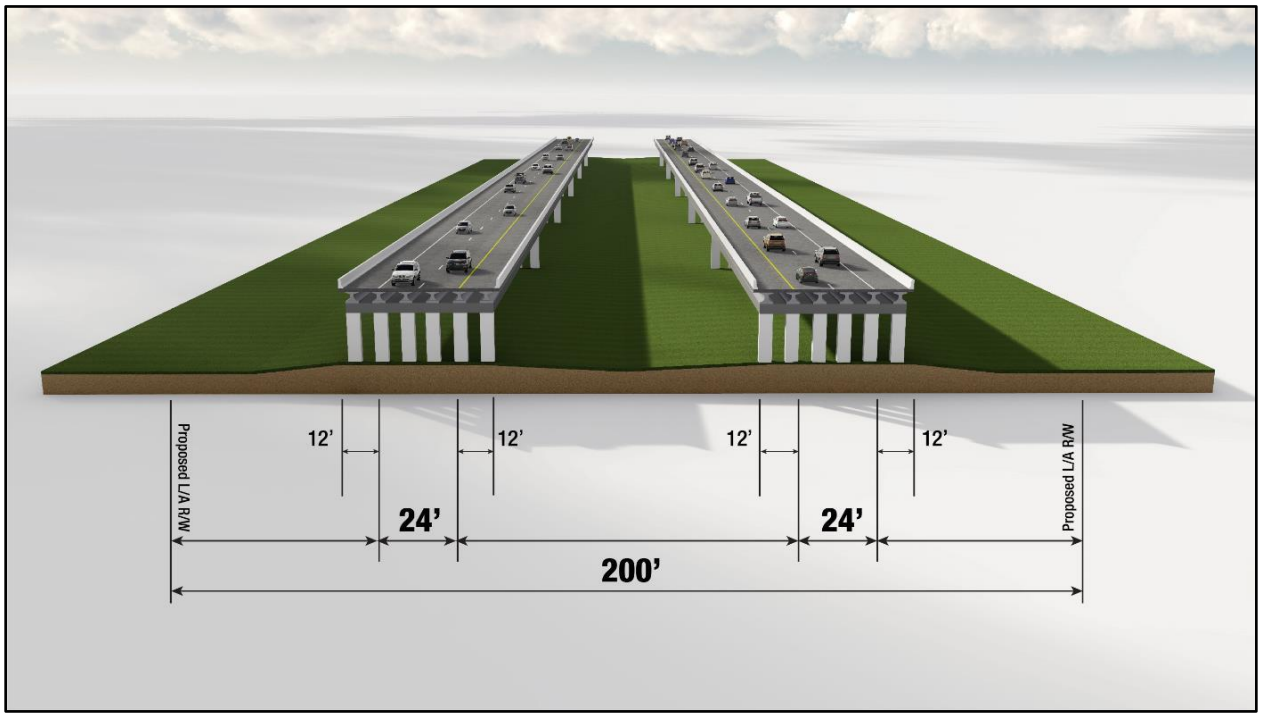
The proposed typical section consists of a minimum 330-foot ROW width up to a potential 500-foot width. This would accommodate an initial four lanes and provide a median width to accommodate a future widening to eight lanes. This would also provide for potential multi-use lanes in the median as well as potential multimodal or special use corridors adjacent to the roadway. **Exhibit 6-4** illustrates the Proposed Typical Section.

Exhibit 6-4: Proposed Typical Section



In environmentally sensitive areas, such as crossing the St. Johns Rivers, the ROW will be reduced to 200 feet, as illustrated on **Exhibit 6-5**. At this stage of the evaluation, all impacts identified are based on the 500-foot ROW.

Exhibit 6-5: Reduced Typical Section



6.5.2 ALTERNATIVE D1

6.5.2.1 ALIGNMENT LOCATION

Alternative D1 is within the ECFCTF Corridor D and extends east from the planned SR 534, south of the Orange County line for approximately 12 miles before entering Orange County. Alternative D1 continues northeast to connect with SR 520, approximately 2,000 feet west of Nova Road. The total length of Alternative D1 is approximately 17.1 miles. Concept Plans for Alternative D1 are provided in **Appendix E**.

6.5.2.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 30 bridges are included in Alternative D1, spanning a distance of approximately 7.4 miles. It is important to note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.2.3 PROPOSED INTERCHANGES

The location and type of interchanges for Alternative D1 are identified in **Table 6-2**. A full directional system to system interchange would be provided at SR 534 and a half diamond interchange would be provided at Sunbridge Parkway. The NECEE system to system interchange and a North Ranch local interchange are assumed. A full directional system to system interchange would be provided at SR 520.

Table 6-2: Alternative D1 Interchange Location and Type

Cross Road	Interchange Type
SR 534	Full Directional System to System
Sunbridge Parkway	Half Diamond to the East
North Ranch Local Access	Diamond
NECEE	Full Directional System to System
SR 520	Full Directional System to System

6.5.2.4 MAINTENANCE OF ACCESS

The following changes are included with Alternative D1 to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate dirt road to outside ROW needed for Alternative D1 (Station 1360+00)
- Relocate dirt road to outside ROW needed for Alternative D1 (Station 1455+00)
- Relocate dirt road to cross perpendicular to Alternative D1 (Station 1650+00)
- Relocate dirt road to outside ROW needed for Alternative D1 (Station 1630+00 to 1740+00)
- Relocate Nova Road at SR 520 (Station 1870+00)

6.5.2.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment D1 mainline were sized to accommodate 435.6 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 126.3 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee Basin Management Action Plan (BMAP), Econlockhatchee River OFW, and Jim Creek, St. John's River, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 77 acres of floodplain and provide compensating storage of 49.1 ac-ft. Alignment 2A-2 was subdivided into a total of 29 onsite mainline basins, which result in a total required pond area of 128.8 acres. The total required pond area for the mainline is 128.8 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-3**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-3: Alignment Alternative D1 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
D1-1	4.5	9.3	41.1	54.9	25.1
D1-2	3.2	5.2	--	8.4	4.7
D1-3	0.0	6.1	6.6	12.7	6.6
D1-4	2.3	4.6	0.2	7.1	4.1
D1-5	1.0	5.4	1.3	7.7	4.3
D1-6	1.7	4.7	--	6.4	3.7
D1-7	1.4	7.7	--	9.1	5
D1-8	2.9	6.4	--	9.3	5.1
D1-9	0.0	2.9	--	2.9	2
D1-10	0.9	2.8	--	3.7	2.4
D1-11	1.2	2.4	--	3.6	2.3
D1-12	2.2	3.5	--	5.7	3.4
D1-13	1.7	2.6	--	4.3	2.7
D1-14	2.3	2.7	--	5.0	3
D1-15	1.7	2.5	--	4.2	2.6
D1-16	2.3	2.6	--	4.9	3
D1-17	1.9	2.6	--	4.5	2.8
D1-18	1.8	2.7	--	4.5	2.8
D1-19	1.7	2.6	--	4.3	2.7
D1-20	2.3	4.1	--	6.4	3.7
D1-21	1.1	3.9	--	5.0	3
D1-22	2.1	4.0	--	6.1	3.6
D1-23	1.7	3.9	--	5.6	3.3
D1-24	2.4	2.7	--	5.1	3.1
D1-25	1.9	2.0	--	3.9	2.5
D1-26	2.3	5.0	--	7.3	4.1
D1-27	6.2	9.5	--	15.7	8
D1-28	4.2	5.2	--	9.4	5.1
D1-29	0.4	6.7	--	7.1	4.1
Total	**59.3**	**126.3**	**49.1**	**234.7**	**128.8**

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment Alternative D1, 12 crossings were identified and are summarized in **Table 6-4**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-4: Alignment Alternative D1 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-RG-01	BRIDGE
CD-RG-02	BRIDGE
CD-RG-03	BRIDGE
CD-RG-04	8 - 6' x 4' CBC
CD-RG-05	4 - 30" PIPE
CD-RG-06	9 - 30" PIPE
CD-RG-07	BRIDGE
CD-RG-08	BRIDGE
CD-520-00A	1 - 36" PIPE
CD-520-00B	3 - 10' x 4' CBC
CD-520-01	1 - 36" PIPE
CD-520-02	1 - 10' x 3' CBC

6.5.2.6 PROPOSED RIGHT-OF-WAY NEEDS

Alternative D1 would require approximately 1,083 acres of ROW. The majority of this (1,076 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserve, etc.).

6.5.2.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for Alternative D1. **Table 6-5** summarizes projected traffic conditions for east-west facilities at the St. Johns River. Alternative D1 and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-5: Alternative D1 Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,300	0.50
SR 50	4	Uninterrupted Highway	Rural	18,900	0.30
SR 528	4	Freeway	Transitioning	60,800	0.84
SR 520	4	Uninterrupted Highway	Rural	15,700	0.25
Alternative D1	4	Freeway	Rural	20,100	0.32
US 192	4	Uninterrupted Highway	Rural	31,700	0.51

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-6**.

Table 6-6: Alternative D1 Average Weighted 2045/2060 ADT

Criteria	Alternative D1
Weighted ADT	17,000
Number of Toll Points	5

6.5.3 ALTERNATIVE D2

6.5.3.1 ALIGNMENT LOCATION

Alternative D2 is within the ECFCTF Corridor D and extends east from the planned SR 534, south of the Orange County line for approximately 12 miles before entering Orange County. Alternative D2 continues east on the south side of SR 520 (which is an extension beyond Corridor D as identified by the ECFCTF), enters Brevard County, then travels parallel to SR 524 to connect to I-95. The total length of Alternative D2 is approximately 24.7 miles. Concept Plans for Alternative D2 are provided in **Appendix F**.

6.5.3.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 42 bridges are included in Alternative D2, spanning a distance of approximately 15.3 miles. It is important to note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.3.3 PROPOSED INTERCHANGES

The location and type of interchanges for Alternative D2 are identified in **Table 6-7**. A full directional system to system interchange would be provided at SR 534 and a half diamond interchange would be provided at Sunbridge Parkway. The NECEE system to system interchange and a North Ranch local interchange are assumed. Slip ramps to and from the east would be provided at SR 520. A full directional system to system interchange would be provided at I-95.

Table 6-7: Alternative D2 Interchange Location and Type

Cross Road	Interchange Type
SR 534	Full Directional System to System
Sunbridge Parkway	Half Diamond to the East
North Ranch Local Access	Diamond
NECEE	Full Directional System to System
SR 520 (westbound)	Slip Ramp
SR 520 (eastbound)	Slip Ramp
I-95	Full Directional System to System

6.5.3.4 MAINTENANCE OF ACCESS

The following changes are included with Alternative D2 to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate dirt road to outside ROW needed for Alternative D2 (Station 3360+00)
- Relocate dirt road to outside ROW needed for Alternative D2 (Station 3455+00)

- Relocate dirt road to cross perpendicular to Alternative D2 (Station 3650+11)
- Relocate dirt road to outside ROW needed for Alternative D2 (Station 3630+00 to 3740+00)
- Relocate a portion of Townsend Road to accommodate the northbound I-95 to westbound Alternative D2 ramp
- Relocate a portion of Tucker Ln. to accommodate the eastbound Alternative D2 ramp to southbound I-95

6.5.3.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment D2 mainline were sized to accommodate 647.1 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 195.9 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee BMAP, Econlockhatchee River OFW, and Jim Creek, St. John's River, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 223 acres of floodplain and provide compensating storage of 49.1 ac-ft. Alignment D2 was subdivided into a total of 32 onsite mainline basins, which result in a total required pond area of 169.1 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-8**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-8: Alignment Alternative D2 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
D2-1	4.5	9.3	41.1	54.9	25.1
D2-2	3.2	5.2	--	8.4	4.7
D2-3	0.0	6.1	6.6	12.7	6.6
D2-4	2.3	4.6	0.2	7.1	4.1
D2-5	1.0	5.4	1.3	7.7	4.3
D2-6	1.7	4.7	--	6.4	3.7
D2-7	1.5	7.7	--	9.2	5
D2-8	2.9	6.4	--	9.3	5.1
D2-9	0.0	2.9	--	2.9	2
D2-10	0.9	2.8	--	3.7	2.4
D2-11	1.2	2.4	--	3.6	2.3
D2-12	2.2	3.5	--	5.7	3.4
D2-13	1.7	2.6	--	4.3	2.7
D2-14	2.3	2.7	--	5.0	3
D2-15	1.7	2.5	--	4.2	2.6
D2-16	2.3	2.6	--	4.9	3
D2-17	1.9	2.6	--	4.5	2.8
D2-18	1.8	2.7	--	4.5	2.8
D2-19	1.7	2.6	--	4.3	2.7
D2-20	2.3	4.1	--	6.4	3.7
D2-21	1.1	3.9	--	5.0	3
D2-22	2.1	4.0	--	6.1	3.6
D2-23	1.7	3.9	--	5.6	3.3
D2-24	2.4	2.7	--	5.1	3.1
D2-25	1.9	2.2	--	4.1	2.6
D2-26	2.2	7.6	--	9.8	5.3
D2-27	3.9	10.8	--	14.7	7.6
D2-28	5.0	5.5	--	10.5	5.6
D2-29	8.0	8.8	--	16.8	8.5
D2-30	2.7	19.2	--	21.9	10.8
D2-31	0.4	26.2	--	26.6	12.8
D2-32	4.3	17.8	--	22.1	10.9
Total	**72.8**	**195.9**	**49.1**	**318.0**	**169.1**

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment Alternative D2, 21 crossings were identified and are summarized in **Table 6-9**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-9: Alignment Alternative D2 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-RG-01	BRIDGE
CD-RG-02	BRIDGE
CD-RG-03	BRIDGE
CD-RG-04	8 - 6' x 4' CBC
CD-RG-05	4 - 30" PIPE
CD-RG-06	9 - 30" PIPE
CD-RG-07	BRIDGE
CD-RG-08	BRIDGE
CD-520-03	BRIDGE
CD-520-04	BRIDGE
CD-520-05	BRIDGE
CD-520-06	BRIDGE
CD-520-07	2 - 18" PIPE
CD-524-01	BRIDGE
CD-524-02	BRIDGE
CD-524-03	1 - 30" PIPE
CD-524-04	3 - 30" PIPE
CD-95-02	2 - 36" PIPE
CD-95-03	1 - 42" PIPE
CD-95-04	1 - 36" PIPE
CD-95-05	1 - 11' x 6' CBC

6.5.3.6 PROPOSED RIGHT-OF-WAY NEEDS

Alternative D2 would require approximately 1,552 acres of ROW. The majority of this (1,066 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserve, etc.). Brevard County is another major property owner and approximately 76 acres of ROW would be need from them. Approximately two acres of ROW would be needed from the St. Johns River Water Management District (SJRWMD).

6.5.3.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for Alternative D2. **Table 6-10** summarizes projected traffic conditions for east-west facilities at the St. Johns River. Alternative D2 and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-10: Alternative D2 Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	13,900	0.49
SR 50	4	Uninterrupted Highway	Rural	31,000	0.49
SR 528	4	Freeway	Transitioning	66,100	0.91
SR 520	4	Uninterrupted Highway	Rural	26,100	0.42
Alternative D2	4	Freeway	Rural	16,500	0.26
US 192	4	Uninterrupted Highway	Rural	33,200	0.53

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-11**.

Table 6-11: Alternative D2 Average Weighted 2045/2060 ADT

Criteria	Alternative D2
Weighted ADT	14,900
Number of Toll Points	6

6.5.4 ALTERNATIVE F1

6.5.4.1 ALIGNMENT LOCATION

Alternative F1 is within the ECFCTF Corridor F and extends east from the planned Northeast Connector Expressway near Nova Road, running parallel to Nova Road. In the vicinity of Deer Park Road, Alternative F1 travels southeast and crosses the St. Johns River just south of Lake Winder. It then travels through the southern edge of the Viera development, interchanging with I-95 approximately 1.3-miles south of the Pineda Causeway Extension interchange. The total length of Alternative F1 is approximately 29 miles. Concept Plans for Alternative F1 are provided in **Appendix G**.

6.5.4.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 29 bridges are included in Alternative F1, spanning a distance of approximately 10.6 miles. It is important to note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.4.3 PROPOSED INTERCHANGES

The location and type of interchanges for Alternative F1 are identified in **Table 6-12**. A direct connection to the Northeast Connector Expressway is assumed. The NECEE system to system interchange and two North Ranch local interchanges are assumed. A full directional system to system interchange would be provided at I-95.

Table 6-12: Alternative F1 Interchange Location and Type

Cross Road	Interchange Type
Northeast Connector Expressway	Direct Connection
North Ranch Local Access	Diamond
NECEE	Full Directional System to System
North Ranch Local Access	Diamond
I-95	Full Directional System to System

6.5.4.4 MAINTENANCE OF ACCESS

The following changes are included with Alternative F1 to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate Nova Road to outside ROW needed for Alternative F1 (Station 5580+00 to 5765+00)
- Relocate trail on the east side of the St. Johns River to outside the ROW for Alternative F1 (Station 6105+00 to 6115+00)
- Relocate trail on the east side of the St. Johns River to cross perpendicular to Alternative F1 (2 locations, Station 6090+00 and 6120+00)

6.5.4.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment F1 mainline were sized to accommodate 749.4 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 222.3 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee BMAP, Econlockhatchee River OFW, and Lake Winder Drain, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 347 acres of floodplain and provide compensating storage of 4.5 ac-ft. Alignment F1 was subdivided into a total of 40 onsite mainline basins, which result in a total required pond area of 186.7 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-13**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-13: Alignment Alternative F1 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F1-1	3.7	7.8	0.0	11.5	6.1
F1-2	--	0.0	--	--	--
F1-3	3.1	8.0	4.5	15.6	8
F1-4	--	0.0	--	--	--
F1-5	2.4	4.5	--	6.9	4
F1-6	1.8	3.8	--	5.6	3.3
F1-7	0.9	4.0	--	4.9	3

Table 6-13 (continued): Alignment Alternative F1 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F1-8	2.2	4.0	--	6.2	3.6
F1-9	2.0	4.0	--	6.0	3.5
F1-10	2.3	4.0	--	6.3	3.7
F1-11	1.4	2.7	--	4.1	2.6
F1-12	1.0	2.7	--	3.7	2.4
F1-13	2.2	2.6	--	4.8	2.9
F1-14	2.5	2.7	--	5.2	3.1
F1-15	2.4	2.7	--	5.1	3.1
F1-16	2.8	3.5	--	6.3	3.7
F1-17	2.0	2.4	--	4.4	2.7
F1-18	2.2	2.7	--	4.9	3
F1-19	3.6	4.1	--	7.7	4.3
F1-20	2.4	2.7	--	5.1	3.1
F1-21	2.2	3.1	--	5.3	3.2
F1-22	4.8	4.7	--	9.5	5.2
F1-23	2.1	2.6	--	4.7	2.9
F1-24	1.0	2.7	--	3.7	2.4
F1-25	0.0	2.7	--	2.7	1.9
F1-26	2.3	2.5	--	4.8	2.9
F1-27	1.7	2.8	--	4.5	2.8
F1-28	2.6	4.0	--	6.6	3.8
F1-29	2.0	3.5	--	5.5	3.3
F1-30	2.3	3.9	--	6.2	3.6
F1-31	2.4	5.3	--	7.7	4.3
F1-32	0.4	12.7	--	13.1	6.8
F1-33	7.5	40.6	--	48.1	22.2
F1-34	18.8	25.8	--	44.6	20.6
F1-35	5.6	4.6	--	10.2	5.5
F1-36	5.5	4.9	--	10.4	5.6
F1-37	5.4	4.7	--	10.1	5.5
F1-38	4.0	5.2	--	9.2	5
F1-39	3.4	7.4	--	10.8	5.8
F1-40	4.3	9.9	--	14.2	7.3
Total	119.2	222.3	4.5	346.2	186.7

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment Alternative F1, 38 crossings were identified and are summarized in **Table 6-14**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-14: Alignment Alternative F1 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-FP-04	24 - 24" PIPE
CD-RG-17	9 - 30" PIPE
CD-RG-18	9 - 30" PIPE
CD-RG-19	8 - 30" PIPE
CD-RG-20	6 - 30" PIPE
CD-532-01	3 - 24" PIPE
CD-532-02	BRIDGE
CD-532-03	BRIDGE
CD-532-04	BRIDGE
CD-532-05	BRIDGE
CD-532-06	BRIDGE
CD-532-07	BRIDGE
CD-532-08	1 - 4' x 3' CBC
CD-532-09	1 - 4' x 3' CBC
CD-532-10	2 - 24" PIPE
CD-532-11	BRIDGE
CD-532-12	BRIDGE
CD-532-13	BRIDGE
CD-532-14	1 - 10' x 3' CBC
CD-532-15	1 - 4.5' x 2' CBC
CD-532-16	BRIDGE
CD-532-17	BRIDGE
CD-532-18	BRIDGE
CD-532-19	1 - 9' x 3' CBC
CD-532-20	1 - 8' x 2.5' CBC
CD-532-21	1 - 7.5' x 4' CBC
CD-532-22	2 - 24" PIPE
CD-532-23	1 - 10.5' x 5.5' CBC
CD-532-24	1 - 5' X2.2' CBC
CD-532-25	1 - 9' x 3.5' CBC
CD-532-26	1 - 4' x 2.5' CBC
CD-532-27	1 - 7' x 4' CBC
CD-532-28	2 - 7' x 5' CBC
CD-532-29	1 - 8' x 4' CBC
CD-532-30	1 - 11' x 7.5' CBC
CD-95-11	2 - 30" PIPE
CD-95-12	2 -24" PIPE
CD-95-13	3 -8' x 4' CBC

6.5.4.6 PROPOSED RIGHT-OF-WAY NEEDS

Alternative F1 would require approximately 1,739 acres of ROW. Over half of this (1,026 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserve, etc.). The SJRWMD is another major property owner and approximately 385 acres of ROW would be needed from them. The Viera Company, including their parent A. Duda & Sons, Inc., is a major property owner and approximately 319 acres of ROW would be needed from them.

6.5.4.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for Alternative F1. **Table 6-15** summarizes projected traffic conditions for east-west facilities at the St. Johns River. Alternative F1 and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-15: Alternative F1 Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,200	0.50
SR 50	4	Uninterrupted Highway	Rural	27,800	0.44
SR 528	4	Freeway	Transitioning	66,400	0.91
SR 520	4	Uninterrupted Highway	Rural	32,300	0.52
Alternative F1	4	Freeway	Rural	14,200	0.22
US 192	4	Uninterrupted Highway	Rural	35,700	0.57

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-16**.

Table 6-16: Alternative F1 Average Weighted 2045/2060 ADT

Criteria	Alternative F1
Weighted ADT	12,400
Number of Toll Points	7

6.5.5 ALTERNATIVE F1B

6.5.5.1 ALIGNMENT LOCATION

Alternative F1b is the same as Alternative F1 except for the realignment of approximately 12 miles in the vicinity of the St. Johns River with the intent of lessening the environmental impacts of Alternative F1 and avoiding the trails on the east side of the St. Johns River. The total length of Alternative F1b is approximately 28.9 miles. Concept Plans for Alternative F1b are provided in **Appendix H**.

6.5.5.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 27 bridges are included in Alternative F1b, spanning a distance of approximately 9.4 miles. It is important to

note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.5.3 PROPOSED INTERCHANGES

The location and type of interchanges for Alternative F1b are identified in **Table 6-17**. A direct connection to the Northeast Connector Expressway is assumed. The NECEE system to system interchange and two North Ranch local interchanges are assumed. A full directional system to system interchange would be provided at I-95.

Table 6-17: Alternative F1b Interchange Location and Type

Cross Road	Interchange Type
Northeast Connector Expressway	Direct Connection
North Ranch Local Access	Diamond
NECEE	Full Directional System to System
North Ranch Local Access	Diamond
I-95	Full Directional System to System

6.5.5.4 MAINTENANCE OF ACCESS

The following changes are included with Alternative F1b to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate Nova Road to cross perpendicular to Alternative F1b (Station 7585+00 to 7645+00)
- Relocate dirt road outside ROW needed for Alternative F1b (Station 7730+00 to 7750+00)
- Relocate dirt road to cross perpendicular to Alternative F1b (Station 7815+00 to 7820+00)

6.5.5.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment F1b mainline were sized to accommodate 734.1 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 180.1 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee BMAP, Econlockhatchee River OFW, and Lake Washington Drain, Lake Winder Drain, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 345 acres of floodplain and provide compensating storage of 4.5 ac-ft. Alignment F1b was subdivided into a total of 39 onsite mainline basins, which result in a total required pond area of 167.5 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-18**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-18: Alignment Alternative F1b Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F1b-1	3.7	7.8	0.0	11.5	6.1
F1b-2	--	0.0	--	0.0	--
F1b-3	3.1	8.0	4.5	15.6	8
F1b-4	--	0.0	--	0.0	--
F1b-5	2.4	4.5	--	6.9	4
F1b-6	1.9	3.8	--	5.7	3.4
F1b-7	0.9	4.0	--	4.9	3
F1b-8	2.2	4.0	--	6.2	3.6
F1b-9	2.0	4.0	--	6.0	3.5
F1b-10	2.4	4.0	--	6.4	3.7
F1b-11	1.4	2.7	--	4.1	2.6
F1b-12	1.0	2.7	--	3.7	2.4
F1b-13	2.2	2.6	--	4.8	2.9
F1b-14	2.5	2.7	--	5.2	3.1
F1b-15	2.5	2.7	--	5.2	3.1
F1b-16	2.8	3.5	--	6.3	3.7
F1b-17	2.0	2.4	--	4.4	2.7
F1b-18	2.2	2.7	--	4.9	3
F1b-19	3.6	4.1	--	7.7	4.3
F1b-20	2.4	2.6	--	5.0	3
F1b-21	2.2	3.1	--	5.3	3.2
F1b-22	4.1	4.9	--	9.0	4.9
F1b-23	2.2	2.5	--	4.7	2.9
F1b-24	1.3	3.0	--	4.3	2.7
F1b-25	1.6	2.6	--	4.2	2.6
F1b-26	1.0	3.9	--	4.9	3
F1b-27	4.6	7.7	--	12.3	6.5
F1b-28	2.2	3.7	--	5.9	3.5
F1b-29	2.9	4.2	--	7.1	4.1
F1b-30	2.7	4.1	--	6.8	3.9
F1b-31	3.3	5.1	--	8.4	4.7
F1b-32	0	7.2	--	7.2	4.1
F1b-33	21.8	25.6	--	47.4	21.9
F1b-34	3.3	4.7	--	8	4.5
F1b-35	5.4	4.6	--	10	5.4

Table 6-18 (continued): Alignment Alternative F1b Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F1b-36	5.9	4.9	--	10.8	5.8
F1b-37	4.8	4.4	--	9.2	5
F1b-38	4.7	5.2	--	9.9	5.4
F1b-39	4.3	9.9	--	14.2	7.3
Total	119.5	180.1	4.5	304.1	167.5

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment Alternative F1b, 38 crossings were identified and are summarized in **Table 6-19**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-19: Alignment Alternative F1b Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-FP-03	BRIDGE
CD-RG-16	8 - 30" PIPE
CD-RG-18	9 - 30" PIPE
CD-RG-19	8 - 30" PIPE
CD-RG-20	6 - 30" PIPE
CD-532-01	3 - 24" PIPE
CD-532-02	BRIDGE
CD-532-03	BRIDGE
CD-532-04	BRIDGE
CD-532-05	BRIDGE
CD-532-06	BRIDGE
CD-532-07	BRIDGE
CD-532-08	1 - 4' x 3' CBC
CD-532-09	1 - 4' x 3' CBC
CD-532-10	2 - 24" PIPE
CD-532-11	BRIDGE
CD-532-12	BRIDGE
CD-532-13	BRIDGE
CD-532-14	1 - 10' x 3' CBC
CD-532-15	1 - 4.5' x 2' CBC
CD-532-16	BRIDGE
CD-532-17	BRIDGE
CD-532-18	BRIDGE
CD-532-19	1 - 9' x 3' CBC
CD-532-20	1 - 8' x 2.5' CBC
CD-532-21	1 - 7.5' x 4' CBC
CD-532-22	2 - 24" PIPE
CD-532-23	1 - 10.5' x 5.5' CBC
CD-532-24	1 - 5' X2.2' CBC
CD-532-25	1 - 9' x 3.5' CBC
CD-532-26	1 - 4' x 2.5' CBC
CD-532-27	1 - 7' x 4' CBC
CD-532-28	2 - 7' x 5' CBC
CD-532-29	1 - 8' x 4' CBC
CD-532-30	1 - 11' x 7.5' CBC
CD-95-11	2 - 30" PIPE
CD-95-12	2 -24" PIPE
CD-95-13	3 -8' x 4' CBC

6.5.5.6 PROPOSED RIGHT-OF-WAY NEEDS

Alternative F1b would require approximately 1,743 acres of ROW. Over half of this (1,047 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserves, etc.). The SJRWMD is another major property owner and approximately 370 acres of ROW would be needed from them. The Viera Company, including their parent A. Duda & Sons, Inc., is a major property owner and approximately 319 acres of ROW would be needed from them.

6.5.5.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for Alternative F1b. **Table 6-20** summarizes projected traffic conditions for east-west facilities at the St. Johns River. Alternative F1b and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-20: Alternative F1b Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 AADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,200	0.50
SR 50	4	Uninterrupted Highway	Rural	27,800	0.44
SR 528	4	Freeway	Transitioning	66,400	0.91
SR 520	4	Uninterrupted Highway	Rural	32,300	0.52
Alternative F1b	4	Freeway	Rural	14,200	0.22
US 192	4	Uninterrupted Highway	Rural	35,700	0.57

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-21**.

Table 6-21: Alternative F1b Average Weighted 2045/2060 ADT

Criteria	Alternative F1b
Weighted ADT	12,400
Number of Toll Points	7

6.5.6 ALTERNATIVE F2

6.5.6.1 ALIGNMENT LOCATION

Alternative F2 begins within the ECFCTF Corridor F and extends east from the planned Northeast Connector Expressway near Nova Road, running parallel to Nova Road. Approximately two miles east of Deer Park Road, Alternative F2 travels northeast (exiting the ECFCTF Corridor F) and crosses the St. Johns River just south of Lake Poinsett and then interchanges with I-95 approximately 2.8-miles south of SR 520. The total length of Alternative F2 is approximately 23.8 miles. Concept Plans for Alternative F2 are provided in **Appendix I**.

6.5.6.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 30 bridges are included in Alternative F2, spanning a distance of approximately 17.7 miles. It is important to note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.6.3 PROPOSED INTERCHANGES

The location and type of interchanges for Alternative F2 are identified in **Table 6-22**. A direct connection to the Northeast Connector Expressway is assumed. The NECEE system to system interchange and two North Ranch local interchanges are assumed. A full directional system to system interchange would be provided at I-95.

Table 6-22: Alternative F2 Interchange Location and Type

Cross Road	Interchange Type
Northeast Connector Expressway	Direct Connection
North Ranch Local Access	Diamond
NECEE	Full Directional System to System
North Ranch Local Access	Diamond
I-95	Full Directional System to System

6.5.6.4 MAINTENANCE OF ACCESS

The following changes are included with Alternative F2 to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate dirt road outside ROW needed for Alternative F2 (Station 9580+00 to 9600+00)
- Relocate dirt road outside ROW needed for Alternative F2 (Station 9735+00 to 9785+00)

6.5.6.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment F2 mainline were sized to accommodate 603.6 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 142.3 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee BMAP, Econlockhatchee River OFW, and Lake Winder Drain, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 31 acres of floodplain and provide compensating storage of 4.5 ac-ft. Alignment F2 was subdivided into a total of 34 onsite mainline basins, which result in a total required pond area of 129.3 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-23**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-23: Alignment Alternative F2 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F2-1	3.7	7.8	0.0	11.5	6.1
F2-3	3.1	8.0	4.5	15.6	8
F2-5	2.4	4.5	--	6.9	4
F2-6	1.9	3.8	--	5.7	3.4
F2-7	0.9	4.0	--	4.9	3
F2-8	2.2	4.0	--	6.2	3.6
F2-9	2.0	4.0	--	6.0	3.5
F2-10	2.3	4.0	--	6.3	3.7
F2-11	1.4	2.7	--	4.1	2.6
F2-12	1.0	2.7	--	3.7	2.4
F2-13	2.2	2.6	--	4.8	2.9
F2-14	2.4	2.7	--	5.1	3.1
F2-15	2.4	2.7	--	5.1	3.1
F2-16	2.8	3.5	--	6.3	3.7
F2-17	2.0	2.4	--	4.4	2.7
F2-18	2.2	2.7	--	4.9	3
F2-19	3.6	4.1	--	7.7	4.3
F2-20	2.4	2.6	--	5.0	3
F2-21	2.2	3.1	--	5.3	3.2
F2-22	4.0	4.9	--	8.9	4.9
F2-23	2.4	2.6	--	5.0	3
F2-24	2.1	2.6	--	4.7	2.9
F2-25	1.8	2.7	--	4.5	2.8
F2-26	0.0	2.6	--	2.6	1.8
F2-27	2.3	2.7	--	5.0	3
F2-28	2.8	2.7	--	5.5	3.3
F2-29	2.6	2.6	--	5.2	3.1
F2-30	3.1	3.5	--	6.6	3.8
F2-31	4.1	4.3	--	8.4	4.7
F2-32	2.4	3.1	--	5.5	3.3
F2-33	7	8.6	--	15.6	8
F2-34	0.9	12.8	--	13.7	7.1
F2-35	0	10.9	--	10.9	5.8
F2-36	0	4.0	--	4	2.5
Total	78.6	142.3	4.5	225.6	129.3

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment Alternative F2, 36 crossings were identified and are summarized in **Table 6-24**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-24: Alignment Alternative F2 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-FP-05	8 - 24" PIPE
CD-RG-09	6 - 5' x 4' CBC
CD-RG-10	BRIDGE
CD-532-01	3 - 24" PIPE
CD-532-02	BRIDGE
CD-532-03	BRIDGE
CD-532-04	BRIDGE
CD-532-05	BRIDGE
CD-532-06	BRIDGE
CD-532-07	BRIDGE
CD-532-08	1 - 4' x 3' CBC
CD-532-09	1 - 4' x 3' CBC
CD-532-10	2 - 24" PIPE
CD-532-11	BRIDGE
CD-532-12	BRIDGE
CD-532-13	BRIDGE
CD-532-14	1 - 10' x 3' CBC
CD-532-15	1 - 4.5' x 2' CBC
CD-532-16	BRIDGE
CD-532-17	BRIDGE
CD-532-18	BRIDGE
CD-532-19	1 - 9' x 3' CBC
CD-532-20	1 - 8' x 2.5' CBC
CD-532-21	1 - 7.5' x 4' CBC
CD-532-22	2 - 24" PIPE
CD-532-23	1 - 10.5' x 5.5' CBC
CD-532-24	1 - 5' X2.2' CBC
CD-532-25	1 - 9' x 3.5' CBC
CD-532-26	1 - 4' x 2.5' CBC
CD-532-27	1 - 7' x 4' CBC
CD-532-28	2 - 7' x 5' CBC
CD-532-29	1 - 8' x 4' CBC
CD-532-30	1 - 11' x 7.5' CBC
CD-95-07	2 - 12' x 10' CBC
CD-95-08	2 - 7' x 9' CBC
CD-95-09	2 - 8' x 9' CBC

6.5.6.6 PROPOSED RIGHT-OF-WAY NEEDS

Alternative F2 would require approximately 1,453 acres of ROW. The majority of this (1,179 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserve, etc.). The SJRWMD is another major property owner and approximately 261 acres of ROW would be needed from them.

6.5.6.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for Alternative F2. **Table 6-25** summarizes projected traffic conditions for east-west facilities at the St. Johns River. Alternative F2 and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-25: Alternative F2 Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,200	0.50
SR 50	4	Uninterrupted Highway	Rural	29,300	0.47
SR 528	4	Freeway	Transitioning	66,300	0.91
SR 520	4	Uninterrupted Highway	Rural	28,400	0.45
Alternative F2	4	Freeway	Rural	25,600	0.41
US 192	4	Uninterrupted Highway	Rural	33,100	0.53

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-26**.

Table 6-26: Alternative F2 Average Weighted 2045/2060 ADT

Criteria	Alternative F2
Weighted ADT	22,600
Number of Toll Points	4

6.5.7 ALTERNATIVE F3

6.5.7.1 ALIGNMENT LOCATION

Alternative F3 begins within the ECFCTF Corridor F and extends east from the planned Northeast Connector Expressway near Nova Road, running parallel to Nova Road. Approximately three miles west of Deer Park Road, Alternative F3 travels south (exiting the ECFCTF Corridor F), and then southeast and crosses the St. Johns River just south of Lake Washington and then interchanges with I-95 at SR 518 (within the ECFCTF Corridor F). The total length of Alternative F3 is approximately 33.3 miles. Concept Plans for Alternative F3 are provided in **Appendix J**.

6.5.7.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 58 bridges are included in Alternative F3, spanning a distance of approximately 17.5 miles. It is important to note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.7.3 PROPOSED INTERCHANGES

The location and type of interchanges for Alternative F3 are identified in **Table 6-27**. A direct connection to the Northeast Connector Expressway is assumed. The NECEE system to system interchange and two North Ranch local interchanges are assumed. Slip ramps to and from the east would be provided at SR 518. A full directional system to system interchange would be provided at I-95.

Table 6-27: Alternative F3 Interchange Location and Type

Cross Road	Interchange Type
Northeast Connector Expressway	Direct Connection
North Ranch Local Access	Diamond
NECEE	Full Directional System to System
North Ranch Local Access	Diamond
SR 518	Slip Ramps (access to/from east)
I-95	Full Directional System to System

6.5.7.4 MAINTENANCE OF ACCESS

The following changes are included with Alternative F3 to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate dirt road outside ROW needed for Alternative F3 (Station 11735+00 to 11755+00)
- Relocate dirt road outside ROW needed for Alternative F3 (Station 11750+00 to 11765+00)

6.5.7.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment F3 mainline were sized to accommodate 843.1 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 217.7 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee BMAP, Econlockhatchee River OFW, and St. Johns River, Lake Winder Drain, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 371 acres of floodplain and provide compensating storage of 4.5 ac-ft. Alignment F3 was subdivided into a total of 45 onsite mainline basins, which result in a total required pond area of 193.3 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-28**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-28: Alignment Alternative F3 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F3-1	3.7	7.8	0.0	11.5	6.1
F3-2	--	0.0	--	0.0	
F3-3	3.1	8.0	4.5	15.6	8
F3-4	--	0.0	--	0.0	
F3-5	2.4	4.5	--	6.9	4
F3-6	1.8	3.8	--	5.6	3.3
F3-7	0.9	4.0	--	4.9	3
F3-8	2.2	4.0	--	6.2	3.6
F3-9	2.0	4.0	--	6.0	3.5
F3-10	2.3	4.0	--	6.3	3.7
F3-11	1.4	2.7	--	4.1	2.6
F3-12	1.0	2.7	--	3.7	2.4
F3-13	2.2	2.6	--	4.8	2.9
F3-14	2.4	2.7	--	5.1	3.1
F3-15	2.4	2.7	--	5.1	3.1
F3-16	2.8	3.5	--	6.3	3.7
F3-17	2.0	2.4	--	4.4	2.7
F3-18	2.2	2.7	--	4.9	3
F3-19	3.6	4.1	--	7.7	4.3
F3-20	2.4	2.6	--	5.0	3
F3-21	2.2	3.1	--	5.3	3.2
F3-22	4.3	4.9	--	9.2	5
F3-23	2.4	2.6	--	5.0	3
F3-24	1.5	3.1	--	4.6	2.8
F3-25	1.7	2.7	--	4.4	2.7
F3-26	0.8	3.8	--	4.6	2.8
F3-27	4.8	7.9	--	12.7	6.6
F3-28	2.2	3.8	--	6.0	3.5
F3-29	1.9	2.2	--	4.1	2.6
F3-30	2.4	2.5	--	4.9	3
F3-31	3.9	3.9	--	7.8	4.4
F3-32	3	4.1	--	7.1	4.1
F3-33	2.1	2.6	--	4.7	2.9
F3-34	2.3	2.8	--	5.1	3.1
F3-35	3.1	3.5	--	6.6	3.8

Table 6-28 (continued): Alignment Alternative F3 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F3-36	1.8	2.1	--	3.9	2.5
F3-37	2.6	2.9	--	5.5	3.3
F3-38	2.9	3.3	--	6.2	3.6
F3-39	2.3	2.7	--	5	3
F3-40	2.2	3.1	--	5.3	3.2
F3-41	2.9	3.4	--	6.3	3.7
F3-42	11.5	18.3	--	29.8	14.2
F3-43	16.3	31.4	--	47.7	22
F3-44	7.7	16.5	--	24.2	11.8
F3-45	0.4	11.9	--	12.3	6.5
Total	130.0	217.7	4.5	352.4	193.3

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment Alternative F3, 43 crossings were identified and are summarized in **Table 6-29**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-29: Alignment Alternative F3 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-FP-01	20 - 48" PIPE
CD-RG-12	BRIDGE
CD-RG-13	6 - 30" PIPE
CD-RG-14	11 - 30" PIPE
CD-RG-15	7 - 30" PIPE
CD-532-01	3 - 24" PIPE
CD-532-02	BRIDGE
CD-532-03	BRIDGE
CD-532-04	BRIDGE
CD-532-05	BRIDGE
CD-532-06	BRIDGE
CD-532-07	BRIDGE
CD-532-08	1 - 4' x 3' CBC
CD-532-09	1 - 4' x 3' CBC

Table 6-29 (continued): Alignment Alternative F3 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-532-10	2 - 24" PIPE
CD-532-11	BRIDGE
CD-532-12	BRIDGE
CD-532-13	BRIDGE
CD-532-14	1 - 10' x 3' CBC
CD-532-15	1 - 4.5' x 2' CBC
CD-532-16	BRIDGE
CD-532-17	BRIDGE
CD-532-18	BRIDGE
CD-532-19	1 - 9' x 3' CBC
CD-532-20	1 - 8' x 2.5' CBC
CD-532-21	1 - 7.5' x 4' CBC
CD-532-22	2 - 24" PIPE
CD-532-23	1 - 10.5' x 5.5' CBC
CD-532-24	1 - 5' X2.2' CBC
CD-532-25	1 - 9' x 3.5' CBC
CD-532-26	1 - 4' x 2.5' CBC
CD-532-27	1 - 7' x 4' CBC
CD-532-28	2 - 7' x 5' CBC
CD-532-29	1 - 8' x 4' CBC
CD-532-30	1 - 11' x 7.5' CBC
CD-95-14	1 - 9' x 8' CBC
CD-95-15	1 - 5' x 4' CBC
CD-95-16	1 - 30" PIPE
CD-95-17	1 - 24" PIPE
CD-95-18	1 - 6' x 6' CBC
CD-95-19	3 - 48" PIPE
CD-192-17	BRIDGE
CD-192-18	BRIDGE

6.5.7.6 PROPOSED RIGHT-OF-WAY NEEDS

Alternative F3 would require approximately 2,051 acres of ROW. The majority of this (1,754 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserve, etc.). Approximately 14 acres of ROW would be needed from the SJRWMD, 10 acres would be needed from Brevard County, and 36 acres would be needed from the City of Melbourne.

6.5.7.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for Alternative F3. **Table 6-30** summarizes projected traffic conditions for east-west facilities at the St. Johns River. Alternative F3 and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-30: Alternative F3 Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,300	0.50
SR 50	4	Uninterrupted Highway	Rural	24,400	0.39
SR 528	4	Freeway	Transitioning	66,300	0.91
SR 520	4	Uninterrupted Highway	Rural	31,400	0.50
Alternative F3	4	Freeway	Rural	7,100	0.11
US 192	4	Uninterrupted Highway	Rural	40,600	0.65

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-31**.

Table 6-31: Alternative F3 Average Weighted 2045/2060 ADT

Criteria	Alternative F3
Weighted ADT	9,100
Number of Toll Points	7

6.5.8 ALTERNATIVE F4

6.5.8.1 ALIGNMENT LOCATION

Alternative F4 begins within the ECFCTF Corridor F and extends east from the planned Northeast Connector Expressway near Nova Road, running parallel to Nova Road. Approximately three miles west of Deer Park Road, Alternative F3 travels south (exiting the ECFCTF Corridor F), and then southeast to US 192, where it runs parallel to US 192 to cross the St. Johns River and then interchange with I-95 at US 192. The total length of Alternative F4 is approximately 33.7 miles. Concept Plans for Alternative F4 are provided in **Appendix K**.

6.5.8.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 62 bridges are included in Alternative F4, spanning a distance of approximately 16.3 miles. It is important to note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.8.3 PROPOSED INTERCHANGES

The location and type of interchanges for Alternative F4 are identified in **Table 6-32**. A direct connection to the Northeast Connector Expressway is assumed. The NECEE system to system interchange and two North Ranch local interchanges are assumed. Slip ramps to and from the east would be provided at US 192. A full directional system to system interchange would be provided at I-95.

Table 6-32: Alternative F4 Interchange Location and Type

Cross Road	Interchange Type
Northeast Connector Expressway	Direct Connection
North Ranch Local Access	Diamond
NECEE	Full Directional System to System
North Ranch Local Access	Diamond
US 192	Slip Ramps (access to/from east)
I-95	Full Directional System to System

6.5.8.4 MAINTENANCE OF ACCESS

The following changes are included with Alternative F4 to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate dirt road outside ROW needed for Alternative F4 (Station 13735+00 to 13755+00)
- Relocate dirt road outside ROW needed for Alternative F4 (Station 13750+00 to 13765+00)
- Relocate the northbound ramp from I-95 to Ellis Road to accommodate ramp from eastbound Alternative F4 to northbound I-95
- Relocate Brandywine Lane to accommodate relocated southbound ramp from US 192 to I-95

6.5.8.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment F4 mainline were sized to accommodate 853.3 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 218.4 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee BMAP, Econlockhatchee River OFW, and St. Johns River, Lake Winder Drain, Crane Creek, Melbourne-Tillman canal, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 435 acres of floodplain and provide compensating storage of 4.5 ac-ft. Alignment F4 was subdivided into a total of 44 onsite mainline basins, which result in a total required pond area of 194.1 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-33**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-33: Alignment Alternative F4 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F4-1	3.7	7.8	0.0	11.5	6.1
F4-3	3.1	8.0	4.5	15.6	8.0
F4-5	2.4	4.5	--	6.9	4.0
F4-6	1.8	3.8	--	5.6	3.3
F4-7	0.9	4.0	--	4.9	3.0
F4-8	2.2	4.0	--	6.2	3.6
F4-9	2.0	4.0	--	6.0	3.5
F4-10	2.3	4.0	--	6.3	3.7
F4-11	1.4	2.7	--	4.1	2.6
F4-12	1.0	2.7	--	3.7	2.4
F4-13	2.2	2.6	--	4.8	2.9
F4-14	2.4	2.7	--	5.1	3.1
F4-15	2.4	2.7	--	5.1	3.1
F4-16	2.8	3.5	--	6.3	3.7
F4-17	2.0	2.4	--	4.4	2.7
F4-18	2.2	2.7	--	4.9	3.0
F4-19	3.6	4.1	--	7.7	4.3
F4-20	2.4	2.6	--	5.0	3.0
F4-21	2.2	3.1	--	5.3	3.2
F4-22	4.3	4.9	--	9.2	5.0
F4-23	2.4	2.6	--	5.0	3.0
F4-24	1.5	3.1	--	4.6	2.8
F4-25	1.7	2.7	--	4.4	2.7
F4-26	0.9	3.8	--	4.7	2.9
F4-27	4.8	7.9	--	12.7	6.6
F4-28	2.2	3.8	--	6.0	3.5
F4-29	1.9	2.2	--	4.1	2.6
F4-30	2.4	2.5	--	4.9	3.0
F4-31	3.9	3.9	--	7.8	4.4
F4-32	3.0	4.1	--	7.1	4.1
F4-33	2.1	2.6	--	4.7	2.9
F4-34	2.3	2.8	--	5.1	3.1
F4-35	3.1	3.5	--	6.6	3.8
F4-36	1.8	2.1	--	3.9	2.5
F4-37	2.6	2.9	--	5.5	3.3

Table 6-33 (continued): Alignment Alternative F4 Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
F4-38	2.9	3.3	--	6.2	3.6
F4-39	2.3	2.7	--	5.0	3.0
F4-40	2.2	3.1	--	5.3	3.2
F4-41	2.9	3.4	--	6.3	3.7
F4-42	12.2	18.7	--	30.9	14.7
F4-43	9.2	13.1	--	22.3	11.0
F4-44	0.1	13.6	--	13.7	7.1
F4-45	9.8	18.4	--	28.2	13.5
F4-46	2.5	15.1	--	17.6	8.9
Total	128.0	218.4	4.5	351.2	194.1

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment Alternative F3, 46 crossings were identified and are summarized in **Table 6-34**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-34: Alignment Alternative F4 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-FP-02	21 - 48" PIPE
CD-RG-12	BRIDGE
CD-RG-13	6 - 30" PIPE
CD-RG-14	11 - 30" PIPE
CD-RG-15	7 - 30" PIPE
CD-RG-17	9 - 30" PIPE
CD-532-01	3 - 24" PIPE
CD-532-02	BRIDGE
CD-532-03	BRIDGE
CD-532-04	BRIDGE
CD-532-05	BRIDGE
CD-532-06	BRIDGE
CD-532-07	BRIDGE
CD-532-08	1 - 4' x 3' CBC
CD-532-09	1 - 4' x 3' CBC
CD-532-10	2 - 24" PIPE

Table 6-34 (continued): Alignment Alternative F4 Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-532-11	BRIDGE
CD-532-12	BRIDGE
CD-532-13	BRIDGE
CD-532-14	1 - 10' x 3' CBC
CD-532-15	1 - 4.5' x 2' CBC
CD-532-16	BRIDGE
CD-532-17	BRIDGE
CD-532-18	BRIDGE
CD-532-19	1 - 9' x 3' CBC
CD-532-20	1 - 8' x 2.5' CBC
CD-532-21	1 - 7.5' x 4' CBC
CD-532-22	2 - 24" PIPE
CD-532-23	1 - 10.5' x 5.5' CBC
CD-532-24	1 - 5' X2.2' CBC
CD-532-25	1 - 9' x 3.5' CBC
CD-532-26	1 - 4' x 2.5' CBC
CD-532-27	1 - 7' x 4' CBC
CD-532-28	2 - 7' x 5' CBC
CD-532-29	1 - 8' x 4' CBC
CD-532-30	1 - 11' x 7.5' CBC
CD-192-17	BRIDGE
CD-192-18	BRIDGE
CD-192-19	1 - 24" PIPE
CD-95-21	1 - 36" PIPE
CD-95-22	1 - 24" PIPE
CD-95-23	1 - 24" PIPE
CD-95-24	1 - 24" PIPE
CD-95-25	1 - 24" PIPE
CD-95-26	2 - 24" PIPE
CD-95-27	1 - 5' x 4' CBC

6.5.8.6 PROPOSED RIGHT-OF-WAY NEEDS

Alternative F4 would require approximately 2,095 acres of ROW. The majority of this (1,776 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserve, etc.). Approximately 66 acres of ROW would be needed from the SJRWMD, and three acres would be needed from Brevard County.

6.5.8.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for Alternative F4. **Table 6-35** summarizes projected traffic conditions for east-west facilities at the St. Johns River. Alternative F4 and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-35: Alternative F4 Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,400	0.51
SR 50	4	Uninterrupted Highway	Rural	25,200	0.40
SR 528	4	Freeway	Transitioning	66,000	0.91
SR 520	4	Uninterrupted Highway	Rural	33,100	0.53
Alternative F4	4	Freeway	Rural	5,300	0.08
US 192	4	Uninterrupted Highway	Rural	39,100	0.62

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-36**.

Table 6-36: Alternative F4 Average Weighted 2045/2060 ADT

Criteria	Alternative F4
Weighted ADT	7,100
Number of Toll Points	7

6.5.9 EAG ALTERNATIVE

6.5.9.1 ALIGNMENT LOCATION

The EAG Alternative begins within the ECFCTF Corridor F and extends east from the planned Northeast Connector Expressway near Nova Road, running parallel to Nova Road for approximately eight miles, where it turns south at the location identified for the NECEE. The EAG Alternative then uses the NECEE alignment south to US 192, where it turns east and runs parallel to US 192 to cross the St. Johns River and then interchanges with I-95 at US 192. The total length of the EAG Alternative is approximately 36.4 miles. Concept Plans for the EAG Alternative are provided in **Appendix L**.

6.5.9.2 PROPOSED STRUCTURES

Bridges are proposed to span most non-isolated wetlands, as well as existing roadways. A total of 53 bridges are included in the EAG Alternative, spanning a distance of approximately 15.5 miles. It is important to note that most crossings have twin bridges, so the actual length of bridged expressway is approximately half the length of the bridges.

6.5.9.3 PROPOSED INTERCHANGES

The location and type of interchanges for the EAG Alternative are identified in **Table 6-37**. A direct connection to the Northeast Connector Expressway is assumed. The NECEE system to system interchange and one North Ranch local interchange are assumed. Slip ramps to and from the east would be provided at Nova Road and US 192. A full directional system to system interchange would be provided at I-95.

Table 6-37: EAG Alternative Interchange Location and Type

ID	Cross Road	Interchange Type
9	Northeast Connector Expressway	Direct Connection
10	North Ranch Local Access	Diamond
11	NECEE	Full Directional System to System
12	Nova Road	Slip Ramps (access to/from east)
17	US 192	Slip Ramps (access to/from east)
18	I-95	Full Directional System to System

6.5.9.4 MAINTENANCE OF ACCESS

The following changes are included with the EAG Alternative to maintain access to properties and continuity of the local roadway network (approximate locations are provided):

- Relocate dirt road to cross perpendicular to the EAG Alternative (Station 13785+00 to 13815+00)
- Relocate US 192 from ramps accessing the EAG Alternative to/from the north to Station 14020+00
- Relocate dirt road outside ROW needed for the EAG Alternative (Station 14245+00 to 14265+00)
- Relocate the northbound ramp from I-95 to Ellis Road to accommodate ramp from eastbound Alternative F4 to northbound I-95
- Relocate Brandywine Lane to accommodate relocated southbound ramp from US 192 to I-95

6.5.9.5 DRAINAGE AND STORMWATER CONSIDERATIONS

The stormwater ponds for Alignment EAG mainline were sized to accommodate 902.3 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 243.3 ac-ft. and includes the additional 50 percent to accommodate the Lake Okeechobee BMAP, Econlockhatchee River OFW, and St. Johns River, Crane Creek, Melbourne-Tillman canal, and Econlockhatchee River impaired waterbodies. The proposed improvements are estimated to impact 326 acres of floodplain and provide compensating storage of 4.5 ac-ft. Alignment EAG was subdivided into a total of 52 onsite mainline basins, which result in a total required pond area of 219.2 acres. The summary of required volumes and required pond area for each basin is provided in **Table 6-38**. Please refer to **Appendix M** for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-38: Alignment EAG Alternative Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
EAG-1	3.7	7.8	0.0	11.5	6.1
EAG-3	3.1	8.0	4.5	15.6	8.0
EAG-5	2.4	4.5	--	6.9	4.0
EAG-6	1.8	3.8	--	5.6	3.3
EAG-7	0.9	4.0	--	4.9	3.0
EAG-8	2.2	4.0	--	6.2	3.6
EAG-9	2.0	4.0	--	6.0	3.5
EAG-10	2.3	4.0	--	6.3	3.7
EAG-11	1.4	2.7	--	4.1	2.6
EAG-12	1.0	2.7	--	3.7	2.4
EAG-13	2.2	2.6	--	4.8	2.9
EAG-14	2.5	2.7	--	5.2	3.1
EAG-15	2.4	2.7	--	5.1	3.1
EAG-16	3.9	10.0	--	13.9	7.2
EAG-17	1.3	2.7	--	4.0	2.5
EAG-18	2.0	2.9	--	4.9	3.0
EAG-19	2.5	2.8	--	5.3	3.2
EAG-20	2.6	3.0	--	5.6	3.3
EAG-21	2.8	3.1	--	5.9	3.5
EAG-22	2.5	2.8	--	5.3	3.2
EAG-23	1.7	3.0	--	4.7	2.9
EAG-24	2.6	3.0	--	5.6	3.3
EAG-25	2.5	2.9	--	5.4	3.2
EAG-26	2.4	2.7	--	5.1	3.1
EAG-27	2.4	3.0	--	5.4	3.2
EAG-28	2.5	2.8	--	5.3	3.2
EAG-29	2.0	2.8	--	4.8	2.9
EAG-30	2.6	3.0	--	5.6	3.3
EAG-31	2.4	2.8	--	5.2	3.1
EAG-32	2.4	2.8	--	5.2	3.1
EAG-33	4.0	4.6	--	8.6	4.8
EAG-34	6.6	19.4	--	26.0	12.6
EAG-35	2.3	2.9	--	5.2	3.1
EAG-36	3.6	3.8	--	7.4	4.2
EAG-37	2.7	3.0	--	5.7	3.4

Table 6-38 (continued): Alignment EAG Alternative Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac-ft.)	(ac)
EAG-38	2.9	3.1	--	6.0	3.5
EAG-39	1.5	2.6	--	4.1	2.6
EAG-40	2.2	3.0	--	5.2	3.1
EAG-41	2.4	2.6	--	5.0	3.0
EAG-42	1.7	2.6	--	4.3	2.7
EAG-43	2.1	2.7	--	4.8	2.9
EAG-44	1.6	2.5	--	4.1	2.6
EAG-45	2.9	2.5	--	5.4	3.2
EAG-46	3.5	2.5	--	6.0	3.5
EAG-47	1.0	2.5	--	3.5	2.3
EAG-48	2.2	2.7	--	4.9	3.0
EAG-49	2.2	2.7	--	4.9	3.0
EAG-50	2.4	2.8	--	5.2	3.1
EAG-51	17.2	19.4	--	36.6	17.2
EAG-52	0.0	12.4	--	12.4	6.5
EAG-53	9.8	18.4	--	28.2	13.5
EAG-54	2.5	15.1	--	17.6	8.9
Total	146.3	243.3	4.5	394.2	219.2

As part of the location hydraulics analysis, locations were identified where significant off-site hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Alignment EAG Alternative, 48 crossings were identified and are summarized in **Table 6-39**. Please refer to **Appendix N** for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-39: Alignment EAG Alternative Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-532-21	7.5' x 4' CBC
CD-RG-11	6 - 5' x 4' CBC
CD-532-01	3 - 24" PIPE
CD-532-02	BRIDGE
CD-532-03	BRIDGE
CD-532-04	BRIDGE
CD-532-05	BRIDGE

Table 6-39 (continued): Alignment EAG Alternative Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-532-06	BRIDGE
CD-532-07	BRIDGE
CD-532-08	1 - 4' x 3' CBC
CD-532-09	1 - 4' x 3' CBC
CD-532-10	2 - 24" PIPE
CD-532-11	BRIDGE
CD-532-12	BRIDGE
CD-532-13	BRIDGE
CD-532-14	1 - 10' x 3' CBC
CD-532-15	1 - 4.5' x 2' CBC
CD-532-16	BRIDGE
CD-532-17	BRIDGE
CD-532-18	BRIDGE
CD-532-19	1 - 9' x 3' CBC
CD-192-00	2 - 10' x 5' CBC
CD-192-01	1 - 7' x 3' CBC
CD-192-02	BRIDGE
CD-192-03	1 - 10' x 4' CBC
CD-192-04	1 - 10' x 3' CBC
CD-192-05	1 - 10' x 3' CBC
CD-192-06	1 - 8' x 3' CBC
CD-192-07	BRIDGE
CD-192-08	1 - 6' x 3' CBC
CD-192-09	BRIDGE
CD-192-10	2 - 6' x 5' CBC
CD-192-11	1 - 10' x 4' CBC
CD-192-12	BRIDGE
CD-192-13	2 - 6' x 6' CBC
CD-192-14	1 - 5' x 4' CBC
CD-192-15	BRIDGE
CD-192-17	BRIDGE
CD-192-18	BRIDGE
CD-192-19	1 - 24" PIPE
CD-95-20	1 - 3
CD-95-21	1 - 36" PIPE
CD-95-22	1 - 24" PIPE
CD-95-23	2 - 24" PIPE
CD-95-24	3 - 24" PIPE

Table 6-39 (continued): Alignment EAG Alternative Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size
CD-95-25	4 - 24" PIPE
CD-95-26	5 - 24" PIPE
CD-95-27	1 - 5' x 4' CBC

6.5.9.6 PROPOSED RIGHT-OF-WAY NEEDS

The EAG Alternative would require approximately 2,470 acres of ROW. The majority of this (1,915 acres) would be from property owned by Deseret Ranches or their subsidiaries (i.e., Suburban Land Reserve, etc.). Approximately 58 acres of ROW would be needed from the SJRWMD, 100 acres would be needed from Brevard County, and 121 acres would be needed from Deer Park Ranch.

6.5.9.7 PROJECTED DESIGN YEAR TRAFFIC

The future year (2045/2060) ADT was run for the EAG Alternative. **Table 6-40** summarizes projected traffic conditions for east-west facilities at the St. Johns River. The EAG Alternative and all existing east-west facilities are projected to operate with a volume to capacity (V/C) ratio less than 1.0, meaning all facilities are projected to operate below their capacity.

Table 6-40: EAG Alternative Future Year (2045/2065) Conditions at the St. Johns River Screenline

Facility	Number of Lanes	Type	Area Type	2045/2060 ADT	V/C
SR 46	2	Uninterrupted Highway	Rural	14,400	0.51
SR 50	4	Uninterrupted Highway	Rural	28,900	0.46
SR 528	4	Freeway	Transitioning	66,300	0.91
SR 520	4	Uninterrupted Highway	Rural	29,800	0.48
EAG Alternative	4	Freeway	Rural	0	0.00
US 192	4	Uninterrupted Highway	Rural	39,300	0.63

The evaluation of corridor performance was completed using the weighted ADT. This is calculated as the sum-product of segment ADT and length (miles) divided by the length of the corridor. The average weighted 2045/2060 ADT, along with the number of tolling points are summarized in **Table 6-41**.

Table 6-41: EAG Alternative Average Weighted 2045/2060 ADT

Criteria	EAG Alternative
Weighted ADT	2,800
Number of Toll Points	4

7.0 ANTICIPATED EFFECTS

7.1 NATURAL ENVIRONMENT

7.1.1 WATER RESOURCES

7.1.1.1 SURFACE WATERS

Surface waters identified within the study area were classified as either lake, freshwater pond, or riverine. There are numerous named surface waters within the footprint of the alignments within the study area. These areas include the Econlockhatchee River, St. Johns River, Roberts Island Slough, South Fork Taylor Creek, Sweetwater Creek, Taylor Creek, Faulk Canal, Cox Creek, Garrett Branch, Wolf Creek, Gator Branch, and Pennywash Creek. **Table 7-1** summarizes the impacted acreage to surface waters and stream crossings by alternative. Acreage of surface water impacts range from 3 acres (Alternative D1) to 51 acres (Alternative F4).

Table 7-1: Surface Water Impacts by Alternative

Alternatives	Riverine (Acres)	Freshwater Pond And Lakes (Acres)	Total (Acres)
No Build	0	0	0
D1	3	0	3
D2	22	14	36
F1	16	20	36
F1b	15	15	30
F2	11	19	30
F3	31	19	50
F4	31	20	51
EAG	26	15	41

7.1.1.2 GROUNDWATER

Stormwater treatment facilities will be required for all the proposed alternatives and will be designed and constructed in accordance with the Florida Department of Environmental Protection (FDEP), St. Johns River Water Management District (SJRWMD), and South Florida Water Management District (SFWMD) rules and regulations. See Section 6.6 of this document for drainage and stormwater considerations for each alternative.

7.1.1.3 STORMWATER

Stormwater management facilities will be an integral part of the planned roadway infrastructure. See Section 6.6 of this document for drainage and stormwater considerations for each alternative.

7.1.1.4 FLOODPLAINS

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) panel numbers for Osceola and Brevard Counties, the study area lies in the 100-year floodplain, within zones A and AE, as well as outside of the 100-year floodplain in Zone X. The 100-year FEMA flood level ranges from 17.0' North American Vertical Datum (NAVD) to 19.0' NAVD within the study area. **Table 7-2**

provides the acreage of impacts by alternatives to the 100-year floodplain. Outside of Alternative D1, the floodplain impacts for all alternatives are substantial.

Table 7-2: 100-Year Floodplain Impacts by Alternative (Acres)

FEMA FIRM Flood Zones – Impacts in Acres			
Alternatives	**Zone A**	**Zone AE**	**Total**
No Build	0	0	0
D1	279	128	407
D2	396	637	1033
F1	398	980	1378
F1b	410	942	1352
F2	382	928	1310
F3	473	1264	1737
F4	473	1390	1863
EAG	565	1197	1762

7.1.1.5 WETLANDS

Table 7-3 shows acres of wetland impacts by alternative and wetland type.

Table 7-3: Wetland Impacts by Alternative (Acres)

Wetland Types – Impacts in Acres			
Alternatives	**Freshwater Emergent**	**Freshwater Forested**	**Total**
No Build	0	0	0
D1	97	211	308
D2	189	300	489
F1	127	288	415
F1b	111	307	418
F2	287	258	545
F3	263	275	538
F4	241	276	517
EAG	184	359	543

All alternatives result in substantial impacts to wetlands, but alternatives D1, F1, F1b, and D2 result in less than 500 acres impact to wetlands, and D1 is the only alternative that is slightly more than 300 acres of impacts. Impacts for wetlands range from 308 acres (Alternative D1) to 545 acres (Alternative F2).

7.1.1.6 CLIMATE CHANGE

The Osceola/Brevard County Connectors (OBCC) study area was evaluated in relation to projected sea level rise (SLR) through the Florida Sea Level Scenario Sketch Planning Tool (FDOT/University of Florida GeoPlan Center). Additionally, vulnerability assessments conducted by FDOT and the Space Coast TPO utilizing data from the Sketch Planning tool were reviewed. Based upon review of these projections and

assessments, none of the OBCC study area or proposed corridor alternatives are projected to be impacted by inundation from rising sea level through 2100.

The OBCC study area was evaluated in relation to SLR projections within the FDOT/UF GeoPlan Sketch Planning Tool. Specifically, the two SLR scenarios analyzed were the 2060 U.S. Army Corps of Engineers (USACE) High projection (2.0-2.3 ft) and the 2060 National Oceanic and Atmosphere Administration (NOAA) High projection (3.3-3.6 ft). No area within the OBCC study area is affected by the projected SLR inundation area. While there are areas of SLR impact within the St. Johns River watershed, these occur well north (downstream) of the study area.

In 2018, FDOT conducted a risk assessment of the Strategic Intermodal System (SIS), the state's priority transportation corridors, connectors, and hubs, using inundation surfaces developed from the FDOT/UF GeoPlan Sketch Planning Tool. No SIS facilities within the OBCC study area were identified as being impacted by either a projected 1- or 2-foot SLR increase. No segments of I-95 in Brevard County, which forms the eastern boundary of the study area, were identified as vulnerable to projected SLR (Risk Assessment on SIS Facilities, FDOT, 2018).

In 2018, the Space Coast TPO conducted a Sea Level Rise Vulnerability Assessment for Brevard County utilizing the USACE projections within the FDOT/UF GeoPlan Sketch Planning Tool for the horizons of 2040, 2070, and 2100. No areas within the OBCC study area are projected to be impacted.

7.1.2 FARMLANDS

Natural Resources Conservation Service (NRCS) soil data was used to determine areas containing soils representative of prime and unique farmlands, with impact acreage by alternative represented in **Table 7-4**. Much of the area defined as prime or unique farmland is located in rural areas where rapid growth is not currently occurring such as within areas owned by Deseret Ranches. Additional coordination with NRCS during the Project Development and Environment (PD&E) Study would be required if federal funding is proposed for the project. Acreage of impacts to Prime and Unique Farmlands range from 339 acres (Alternative D1) to 1,205 acres (EAG Alternative).

Table 7-4: Prime and Unique Farmlands by Alternative (Acres)

Alternatives	Prime and Unique Farmlands – Impacts in Acres
No Build	0
D1	339
D2	347
F1	801
F1b	952
F2	629
F3	1043
F4	1089
EAG	1205

7.1.3 THREATENED AND ENDANGERED SPECIES

As described in Section 3.5.4, there are several potential federal and state-listed species that could occur in the project area. Species-specific surveys were not part of this study but would be completed as part

of the future PD&E Study. In general, those alternatives that impact conservation areas, wetlands, and floodplain resources would have a higher likelihood of impacting listed species. For the purposes of evaluating potential impacts to state and federal listed species, acreages of native upland and wetland habitat or habitats that have been converted to agriculture that could support species such as Audubon's crested caracara were obtained for each alternative as shown in **Table 7-5**. All alternatives have a substantial impact to native habitats because of the new roadway alignment and as such are considered to have a high probability of impacts to listed species.

Table 7-5: Habitat Impacts by Alternative (Acres)

Habitat – Impacts in Acres								
Florida Land Use, Cover and Forms Classification System (FLUCFCS) Code / Habitat Type	**D1**	**D2**	**F1**	**F1b**	**F2**	**F3**	**F4**	**EAG**
200/Agriculture	602.06	634.17	1048.58	1072.38	758.12	1324.33	1387.02	1648.78
300/Rangeland	97.59	137.18	35.53	29.22	0.41	30.22	70.97	89.6
400/Upland Forest	90.12	111.71	181.1	200.88	110.16	77.04	77.96	61.57
500/Water	5.58	43.62	15.88	14.38	18.79	22.77	19.12	21.76
600/Wetlands	287.21	512.17	472.61	429.2	565.64	545.61	521.1	629.64
FLUCFCS – Florida Land Use, Cover and Forms Classification System (FDOT, 1999)								

As discussed in Section 3.5.5., of the six (6) Priority Habitats defined as part of Florida's Wildlife Legacy Initiative and Statewide Wildlife Action Plan, two (2) of the habitats occur in the study area and would be impacted by the alternatives studied. **Table 7-6** provides the impacts by alternative of Priority Habitats.

The D1 and D2 alternatives would result in more impacted habitat identified by Florida Fish and Wildlife Conservation Commission (FWC) as Priority Habitat primarily because of the impacts to undeveloped lands, creeks, and their tributaries.

Table 7-6: FWC Priority Habitat by Alternative

FWC Priority Habitat Impacts		
Alternatives	**Scrub [1] (Acres)**	**Softwater Stream (Crossings)**
No Build	0	0
D1	338.07	8
D2	390.94	8
F1	142.04	7
F1b	113.80	8
F2	87.59	8
F3	85.83	1
F4	121.51	1
EAG	290.12	2
Note: The Geographic Information System (GIS) data layer from FWC for "scrub" corresponds to the following FLUCFCS layers from SJRWMD – Unimproved pasture, herbaceous dry prairie, upland shrub and brushland, pine flatwoods, xeric oak, upland hardwood forest, and upland coniferous forest. The softwater stream dataset includes additional areas mapped as small stream tributaries that are not included in the United States Geological Survey (USGS) stream dataset.		

7.1.4 ESSENTIAL FISH HABITAT

There is no essential fish habitat in the project study area.

7.1.5 CONSERVATION AND MITIGATION AREAS

Conservation areas within the study area consist of the Lake Washington Mitigation Bank (LWMB), Tosohatchee Wildlife Management Area, River Lakes Conservation Area, Viera Wilderness Park (VWP), and the Wadsworth-Greenbaum Conservation Easement. Impact acreages by alternative to these conservation areas are provided below in **Table 7-7**. Acreage of impacts to conservation areas range from 0 acre (Alternative D1) to 548 acres (Alternative F1).

Table 7-7: Conservation Area Impacts by Alternative (Acres)

Conservation Areas – Impacts in Acres					
Alternatives	**Tosohatchee Wildlife Management Area**	**River Lakes Conservation Area**	**Viera Wilderness Park**	**Wadsworth-Greenbaum Conservation Easement**	**Total**
No Build	0	0	0	0	0
D1	0	0	0	0	0
D2	115	0	0	0	115
F1	0	391	157	0	548
F1b	0	385	157	0	542
F2	0	263	0	12	275
F3	0	65	0	0	65
F4	0	65	0	0	65
EAG	0	52	0	0	52

LWMB is a 1,657-acre site located within the St. Johns River and Lake Washington Floodplain and is contiguous to a portion of the southeastern shore of Lake Washington in Brevard County, located within the southeast portion of the study area. This mitigation bank is privately managed and is approved to offset freshwater herbaceous wetland impacts within SJRWMD's Southern St. Johns River Basin (Basin 20) and a portion of the Central Indian River Lagoon (Basin 22). Only the F3 alternative impacts this mitigation bank. **Table 7-8** provides impact acreage of the LWMB by alternative.

Table 7-8: Mitigation Bank Impacts by Alternative

Alternatives	LWMB – Impacts in Acres
No Build	0
D1	0
D2	0
F1	0
F1b	0
F2	0
F3	76
F4	0
EAG	0

7.1.6 PRESCRIBED BURN AREAS

Most of the open burn authorizations within the study area and adjacent to the alternatives were permitted for pile burning; however, on the east side of the study area, Alternatives F1, F1b, F2, F3, and F4 bisect the location of multiple prescribed burns authorized for silvicultural and ecological purposes within the River Lakes Conservation Area and LWMB. Though the construction of roads can affect burn management, there are already existing roads (I-95, US 192, SR 520) to the east, north, and south of the burn areas and residential areas to the east of I-95 that may already affect how and where burns can occur. However, Alternatives F1, F1b, F2, and F3 would result in additional substantial bifurcation of the River Lakes Conservation Area and Alternative F3 would result in bifurcation of the LWMB. Bifurcating an area that is managed through prescribed burns has a substantial adverse effect on the ability to implement prescribed burns.

7.1.7 ANTICIPATED PERMITS

State and federal agencies regulate construction and maintenance activities via various environmental laws and regulations. These laws and regulations are in place to conserve, protect, manage, and control the air, land, water, and natural resources of the state or of the United States. The following is an overview of anticipated permits required from state and federal agencies for the proposed project.

7.1.7.1 USACE SECTION 404 DREDGE AND FILL PERMIT

The USACE regulates the discharge of dredge and fill material into Waters of the United States (WOTUS), including wetlands and surface waters, under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899. Section 404 requires the issuance of a permit before dredge or fill material may be discharged into WOTUS, unless the activity is exempt from this regulation (e.g., certain farming and silviculture activities). Under Section 401 of the CWA, a Water Quality Certification is required prior to the issuance of a Section 404 Dredge and Fill Permit. This Water Quality Certification is obtained with the issuance of a state Environmental Resource Permit (ERP) issued by FDEP or a Florida water management district.

In January 2021, FDEP assumed administration of the CWA Section 404 program. As a part of the FDEP Section 404 program assumption, WOTUS within the State of Florida were divided into state-assumed WOTUS and USACE-retained WOTUS. FDEP will process Section 404 permits within state-assumed WOTUS, while USACE will continue to process Section 404 permits within USACE-retained WOTUS. It is anticipated that the proposed project may impact USACE-retained WOTUS. A Section 404 Dredge and

Fill Permit will be required for impacts to USACE-retained wetlands or surface waters within the project area.

7.1.7.2 FDEP SECTION 404 DREDGE AND FILL PERMIT

As mentioned above, FDEP has assumed administration of the CWA Section 404 program. It is anticipated that the proposed project will impact state-assumed WOTUS. Under Section 401 of the CWA, a Water Quality Certification is required prior to the issuance of a Section 404 Dredge and Fill Permit. This Water Quality Certification is obtained with the issuance of a state ERP issued by FDEP or a Florida water management district. A FDEP Section 404 Permit is anticipated for impacts to state-assumed wetlands and surface waters within the project area.

7.1.7.3 FDEP GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES

40 CFR Part 122 prohibits point source discharges of stormwater to waters of the U.S. without a National Pollutant Discharge Elimination System (NPDES) permit. Under the State of Florida's delegated authority to administer the NPDES program, construction sites that will result in greater than one acre of disturbance must file for and obtain either coverage under an appropriate generic permit contained in Chapter 62-621, F.A.C., or an individual permit issued pursuant to Chapter 62-620, F.A.C. A major component of the NPDES permit is the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP identifies potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the site and discusses good engineering practices (i.e., best management practices) that will be used to reduce the pollutants. It is anticipated that this project will require a NPDES permit.

7.1.7.4 ENVIRONMENTAL RESOURCE PERMIT

FDEP and Florida's five water management districts established the ERP program under Chapter 62-330, Florida Administrative Code (F.A.C.). The ERP program governs certain regulated activities, such as works in waters of the state (including wetlands and surface waters) and construction of stormwater management systems. The proposed project is located within the jurisdiction of the SFWMD and SJRWMD. The proposed project is expected to require an ERP for the construction of a stormwater management system and impacts to wetlands and surface waters.

7.1.7.5 USFWS BIOLOGICAL OPINION/INCIDENTAL TAKE PERMIT

Federal agencies are required to work to conserve endangered and threatened species under the Endangered Species Act (ESA) of 1973. Section 7(a)(2) of the ESA is the mechanism by which federal agencies ensure the action they take, including those they fund or authorize (i.e., federal permit), do not jeopardize the existence of any listed species. When a federal action is determined as "likely to adversely affect" a listed endangered or threatened species, the lead federal agency submits a request to the U.S. Fish and Wildlife Service (USFWS) for formal consultation. USFWS then prepares a Biological Opinion on whether the proposed activity will jeopardize the continued existence of a listed species. This process would occur during Section 404 Dredge and Fill permitting if WOTUS is to be impacted by the proposed project. Otherwise, an incidental take permit (ITP) would be necessary under Section 10(a)(1)(8) of the ESA for impacts to federally listed species without nexus to a federal action. A Habitat Conservation Plan is required as part of an ITP from the USFWS.

The proposed project will potentially require ESA Section 7 consultation for impacts to the eastern indigo snake, wood stork, red-cockaded woodpecker, Florida grasshopper sparrow, Audubon's crested

caracara, Florida scrub-jay, and Everglade snail kite. This consultation will result in a Biological Opinion from the USFWS. This process will be initiated during the permitting phase by the USACE as they are the lead federal agency.

7.1.7.6 FWC INCIDENTAL TAKE PERMIT (ITP)/GOPHER TORTOISE RELOCATION PERMIT

The FWC issues Incidental Take Permits for activities that may cause take of state-listed species, as defined in the Rule 68A-27.001(4), F.A.C., as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct." The FWC issues an ITP for take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Separate permits are issued for gopher tortoises relocation, Florida burrowing owls, and other state-listed birds. The proposed project may potentially require coordination with FWC for the issuance of an ITP for impacts to southeastern American kestrel, a gopher tortoise conservation permit, and a nest removal permit for burrowing owl and other bird species.

The following permits are anticipated to be required:

- FDEP – Generic Permit for Stormwater Discharge from Large and Small Construction Activities (formerly U.S. Environmental Protection Agency (EPA) NPDES Permit)
- FDEP Section 404 Dredge and Fill Permit (within State-assumed Waters of the United States (WOTUS))
- SJRWMD or SFWMD ERP – Because the project extends over two water management districts, it is anticipated that one water management district would take the lead in issuance of the ERP
- Dewatering Permit, if needed
- USACE Section 404 Dredge and Fill Permit (within retained WOTUS)
- USACE Section 408 Review, if needed for impacts to stream crossings

Extensive coordination will be required for impacts to the conservation lands such as Tosohatchee Wildlife Management Area, River Lakes Conservation Area, and Conlin Lake X and particularly to the Lake Washington and Lake X Mitigation Banks.

7.2 HUMAN ENVIRONMENT

7.2.1 COMMUNITY AND NEIGHBORHOOD FACILITIES

Community and neighborhood feature data from the Florida Geographic Data Library was used to determine where features are located throughout the study area. Features within this dataset included health facilities, civic centers, veterans' affairs facilities, fire and police stations, recreational facilities, assisted living facilities, governmental buildings, social service facilities, religious facilities, cemeteries, schools, and daycare facilities. A summary of the community and neighborhood features impacted by each alternative is included in **Table 7-9** and displayed on **Exhibit 7-1**.

Table 7-9: Community Features Impacted by Alternative

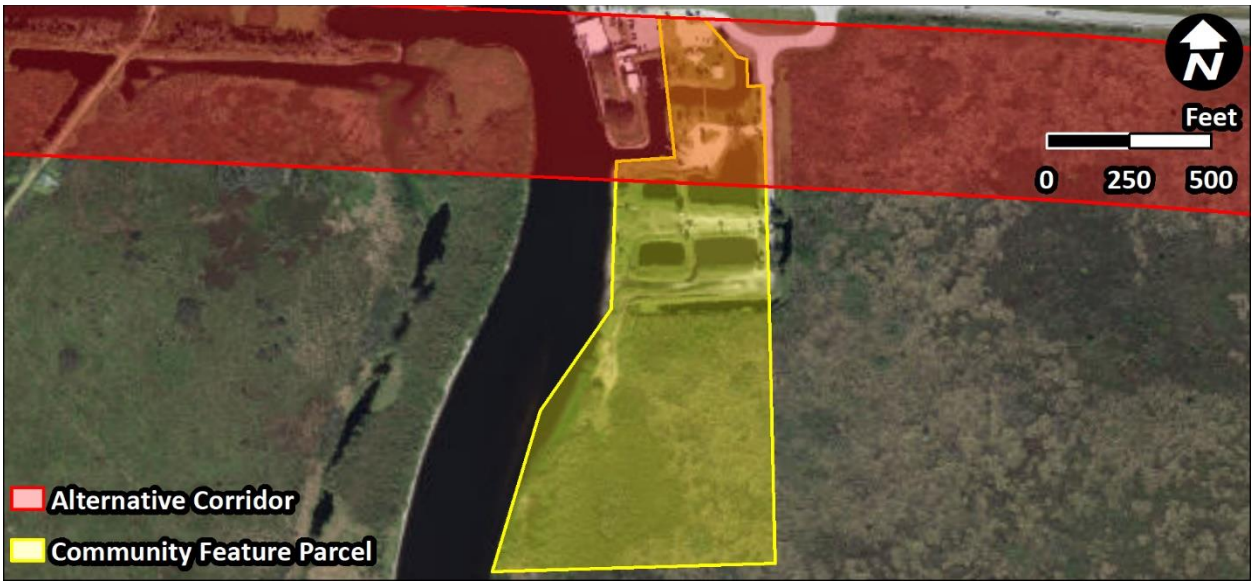
Site Name	Parcel ID	Location	Type of Facility	Alternative
Space Coast Convention Center	24-35-35-00-2	Cocoa, FL	Civic Center	D2
Senior Care of Brevard County Inc Palm Bay	24-35-35-00-11	Cocoa, FL	Social Service Facility	D2
Central Community Church			Religious Facility	D2
Einstein Montessori Academy	24-35-27-00-512	Cocoa, FL	School	D2
James G. Bourbeau Memorial Park & Boat Ramp	24-34-25-00-3	Cocoa, FL	Recreational Facility	D2
F. Burton Smith Regional Park	24-35-30-00-500	Cocoa, FL	Recreational Facility	D2
Theresia Lopez Family Day Care	24-35-27-50-B-12	Cocoa, FL	Day Care	D2
Lake Florence Primitive Boat Ramp	25-35-12-00-4	Cocoa, FL	Recreational Facility	F2
South Animal Care & Adoption Center	27-36-22-00-4	Melbourne, FL	Social Service Facility	F3

As illustrated below, the Space Coast Convention Center is impacted by **Alternative D2**.

As illustrated below, the Central Community Church and Senior Care of Brevard County Inc Palm Bay are impacted through property acquisition associated with **Alternative D2**, but the building is not impacted.

As illustrated below, the Einstein Montessori Academy is impacted by **Alternative D2**.

As illustrated below, the James G. Bourbeau Memorial Park & Boat Ramp is impacted by **Alternative D2**.



As illustrated below, the F. Burton Smith Regional Park is impacted by **Alternative D2**.

As illustrated below, the Theresia Lopez Family Day Care is impacted by **Alternative D2**.

As illustrated below, the Lake Florence Primitive Boat Ramp is impacted through property acquisition associated with **Alternative F2**, but there are no buildings or structures impacted.

As illustrated below, the South Animal Care & Adoption Center is impacted through property acquisition associated with **Alternative F3**, but there are no buildings or structures impacted.

There may be temporary disruptions during construction for local recreational and community facilities, but access will be maintained. A Maintenance of Traffic (MOT) Plan should be prepared to minimize disruptions on the traveling public and visitors to the facilities.

Community Cohesion

Community cohesion is the degree to which residents have a sense of belonging to their community. Community cohesion may also include the degree to which neighbors interact and cooperate with one another, the level of attachment felt between residents and institutions in the community, a sense of common belonging, and cultural similarity or togetherness experienced by the population. In general, all alternatives have a low to moderate effect on community cohesion either because they follow existing roads or are within areas that are in conservation or are otherwise undeveloped. The alternatives do not divide any communities; however, the eastern terminus of the alternatives connect at various places along I-95. Coordination with the communities at these places has been ongoing, including meetings with the master-planned community of Viera.

7.2.2 CULTURAL RESOURCES

In January 2021, SEARCH completed a cultural resource desktop analysis of the alternatives for the OBCC. A copy of their analysis is provided in **Appendix O**. SEARCH evaluated the location of the eight project alternatives with the purpose of identifying 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). The Florida Master Site File (FMSF) database was reviewed for any previous surveys or previously recorded resources. Archaeological site probability was evaluated based on various environmental conditions demonstrated to be reliable indicators for past human occupation, including topography, soil drainage, distance to water, and prior disturbance. In addition, the property appraiser geographic information system (GIS) databases for Osceola and Brevard counties were reviewed to determine if parcels containing structures constructed prior to 1977 are located in the vicinity of the

project corridor. For the purposes of this desktop analysis, the Study Area was defined as the proposed project corridor alternatives in addition to a 500-foot (152.4-meter) buffer.

A review of the FMSF database updated in October 2020 indicates that 44 previous cultural resource surveys have been conducted which intersect a portion of the study area (see **Table 7-10**). With few exceptions, these surveys are limited to intersecting relatively small portions of the proposed alignments. The majority of the study area has not been subjected to a cultural resource survey that meets current Module-3 standards.

Table 7-10: Cultural Resource Surveys Conducted Near Alternatives

FMSF No.	Title	Year	Author	Alternative
66	Sarno Road Borrow Pit Archaeological and Historic Survey	1977	Rollins College	F3
594	Lake Poinsett-Midway 500 KV Transmission Line Project, Archaeological and Historical Survey Assessment	1981	Poe, Charles Boyce	D1, D2, F1, F1b, F2, F3, F4, EAG
1034	Archaeological Reconnaissance Sandhill Point Tract, Brevard County, Florida	1985	Edward D. Stone, Jr. and Associates	F1, F1b
1152	Reconnaissance survey in the Upper St. Johns River Flood Control Project, Osceola, Brevard and Indian River Counties, Florida	1984	New World Research, Inc.	EAG
1646	Proposed Response to Future Area Development for GDC's West Malabar Tract, Brevard County, Florida	1981	CCC Enterprises, Inc.	F4, EAG
1842	Proposed Multilaning of Existing Two-Lane US 192 from CR 532, near St Cloud to I-95, in Osceola & Brevard Counties, Florida	1989	FDOT	F4, EAG
1852	Archaeological site types, distribution and preservation within the upper St Johns River Basin, Florida	1985	Florida Museum of Natural History	F1, F1b, F2
2391	Archaeological Assessment of Six Selected areas in Brevard County: A First Generation Model	1990	UWF	D2, F1, F1b, F2, F3, F4, EAG
4295	Phase I Cultural Resources Investigation of Proposed Access Roads Within the Florida Portion of the Proposed Florida Gas Transmission (FGT) Company Phase III Expansion Project Pipeline Corridor [Draft Report]	1994	R. Christopher Goodwin & Associates, Inc. (RCG&A)	EAG
4383	Phase I Cultural Resources Investigation of the Proposed 30 IN O.D. Mainline Loop South Portion in the FGT Company Phase III Expansion Project [Draft Report]	1993	RCG&A	EAG
4443	An Archaeological Assessment of the Triple N Ranch Wildlife Management Area, Osceola County, Florida	1996	FL Bureau of Archaeological Research (FL BAR)	EAG
4796	A Cultural Resource Assessment Survey of Proposed Pond Locations along SR 500 (US 192), Osceola and Brevard Counties, Florida	1997	Environmental Services, Inc. (ESI)	F4, EAG
5346	A Cultural Resources Assessment Survey of SR 520 from I-95 in Brevard County to SR 50 in Orange County, Florida	1996	Florida Archaeological Services, Inc. (FASI)	D1, D2

Table 7-10 (continued): Cultural Resource Surveys Conducted Near Alternatives

FMSF No.	Title	Year	Author	Alternative
5941	An Intensive Cultural Resource Assessment Survey of the Brevard Crossing DRI, Brevard County, Florida	2000	ESI	D2
6295	Cultural Resources Survey and Inventory, FGT Phase V Expansion, Gulf Power Lateral, Palmetto Power Lateral, Loop C, Loop D, Loop E, Loop G, Loop H St. Petersburg Lateral, Loop I St. Petersburg Lateral, Jacksonville Loop, and FP&L	2000	RCG&A	D1, D2
6794	Cultural Resource Assessment Survey for the I-95 PD&E Study from SR 514 to SR 50, Brevard County, Florida	2001	Janus Research	D2, F1, F1b, F2, F3, F4, EAG
8192	Phase I Archaeological Survey of a Possible Reroute at Mile Post 730, Brevard County, Florida	1995	RCG&A	F4, EAG
8699	Archaeological Survey for Ranger Construction Inc., Proposed Borrow Pit: DHR Project File No. 2002-1789 Phase I	2002	Funk, Thomas	EAG
8791	Cultural Resource Assessment Survey of the Palm Bay Parkway PD&E Study from Malabar Road to Ellis Road, Brevard County	2003	Janus Research	F4
9405	Cultural Resource Assessment Survey of the I-95/Pineda Causeway Extension Interchange PD&E Study, Brevard County	2003	Janus Research	F1, F1b
10372	A Cultural Resource Assessment Survey of the Washingtonia Residential Tract, Brevard County, Florida	2004	ESI	F1, F1b
10868	An Archaeological Survey of the Adamson Road/Huang Parcel, Brevard County, Florida	2004	Thomas Penders and Associates	D2
10891	Reconnaissance Survey of Seven Ponds along I-95 from SR 50 to SR 514	2004	Janus Research	F3, F4
11305	A Cultural Resource Reconnaissance Survey of the Emerald Lake Tract, Brevard County, Florida	2004	ESI	D2
11358	An Archaeological Survey of the Adamson Road Phase III Development (Reis El Bara Parcel), Brevard County, Florida	2005	Thomas Penders and Associates	D2
11753	An Archaeological and Historical Survey of the Proposed Florida Power and Light Company. Poinsett/Martin/ Midway 500KV Transmission Line in Orange, Osceola, Indian River and St. Lucie Counties, Florida	1982	Poe, Charles Boyce	D1, D2, F1, F1b, F2, F3, F4, EAG
12878	Cultural Resources Survey and Assessment Viera DRI Expansion, Brevard County, Florida	2006	SouthArc, Inc.	F1, F1b
13087	A Cultural Resources Assessment Survey of the Pluckebaum R-2A Parcel, Brevard County, Florida	2006	Thomas Penders and Associates	F2
13653	Cultural Resource Assessment Survey of the Wadsworth Waterfowl Project, Brevard County, Florida	2006	Heritage Services, Inc.	F2
15512	A Phase 1 Cultural Resource Survey of the CarMax Property, Brevard County, Florida	2008	SEARCH	F4
18848	Cultural Resource Assessment Survey Report, US 192 Solid Waste Management Facility, Brevard County, Florida	2012	ACI	EAG

Table 7-10 (continued): Cultural Resource Surveys Conducted Near Alternatives

FMSF No.	Title	Year	Author	Alternative
19479	Cultural Resource Assessment Survey of the New Interchange at I-95 and Ellis Road PD&E Study, Brevard County, Florida	2012	SEARCH	F3, F4
19851	Cultural Resource Assessment Survey for FGT Company Extra Work Spaces (EWS), Reroute and Temporary Construction Easements	1994	ACI	EAG
21117	A Phase I Cultural Resource Assessment Survey of the Connor Woods Subdivision, City of Melbourne, Brevard County, Florida	2014	Advanced Archaeology, Inc.	F1, F1b
23119	Cultural Resource Assessment Survey Osceola Parkway Extension from West of Boggy Creeky Road to the Proposed Northeast Connector Expressway and Boggy Creek Road / SR 417 Access Road PD&E Study, Orange and Osceola Counties	2016	Janus Research	D1, D2
24354	Phase I Cultural Resources Assessment Survey of the Sunbridge Utility Site and Access Road, Osceola County, Florida	2017	SEARCH	D1, D2
24646	Cultural Resource Assessment Survey of the Sunbridge/Del Webb Property, Osceola County, Florida	2017	ACI	D1, D2
25125	Phase I Cultural Resources Assessment Survey of Sunbridge Permit Area 5, Osceola County, Florida	2018	SEARCH	D1, D2
25131	Phase I Cultural Resources Assessment Survey of Sunbridge Permit Area 3A, Osceola County, Florida	2018	SEARCH	D1, D2
25548	Cultural Resource Assessment Survey, Oasis at West Melbourne, Brevard County, Florida	2018	ACI	F4
25903	Phase I Cultural Resource Assessment Survey of Sunbridge Permit Area 3, Osceola County, Florida	2019	SEARCH	D1, D2
25962	Cultural Resource Assessment Survey for the Osceola Parkway Extension PD&E Re-Evaluation, Orange and Osceola Counties, Florida	2019	SEARCH	D1, D2
25988	Technical Memorandum: Cultural Resource Assessment Survey for the Re-Evaluation of the New Interchange and Drainage Improvements at I-95 and Ellis Road, Brevard County, Florida	2019	SEARCH	F3, F4
26867	Cultural Resource Assessment Survey Gaco to Poinsett South 500 kV Transmission Line Rebuild, Orange and Seminole Counties, Florida	2020	Janus Research	D1

7.2.2.1 ARCHAEOLOGICAL

The FMSF review indicated that five archaeological sites are within the study areas of the alternatives (see **Table 7-11**). Archaeological site information is protected under Florida law; therefore, the FMSF number and name are not provided.

Table 7-11: Previously Recorded Archaeological Sites near Alternatives

FMSF No.	Name	Period of Significance	SHPO Evaluation	Alternative
N/A	N/A	Orange	Not Evaluated	F1
N/A	N/A	Prehistoric	Not Evaluated	F1
N/A	N/A	Malabar I; Malabar II; Orange	Not Evaluated	F2
N/A	N/A	American Acquisition/Territorial Development 1821-45	Not Evaluated	D1
N/A	N/A	Prehistoric	Ineligible for NRHP	D1, D2

7.2.2.2 HISTORICAL

The FMSF review indicated that one historic structure and four resource groups are within the study areas of the alternatives (see **Table 7-12** and **Table 7-13**). The one historic structure and three resource groups have been determined ineligible for the NRHP by the State Historic Preservation Officer (SHPO). One resource group, Union Cypress Saw Mill along Alternative F4, has not been evaluated.

Table 7-12: Previously Recorded Historic Resources near Alternatives

FMSF No.	Address	Year Build	SHPO Evaluation	Alternative
8BR01815	E. Jones Road	1950	Ineligible	F3

Table 7-13: Previously Recorded Resource Groups near Alternatives

FMSF No.	Name	Period of Significance	SHPO Evaluation	Alternative
8BR02172	Union Cypress Saw Mill	1912-1932	Not Evaluated	F4
8BR02783	W. Melbourne Canal	not available	Ineligible for NRHP	F4
8OS02824	C-30 Canal	Twentieth century American, 1900-present; World War I & Aftermath, 1917-1920	Ineligible for NRHP	D1, D2
8OS01804	Brick Road/Old Melbourne Highway	Twentieth century American, 1900-present	Ineligible for NRHP	EAG

7.2.2.3 RECOMMENDATIONS AND CONCLUSIONS

If any of the alternatives move forward in the project development process, the project area of potential effects (APE) should be defined and a Phase I cultural resource assessment survey (CRAS) should be conducted. For corridor surveys, SEARCH generally recommends defining the APE as the proposed corridor right-of-way (ROW) and expanded to the back or side property lines of adjacent parcels or 328 feet (100 meters).

Any historic buildings within the APE should be recorded and evaluated for NRHP eligibility. The construction area also should be subjected to subsurface testing according to probability for

archaeological resources to determine if any prehistoric or historic archaeological sites are present. Generally, areas that have been sufficiently tested as part of a previous archaeological survey do not require further subsurface testing, except in the cases of previously identified but unevaluated sites; given the limited amount of archaeological testing performed within the study area, this will likely include the majority of any preferred alternative. Historic structures and archaeological sites identified during survey of the OBCC study area should be assessed for their potential eligibility for listing in the NRHP. Depending on the funding and permitting requirements of the project, the resulting CRAS report should be submitted to the SHPO for review and comment.

7.3 NOISE

7.3.1 TRAFFIC NOISE

Traffic noise associated with new roadways/corridors is one of the key items to consider when evaluating the existing and future aspects of the physical environment. Noise impacts are also a recurring concern expressed by project stakeholders. While noise considerations and abatement measures vary based on the environmental setting, effective evaluation of potential noise impacts requires consideration of existing and future land uses, and the relation of the study area and ultimately the proximity of new roadway corridors. Because this is a Concept, Feasibility & Mobility (CF&M) Study, the scope of the noise evaluations is to identify potential noise sensitive locations within the study area and identify the corresponding Noise Abatement Criteria (NAC) categories. The NAC categories establish the different types of noise sensitive locations that must be considered for impact and abatement analysis. They also establish the sound level (measured in dB(A)) at which the different categories are considered impacted. Noise impacts are evaluated here on a qualitative low, medium, and high, ranking system, which will be further evaluated during a potential PD&E Study.

The NAC categories are:

- NAC A [56dB(A)] – Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
- NAC B [66dB(A)] – Residential
- NAC C [66dB(A)] – Exterior uses at active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, and other similar noise sensitive locations
- NAC D [51dB(A)] – Interior of some NAC C sites that have no exterior use
- NAC E [71dB(A)] – Exterior uses at hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F
- NAC F – Not noise sensitive. Retail, industrial, airports, agricultural land
- NAC G – Undeveloped Lands – Provide Noise Contour analysis for local governments

As part of the existing conditions analysis, preliminary noise sensitive locations have been identified. This involved reviewing aerial imagery and existing and future land uses. The remaining sections provide an overview of the baseline conditions associated with the eight proposed roadway corridors.

7.3.2 TRAFFIC NOISE EVALUATION

Traffic noise impacts will be evaluated during a potential future PD&E phase and will be determined by the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) modeling software and depend on the existing and predicted future traffic volumes, traffic speed of the roadway, and the distance and configuration of the surrounding areas. In order for noise abatement, such as a noise barrier system, to occur it must be considered reasonable and feasible according to the criteria established by the FDOT in the PD&E Manual, Part 2, Chapter 18 (FDOT, July 1, 2020). To be considered feasible it must:

- Demonstrate that it will benefit at least two impacted receptors by providing a reduction in traffic related noise of at least 5 dB(A)
- Take into consideration a number of additional feasibility factors including; Design and Construction, Safety, Access, ROW, Maintenance, Drainage, and Utility factors

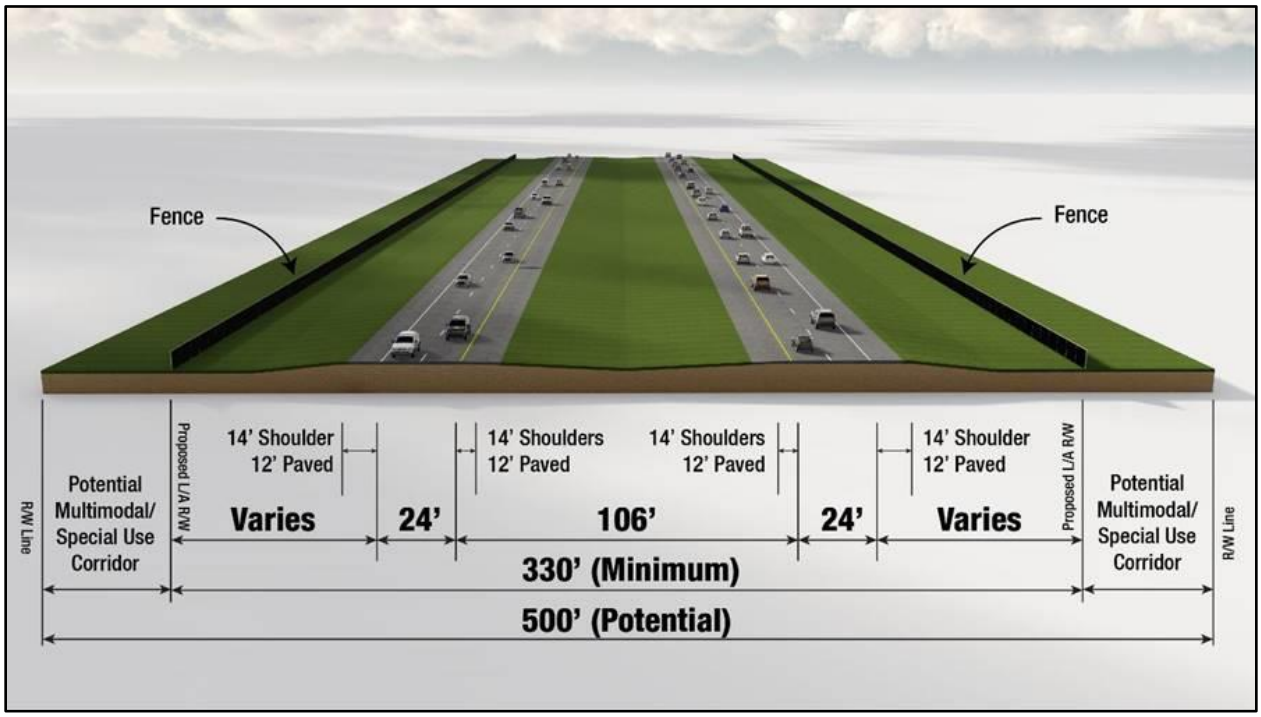
To be considered reasonable it must:

- Take into consideration the viewpoints of the benefitted property owners and residents;
- The cost of the noise barrier must not exceed $42,000 per benefited residential receptor. This is the upper cost limit established by FDOT. A benefited receptor is defined as a receptor that would experience at least a 5 dB(A) reduction in noise levels as a result of providing a noise barrier. The current unit cost used to evaluate cost reasonableness is $30 per square foot for all noise barriers. This cost covers barrier materials and labor. Non-residential sites have a special process that is detailed in the FDOT research publication A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations;
- Satisfy the FDOTs Noise Reduction Design Goal of 7 dB(A). Therefore, a noise barrier must provide a noise reduction of at least 7 dB(A) for at least one benefited receptor.

This generally means that there must be a number of impacted noise sensitive sites in close proximity so that a noise barrier could be constructed at a reasonable cost. Residences, or non-residential noise sensitive sites, that are widely separated have a hard time meeting the cost per benefitted receptor reasonableness criteria.

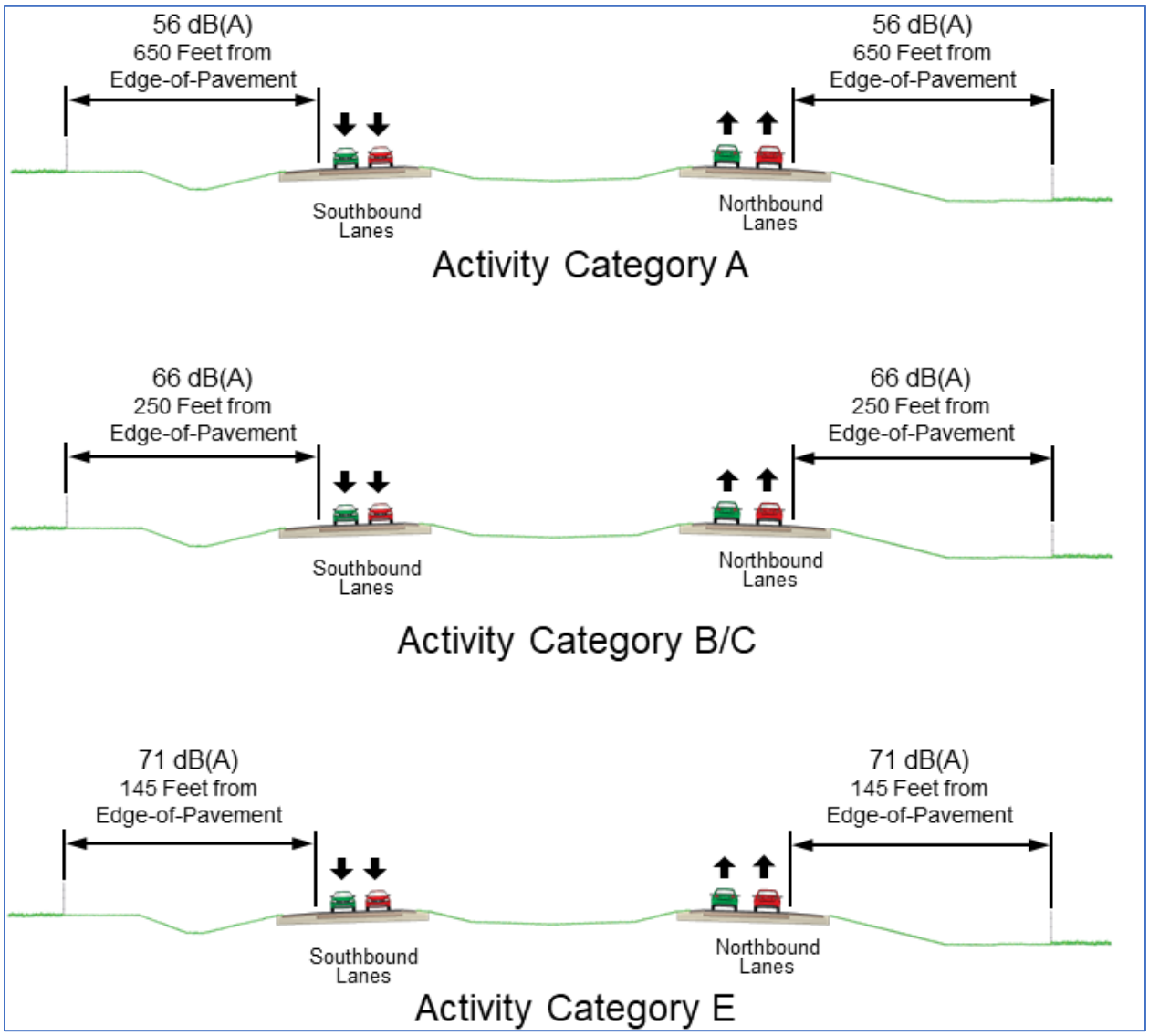
To promote compatibility between land development planning and future roadway construction, the distance between the edge of the outside travel lane and the point where the traffic related noise is predicted to reach the NAC for each activity category was estimated using the TNM modeling software. These estimates are referred to as noise contours and were developed for this project using the typical section (**Exhibit 7-1**), LOS C traffic, and the design speed of 70 MPH.

Exhibit 7-1: Typical Section



These estimates provide the general distance at which the noise approaches or exceeds the NAC for each activity type. These noise contour distances may be used for land-use planning but are not intended to be used for determining highway traffic noise impacts or the feasibility or reasonableness of noise abatement measures. The preliminary noise contours for this project are shown on **Exhibit 7-2**.

Exhibit 7-2: Noise Contours



Alternative D1

Alternative D1 passes through land that is all currently zoned for agricultural use and there are no current noise sensitive locations within the corridor.

Most of the land along Alternative D1 is currently owned by Deseret Ranches. This area is slated for future re-zoning and residential development. It is possible that future development in this area could introduce noise sensitive locations adjacent to this corridor. Based on currently available information, this corridor has a low likelihood of future noise impacts. Noise impact rankings are shown below in **Table 7-14**. The location of Alternative D1 is shown on **Exhibit 7-3**.

Alternative D2

Alternative D2 passes primarily through land that is currently zoned as either agricultural or state managed conservation land. Within the last three miles of the eastern segment of the corridor there are several single-family and neighborhood residential areas, as well as several outdoor special use noise

sensitive sites. Some of the homes would be within the construction limits and would not remain after construction, but there would be other homes remaining after construction that could be impacted by traffic noise. The affected neighborhoods include Fern Meadows, Clearview Heights, Emerald Lakes, Lost Lakes, Cypress Strand Mobile Home Park, Westgate Mobile Home Park, as well as a few neighborhoods on the east side of I-95 adjacent to construction or expansion of the interchange with I-95. In addition to residential noise sensitive sites, there are a number of potential special use noise sensitive sites with areas of outdoor use along the corridor including James G. Bourbeau Memorial Park, F. Burton Smith Regional Park, and the Cocoa Expo Sports Center.

Most of the land along Alternative D2 in Osceola and Orange County is currently owned by Deseret Ranches. This area is slated for future re-zoning and residential development. It is possible that future development in this area could introduce noise sensitive locations adjacent to this corridor. All the existing noise sensitive locations along the corridor are located in Brevard County. Based on currently available information, this corridor has a high likelihood of future noise impacts. Noise impact rankings are shown below in **Table 7-14**. The location of Alternative D2 is shown on **Exhibit 7-3**.

Alternative F2

Alternative F2 passes through land that is all currently zoned as agricultural or state managed conservation land. There are no current noise sensitive locations within the corridor.

Most of the land along Alternative F2 within Osceola County is currently owned by Deseret Ranches. This area is slated for future re-zoning and residential development. It is possible that future development in this area could introduce noise sensitive locations adjacent to this corridor. Based on currently available information, this corridor has a low likelihood of future noise impacts. Noise impact rankings are shown below in **Table 7-14**. The location of Alternative F2 is shown on **Exhibit 7-3**.

Alternatives F1 and F1b

Alternatives F1 and F1b share start and end points and vary only slightly near the mid-point of the corridor and are close together enough to share all the same potential noise impacts. These alternatives pass through land that is all currently zoned as agricultural or state managed conservation land. There are no current noise sensitive locations within the Osceola County portion of these corridors. Within Brevard County, however, there are three neighborhoods near the terminus that could be impacted by traffic related noise: Woodshire Preserve is already constructed, while Bridgewater at Viera and Enclave at Lake Washington are currently under construction. Additionally, the corridors pass through the River Lakes Conservation Area in Brevard County and may create noise impacts for trail and camping locations in that area. There are also a number of neighborhoods, including Grand Haven, Windover Farms, and Postridge, along the east side of I-95 that could be impacted by traffic noise from I-95 and might qualify for noise impact analysis due to interchange construction that would be required with the construction of these corridors.

Most of the land along Alternatives F1 and F1b within Osceola County is currently owned by Deseret Ranches. This area is slated for future re-zoning and residential development. It is possible that future development in this area could introduce noise sensitive locations adjacent to this corridor. Based on currently available information, this corridor has a high likelihood of future noise impacts. Noise impact rankings are shown below in **Table 7-14**. The location of Alternatives F1 and F1b are shown on **Exhibit 7-3**.

Alternative F3

There are no current noise sensitive locations within the Osceola County portion of Alternative F3. Within Brevard County, there are a number of neighborhoods near the terminus of the corridor that could be impacted by traffic related noise. Lake Washington Acres and Lake Washington Estates are both on the west side of I-95 adjacent to the corridor, and Raley Garden, Meadows Mobile Home Park, and Lamplighter Village are all neighborhoods on the east side that might be impacted due to construction of the interchange with I-95.

The entirety of Alternative F3 within Osceola County passes through land currently owned by Deseret Ranches. This area is slated for future re-zoning and residential development. It is possible that future development in this area could introduce noise sensitive locations adjacent to the corridor. The remaining portion of Alternative F3 in Brevard County travels through land primarily zoned for agricultural use, state managed conservation land, and land zoned as industrial. Based on currently available information, this corridor has a high likelihood of future noise impacts. Noise impact rankings are shown below in **Table 7-14**. The location of Alternative F3 is shown on **Exhibit 7-3**.

Alternative F4

There are no current noise sensitive locations within the Osceola County portion of Alternative F4. Within Brevard County, however, there are several single-family residences and the Three Forks Conservation Area Trail located within the last two miles of the corridor. There are also neighborhoods on the east side of I-95, including Sheridan Lakes, Valencia Acres, and Falcon Ridge, that might be impacted due to construction of the interchange with I-95.

The entirety of Alternative F4 within Osceola County passes through land currently owned by Deseret Ranches. This area is slated for future re-zoning and residential development. It is possible that future development in this area could introduce noise sensitive locations adjacent to the corridor. The remaining portion of Alternative F4 in Brevard County travels through land primarily zoned for agricultural use and state managed conservation land. Based on currently available information, this corridor has a high likelihood of future noise impacts. Noise impact rankings are shown below in **Table 7-14**.

EAG Alternative

As the EAG Alternative parallels US 192, it passes noise sensitive locations in the neighborhoods Holopaw County and Deer Park, as well as, The Church of Jesus Christ of Latter-day Saints, the Florida Trail, Bull Creek Wildlife Trail, and scattered single-family residences in Osceola County. Within Brevard County, there are several single-family residences and the Three Forks Conservation Trail located within the last two miles of the corridor that could be impacted by traffic related noise. There are also neighborhoods on the east side of I-95, including Sheridan Lakes, Valencia Acres, and Falcon Ridge, that might be impacted due to construction of the interchange with I-95.

Most of the land along the EAG Alternative within Osceola County is currently owned by Deseret Ranches. This area is slated for future re-zoning and residential development. It is possible that future development in this area could introduce noise sensitive locations adjacent to the corridor. The remaining portion of the EAG Alternative in Brevard County travels along US 192 through land primarily zoned for agricultural use and state managed conservation land. Based on currently available information, this corridor has a high likelihood of future noise impacts. Noise impact rankings are shown below in **Table 7-14**. The location of the EAG Alternative is shown on **Exhibit 7-3**.

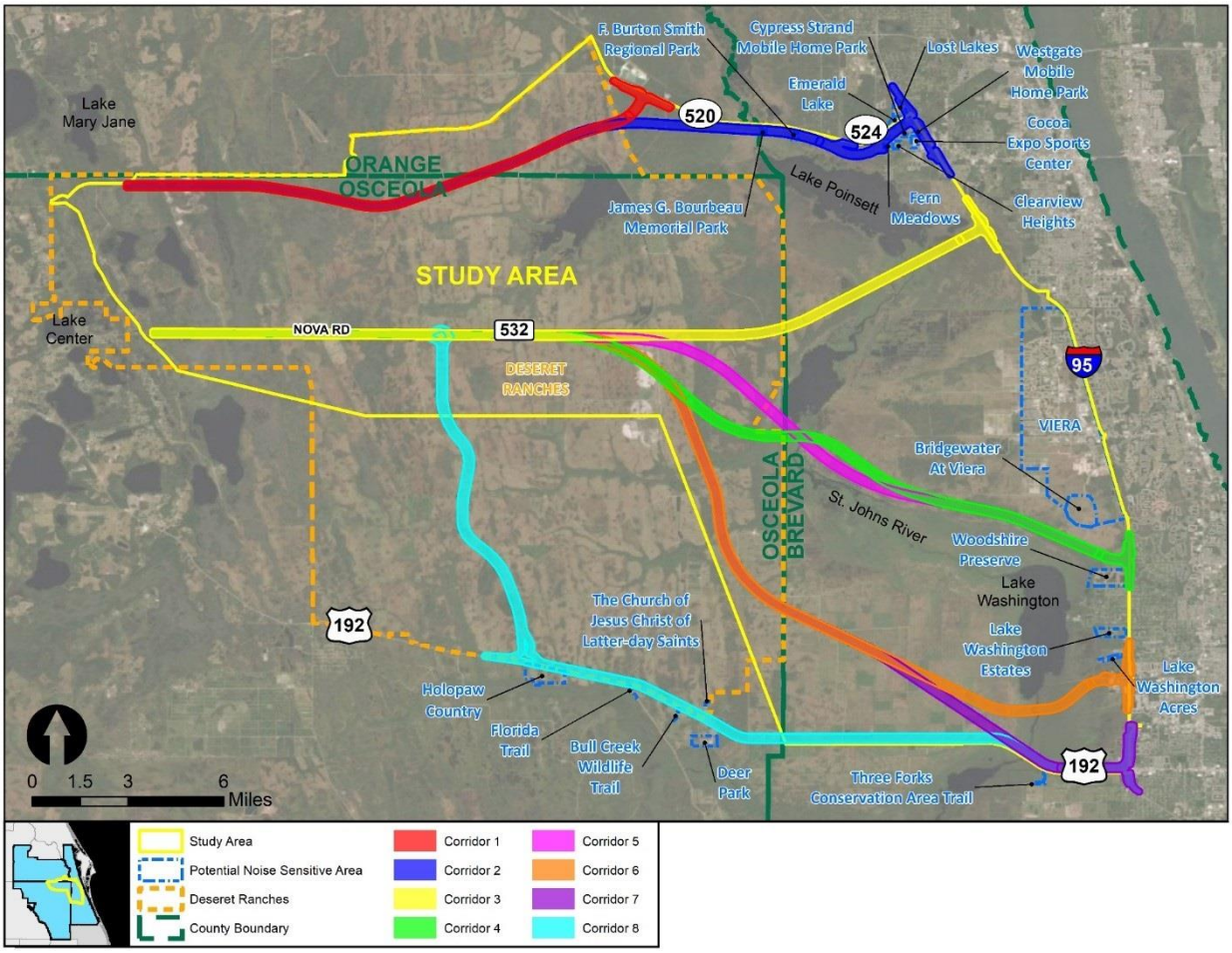
Conclusions

Potential noise impacts along the corridors reveal a divide between the Orange and Osceola counties sections and the Brevard County sections of the study area. Orange and Osceola counties have little to no existing development or noise sensitive sites; however, the potential for substantial, future planned development could introduce noise sensitive sites that could affect all the proposed corridors. In contrast to Orange and Osceola counties, Brevard County has much more existing development and many existing noise sensitive sites, while still having potential for additional development in certain locations. Many of the potential residential noise impacts in Brevard County are east of I-95, adjacent to potential interchanges with I-95. These noise sensitive areas which are directly adjacent to I-95, are likely to already be experiencing noise impacts due to the presence of I-95 and are not likely to see any significant change to noise levels as a result of the construction of any of the proposed alternatives. These residential areas east of I-95 all have a high likelihood of noise impacts and are resulting in six of the eight alternatives to receive a raking of High potential for noise impacts. This ranking does not seem entirely appropriate in a few instances where the noise impacts adjacent only to the proposed corridor would otherwise fall into the Low or Medium categories. For this reason, a second group of rankings, excluding any parcels only potentially impacted by I-95, are also included in **Table 7-14** below to try to focus on the noise impacts directly related to the potential new corridors.

Table 7-14: Potential Noise Impact Ranking

Corridor Number	Potential Noise Impact Ranking (Including I-95 Parcels)	Potential Noise Impact Ranking (Excluding I-95 Parcels)
D1	Low	Low
D2	High	High
F1	High	Medium
F1b	High	Medium
F2	Low	Low
F3	High	Low
F4	High	Medium
EAG	High	Medium

Exhibit 7-3: Potential Noise Sensitive Areas



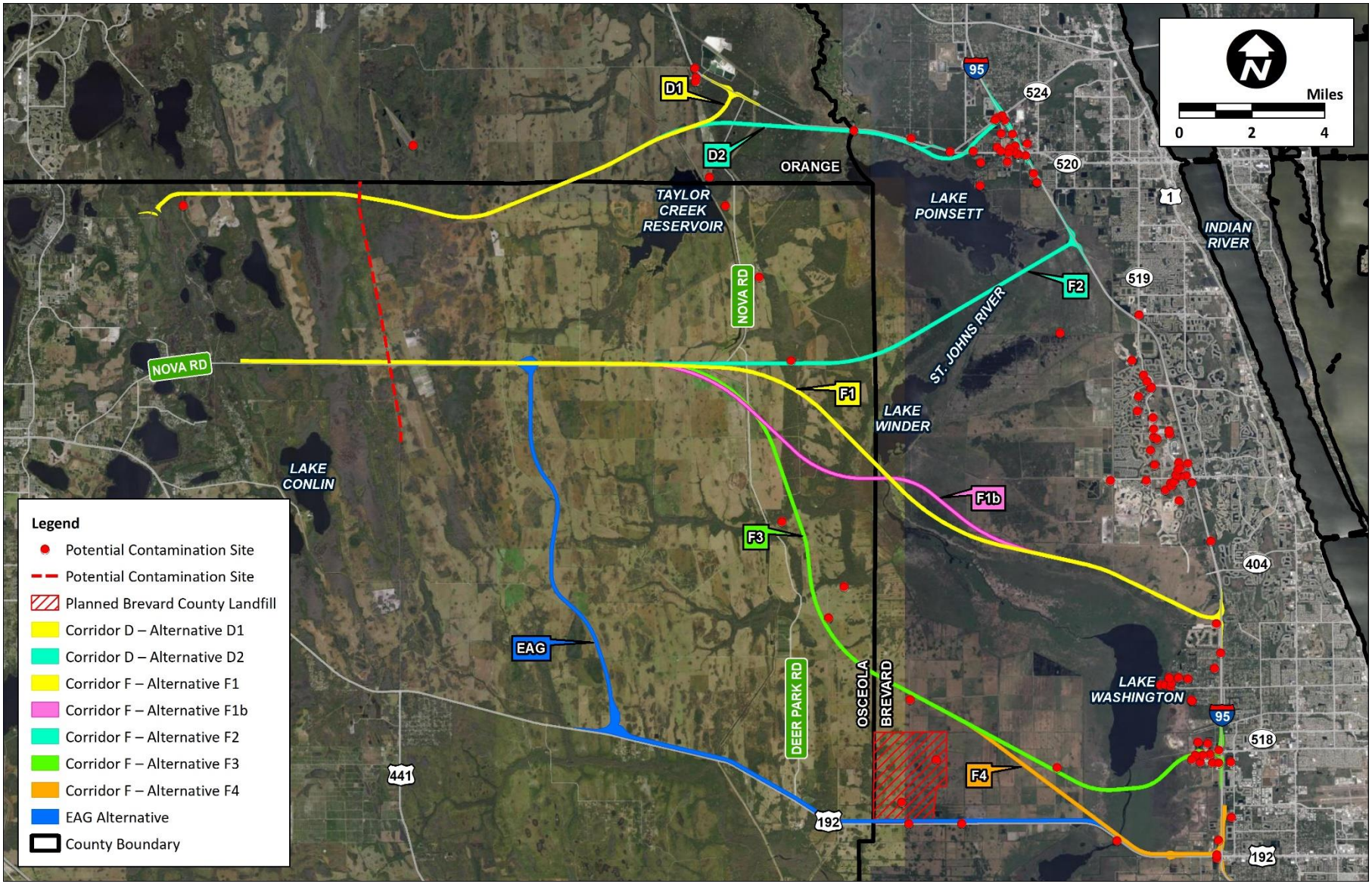
7.4 AIR QUALITY

If this project moves forward into the PD&E Phase, an air quality review will be conducted for the proposed alternative. The study area is located within an area designated as being in attainment for the following criteria air pollutants: ozone, nitrogen dioxide, particulate matter, sulfur dioxide, carbon monoxide, and lead. Construction activities could cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to all applicable State and local regulations and to the Standard Specifications for Road and Bridge Construction.

7.5 CONTAMINATION

A discussion of the identified potential contamination sites within the study area is contained in Section 3.8 and the locations of the potential contamination sites relative to the alternative corridor alignments are shown on **Exhibit 7-4**.

Exhibit 7-4: Potential Contamination Sites Relative to Alternative Corridor Alignments



A desktop analysis of the study area was performed to identify and address contaminated sites that possess a high degree of potential contamination involvement to the proposed project. The project elements that could be impacted by soil and/or groundwater contamination include the following:

- ROW acquisition
- Soil excavation for drainage improvements
- Soil excavation for pavement construction
- Soil excavation for mast arm signal pole foundations
- Soil excavation for bridge foundation construction including pilecaps and drilled shafts
- Excavation dewatering

For the purposes of this report, all sites within 500 ft, all non-landfill solid waste sites within 1,000 ft, and all solid waste landfills, CERCLA, or National Priorities List sites within 0.5 mile on either side of the ROW for the eight proposed alignments were considered part of the study area. The FDEP's Map Direct and OCULUS databases were queried for facilities within the study area that would be considered a major project constraint. If a facility was identified as a potential major project constraint, supplemental research was performed to determine the current regulatory status. The contamination screening evaluation revealed a total of 53 sites with some risk of contamination impacts to this project. After reviewing the databases, 20 Medium and High Risk sites were identified. **Table 7-15** summarizes the risk potential of contamination sites and **Exhibit 7-4** presents their locations.

Table 7-15: Contamination Risk Potential Sites

Alternatives	Contamination Risk Potential Sites	Low/Medium/High Ratings	Railroad Involvement
No Build	0	0	0
D1	1	0 / 1 / 0	1
D2	25	15 / 10 / 0	1
F1	2	1 / 1 / 0	1
F1b	2	1 / 1 / 0	1
F2	2	1 / 1 / 0	1
F3	15	8 / 7 / 0	1
F4	13	7 / 5 / 1	1
EAG	13	8 / 4 / 1	1

All eight build alternatives are intersected by the Historical FEC – Chuluota to Kenansville railroad. Existing and historical rail lines have several common chemical constituents of concerns as follows:

- **Arsenic**: The most commonly used arsenic-containing products were herbicides, pesticides, insecticides, and wood-treating agents such as chromated copper arsenate
- **Creosote**: Creosote is used to coat railroad ties
- **Polynuclear aromatic hydrocarbons**: Polynuclear aromatic hydrocarbons are a coal tar and creosote by-product. Coal tar is more commonly associated with rail yards
- Other **inorganic constituents** used in herbicides

Due to its residual nature, arsenic is the most commonly occurring chemical constituent related to railroad beds, and liberal applications of herbicides were used to keep the railroad free of vegetation. The creosote and polynuclear aromatic hydrocarbons are commonly associated with railroad ties and rail yards. The Historical FEC – Chuluota to Kenansville railroad is rated Medium risk with respect to the eight segments based on its crossing of the historical railway.

Two cattle pens are located within 500 feet of Alternatives F3 and F4. One of these pens has also been the location of at least one above-ground storage tank, as observed in aerial photographs. The construction details, size, and contents of the tank are unknown. A third cattle pen is also located within 500 feet of Alternative F3. The pens are rated as Medium contamination risks based on the possibility of contamination due to residual pesticides, arsenic, and petroleum products.

One historical oil and gas well was identified adjacent to Alternative F2, approximately 2.3 miles west of the Osceola-Brevard County line. The well was permitted for construction in May 1948 and permitted for plugging/abandonment in September 1948. The well is rated as a Low contamination risk with respect to Alternative F2 based on its age and date of abandonment.

There are numerous contamination risk potential sites located around the existing interchange along I-95, including at SR 520, SR 424, SR 518, and US 192. These are reflected in the higher number of contamination risk potential sites for Alternatives D2, F3, F4, and the EAG Alternative.

A Level I Contamination Screening Evaluation Report (CSER) will be conducted if and when the OBCC advances to PD&E.

7.6 UTILITIES

Alternative D1

Alternative D1 is in Osceola and Orange counties and major facilities anticipated include:

- Two Duke Energy overhead (OH) Transmission 500-kV lines and two OH Transmission 230-kV lines crossing the alignment at its interchange with SR 520, just east of Nova Road
- City of Cocoa raw water main that draws source water from the Taylor Creek Reservoir and takes it to the Claude H. Dyal Water Treatment Plant

Impacts to existing transmission poles are not anticipated and coordination with Duke Energy will be performed to ensure that construction activities meet OSHA separation requirements from the transmission facilities. This alternative does cross the City of Cocoa's raw water main that provides additional water supply to their Water Treatment Plans and will require coordination with the City.

Alternative D2

Alternative D2 is located in Osceola, Orange, and Brevard counties. Major facilities anticipated include the following:

- Two Duke Energy OH Transmission 500-kV lines, two Duke Energy OH Transmission 230-kV lines crossing the alignment along just east of Nova Road
- One FP&L OH Transmission 230 V line crosses the alignment near the Orange/Brevard county line

- Two FP&L OH Transmission 230 V lines cross the alignment at the intersection of SR 524 and I-95 in two locations
- Three FP&L OH Transmission 230 V lines and two OH FP&L Transmission 138 V lines cross the alignment at I-95, just north of SR 520
- The alignment crosses a 26" FGT Natural Gas Transmission Pipeline that runs along the west side of I-95
- City of Cocoa raw water main that draws source water from the Taylor Creek Reservoir and takes it to the Claude H. Dyal Water Treatment Plant.

Impacts to existing transmission poles are anticipated and close coordination with Duke Energy will be required for the construction activities for the proposed bridge locations to ensure all Occupational Safety and Health Administration (OSHA) separation requirements are met. All proposed roadway improvements that cross or impact FGT facilities will be closely coordinated with FGT to determine if relocation is required. This alternative also crosses the City of Cocoa's raw water main that provides additional water supply to their water treatment plants and will require coordination with the City.

Alternative F1

Alternative F1 is in Osceola County and Brevard County and major utility facilities anticipated include the following:

- One Duke Energy OH Transmission 230-kV line crosses the alignment west of Deer Park Road and two Duke Energy OH Transmission 500-kV lines cross the alignment just east of Deer Park Road
- Three FP&L OH Transmission 230-kV lines cross the alignment just west of I-95 and travel along the north side of the alignment for approximately three miles
- The alignment crosses a 26" FGT Natural Gas Transmission Pipeline that runs along the west side of I-95 and crosses an 8" FGT Natural Gas Transmission Pipeline near I-95 that then travels along the north side of the alignment for approximately three miles

Impacts to existing transmission poles are anticipated and close coordination with Duke Energy and FP&L will be required for the construction activities for the proposed bridge locations to ensure all OSHA separation requirements are maintained. All proposed roadway improvements that cross or impact FGT facilities will be closely coordinated with FGT to determine if relocation is required.

Alternative F1b

Alternative F1b is in Osceola County and Brevard County and major utility facilities anticipated include the following:

- One Duke Energy OH Transmission 230-kV line crosses the alignment west of Deer Park Road and two Duke Energy OH Transmission 500-kV lines cross the alignment just east of Deer Park Road
- Three FP&L OH Transmission 230-kV lines cross the alignment just west of I-95 and travel along the north side of the alignment for approximately three miles

- The alignment crosses a 26” FGT Natural Gas Transmission Pipeline that runs along the west side of I-95 and crosses an 8” FGT Natural Gas Transmission Pipeline near I-95 that then travels along the north side of the alignment for approximately three miles

Impacts to existing transmission poles are anticipated and close coordination with Duke Energy and FP&L will be required for the construction activities for the proposed bridge locations to ensure all OSHA separation requirements are maintained. All proposed roadway improvements that cross or impact FGT facilities will be closely coordinated with FGT to determine if relocation is required.

Alternative F2

Alternative F2 is in Osceola County and Brevard County and major utility facilities anticipated include the following:

- One Duke Energy OH Transmission 230-kV line crosses the alignment west of Deer Park Road and two Duke Energy OH Transmission 500-kV lines cross the alignment just east of Deer Park Road
- Three FP&L OH Transmission 230 V lines and two (2) FP&L OH Transmission 138 V lines cross the alternatives ramps just north of where it connects to I-95
- The alignment crosses a 26” FGT Natural Gas Transmission Pipeline that runs along the west side of I-95

Impacts to existing transmission poles are anticipated and close coordination with Duke Energy and FP&L will be required for the construction activities for the proposed bridge locations to ensure all OSHA separation requirements are maintained. All proposed roadway improvements that cross or impact FGT facilities will be closely coordinated with FGT to determine if relocation is required.

Alternative F3

Alternative F3 is in Osceola County and Brevard County and major utility facilities anticipated include the following:

- One Duke Energy OH Transmission 230-kV line crosses the alignment west of Deer Park Road and two Duke Energy OH Transmission 500-kV lines cross the alignment just east of Deer Park Road and run near parallel with the alignment for approximately 7 miles
- Three FP&L OH Transmission 230 V lines cross the alignment just west of I-95
- The alignment crosses a 26” FGT Natural Gas Transmission Pipeline and an 8” FGT Natural Gas Transmission Pipeline that run along the west side of I-95

Impacts to existing transmission poles are anticipated and close coordination with Duke Energy and FP&L will be required for the construction activities for the proposed bridge locations to ensure all OSHA separation requirements are maintained. All proposed roadway improvements that cross or impact FGT facilities will be closely coordinated with FGT to determine if relocation is required.

Alternative F4

Alternative F4 is in Osceola County and Brevard County and major utility facilities anticipated include the following:

- One Duke Energy OH Transmission 230-kV line crosses the alignment west of Deer Park Road and two Duke Energy OH Transmission 500-kV lines cross the alignment just east of Deer Park Road and run near parallel with the alignment for approximately 7 miles
- Three FP&L OH Transmission 230-kV lines cross the alignment at the intersection of I-95 and Space Coast Parkway
- The alignment crosses a 26" FGT Natural Gas Transmission Pipeline and an 8" FGT Natural Gas Transmission Pipeline that run along the west side of I-95

Impacts to existing transmission poles are anticipated and close coordination with Duke Energy and FP&L will be required for the construction activities for the proposed bridge locations to ensure all OSHA separation requirements are maintained. All proposed roadway improvements that cross or impact FGT facilities will be closely coordinated with FGT to determine if relocation is required.

EAG Alternative

The EAG Alternative is in Osceola County and Brevard County and major utility facilities anticipated include the following:

- One OH Duke Energy Transmission 230-kV line crosses the alignment south of Nova Road and two Duke Energy OH Transmission 500-kV lines cross the alignment east of Deer Park Road
- Three FP&L OH Transmission 230-kV lines cross the alignment just west of I-95
- The alignment crosses a 26" FGT Natural Gas Transmission Pipeline and an 8" FGT Natural Gas Transmission Pipeline that run along the west side of I-95. The alignment also twice crosses a 24" FGT Natural Gas Transmission Pipeline and a 30" FGT Natural Gas Transmission Pipeline that run together. One crossing occurs on the north-south leg, just north of US 192 and the other crossing occurs just west of the St. Johns River.

Impacts to existing transmission poles are anticipated and close coordination with Duke Energy and FP&L will be required for the construction activities for the proposed bridge locations to ensure all OSHA separation requirements are maintained. All proposed roadway improvements that cross or impact FGT facilities will be closely coordinated with FGT to determine if relocation is required.

8.0 STAKEHOLDER INVOLVEMENT

8.1 INTRODUCTION

Stakeholder and public involvement were an integral part of the Concept, Feasibility, and Mobility (CF&M) Study. Multiple opportunities for participation were provided, including:

- Environmental Stewardship Committee (ESC) meetings
- Environmental Advisory Group (EAG) meetings
- Project Advisory Group (PAG) meetings
- Meetings with local governments
- Meetings with various stakeholders (e.g., property owners, utility providers, transportation and environmental agencies)
- Project Website
- Media

In June 2021, CFX made the decision to pause the Osceola/Brevard County Connectors (OBCC) CF&M Study instead of moving forward with public meetings. While significant evaluation was completed and input received leading up to this determination, a range of factors, including an overall lack of consensus, indicated that a study pause was prudent and in the best interest of planning for these corridors. At this stage in a CF&M study, there is typically analysis and evaluation results regarding the feasibility and retention of alternatives, including a general consensus of support around a particular alternative or alternatives. However, most OBCC alternatives continue to have significant opposition from one or more key stakeholders. The Study Team has also evaluated the travel demand forecast and believes that it is challenged to adequately provide an appropriate view of the future transportation need in the study area at this time. This study is evaluating corridors that are not expected to be developed for some time. The input received and evaluation conducted during this study effort made clear that land use and economic plans within this area continue to evolve. As they mature in the years ahead, the likely pattern of growth that would drive the need for OBCC corridors will become more evident.

The concept for these corridors (D and F) was formalized through recommendations of the East Central Florida Corridor Task Force in 2014. Because of their potential importance to the growing regional transportation network, these corridors were included in the CFX 2040 Master Plan in 2016. This laid the groundwork for the OBCC study which began in 2020. Owing to their continued importance, Corridor D and F are expected to remain in CFX's 2045 Master Plan which will be presented for approval by the CFX Board in 2022. These corridors have also been included in other plans. For example, prior to start of the CF&M study, a proposed corridor similar to Alternative F1 was included in Osceola County's North Ranch Sector Plan within the Comprehensive Plan and in the Space Coast TPO Vision Plan, documented in their Long Range Transportation Plan in place at that time. Looking ahead, CFX will monitor plans for growth and development in the study area and will remain engaged with key stakeholders to determine the appropriate point to continue further study of the alternatives within Corridors D and F identified in this report.

Following the determination by CFX to pause the OBCC study, brief meetings were held with key stakeholders (Orange County, Osceola County, Brevard County, Space Coast TPO, The Viera Company, and Deseret Ranches/Suburban Land Reserve) to share status information similar to the summary

above. This was followed by email communications on August 26, 2021 to all EAG and PAG members and other stakeholders informing them of the status of the study.

The remainder of this section summarizes the CF&M study outreach effort completed prior to the study pause and the extensive input provided by stakeholders, EAG, PAG, and ESC. Full outreach documentation can be found in the study's Comments and Coordination Report.

8.2 STAKEHOLDER COORDINATION AND MEETINGS

8.2.1 ENVIRONMENTAL STEWARDSHIP COMMITTEE

On August 20, 2020, the study team presented to the ESC. The purpose of the presentation was to provide an overview of the study and receive input regarding environmental issues and impacts.

Highlights of the comments included:

- Consider a connection to I-95 at Ellis Road.
- Assess impacts to "opening up Viera DRI" and consider other routes.
- If Alternatives D1 or D2 move forward, need to work with developers to minimize impacts in Orange County.
- Consider "EAG Alternative" expressway to US 192, then improve US 192 with both facilities on new bridge (like Wekiva Parkway); consider the full value of this alternative since it accomplishes major east-west connection and a north-south connection as defined in the North Ranch Sector Plan.
- Consider upgrading SR 520 like Wekiva Parkway.
- Identify upland crossings; consider and provide for wildlife movement.

On October 22, 2020, the study team presented to the ESC. The purpose of the presentation was to provide an overview of the East Central Florida Corridor Task Force (ECFCTF) and the recommendations that have led to corridor studies.

On February 18, 2021, the study team presented to the ESC. The purpose of the presentation was to provide an update on the status of the study, the proposed alternatives, how prior input has been considered, and to receive comments regarding environmental issues and impacts.

Responses to previous comments were provided, including:

- The study team considered a connection to I-95 at Ellis Road and found it provided no advantage compared to other alternatives and had negative implications, so we are not pursuing this option.
- The study team is coordinating with Viera to address their concerns about impacts to their DRI. In addition, we have added the EAG Alternative as another possible route.
- Currently, the study team is are not assuming any development in Orange County in the vicinity of Alternatives D1 or D2. If these alternatives move forward, the study team can address minimizing development impacts at that time.

- The study team added and is considering what is referred to as the “EAG Alternative”. At the current feasibility stage, a portion of the EAG Alternative is similar to Wekiva Parkway and SR 46 but with a lower cost. Additional options can be considered if the project moves forward.
- The portion of Alternative D2 running beside SR 520 is similar to Wekiva Parkway and SR 46 but with a lower cost. Additional options can be considered if the project moves forward.
- The study team is coordinating with the FL Ecological Greenways Network, Florida Fish and Wildlife Conservation Commission (FWC), and the U.S. Fish and Wildlife Service (USFWS) on identifying wildlife movement in the area.

8.2.2 ENVIRONMENTAL ADVISORY GROUP

An EAG was formed to provide input for the OBCC CF&M Study being conducted by Central Florida Expressway Authority (CFX).

The first EAG meeting was held on September 1, 2020. The purpose of this EAG meeting was to review the study and for the EAG to provide input to the study regarding local needs, issues and concerns within the study limits, and environmental impacts. There were 40 attendees, including representatives from the following:

- Audubon of Florida
- Defenders of Wildlife
- Deseret Ranches
- Florida Department of Environmental Protection (FDEP)
- Florida Department of Environmental Protection/Florida Communities Trust
- Florida Department of Transportation (FDOT)
- Florida Fish and Wildlife Conservation Commission (FWC)
- Florida Sierra Club
- Florida Trail Association
- The Nature Conservancy
- St. Johns River Water Management District (SJRWMD)
- St. Johns Riverkeeper
- Tohopekaliga Water Authority
- Orange County
- Osceola County
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USFWS)

Highlights of the comments included:

- Give credence to transportation planning within N. Ranch Sector Plan.
- Expand study to include Corridor I and a connection along US 192.
- Bridge wetlands, surface water, and North Ranch mosaic.
- Bridge floodplains.

- Identify upland crossings. Consider FL Ecological Greenways Network and get input from FWC and USFWS on wildlife movement.
- Consider impacts of climate change.
- Consider Florida National Scenic Trail.
- Consider connecting to I-95 at SR 520 instead of at SR 524.
- Consider reconstructing existing roadway (i.e., SR 520, US 17/92) and using technology to toll through-traffic but not local traffic, in lieu of building a parallel roadway.
- Exclude alignments through agricultural easements (F3 & F4).
- Exclude alignments in Orange County (D1 & D2).
- Exclude new St. Johns River Crossing (D2, F1, F1b, F2, F3).

The second EAG meeting was held on March 9, 2021. The purpose of this EAG meeting was to review the study findings and receive input from the EAG regarding environmental impacts. There were 13 attendees including representatives from the following:

- Florida Fish and Wildlife Conservation Commission
- Osceola County
- St. Johns River Water Management District
- Lake Toho Water Authority
- Florida Defenders of Wildlife
- Orange County
- Audubon Society
- St. Johns Riverkeeper
- Florida Trail Association
- Deseret Ranches

Responses to previous comments were provided, including:

- The study team is giving credence to the transportation planning within the North Ranch Sector Plan.
- The study team has expanded the study to include a segment of Corridor I and a connection along US 192. This corridor builds upon information from the CFX Northeast Connector Expressway Extension Study and the FDOT East Central Florida Corridor Evaluation Study. The new alternative is referred to as the EAG Alternative.
- The alternatives would bridge wetlands, surface water, and North Ranch mosaic.
- At this feasibility stage of the process, the alternatives are not bridging floodplains.
- The study team is seeking to identify upland crossings. The study team is considering the FL Ecological Greenways Network and has sought additional input from FWC and USFWS on wildlife movement.
- The study team is considering the impacts of climate change, specifically potential sea-level changes.
- The study team is considering the Florida National Scenic Trail.

- The study team looked into connecting Alternative D2 at SR 520 instead of SR 524; however, the impacts to development were greater and slip ramps to/from SR 520 would be provided which achieves the desire to provide enhanced access to SR 520.
- The study team is considering reconstructing existing roadway and using technology to toll through-traffic but not local traffic, in lieu of building a parallel roadway.
- At this feasibility stage of the process, all alignments are being considered and evaluated independently and equally; thus, the study team will continue to evaluate these alignments. However, opposition from Deseret Ranches, Orange County, and others has been noted.

New comments provided by the EAG included:

- Bridges may need to be longer than assumed.
- The EAG Alternative has additional benefits in that it serves north/south travel.
- The portion of the EAG Alternative along US 192 should be entirely within the right-of-way for US 192 and use the typical section CFX is using for SR 414 (i.e., elevated expressway within the median of US 192). A similar approach should be considered for D2 along SR 520. An alternative would be to use US 192 and SR 520 for all traffic but only toll the traffic using the "expressway".
- Expressed a desire to avoid impacts to Viera and Deseret Ranches.
- Support was expressed for Alternative D1 and the EAG Alternative, as well as F1 and F1b.
- Opposition to Alternatives F2, F3 and F4.
- Concerns regarding Alternatives D1 and D2.
- Support for wildlife crossings.

8.2.3 PROJECT ADVISORY GROUP

A PAG was formed to provide input to the OBCC CF&M Study.

The first PAG meeting was held on September 1, 2020. The purpose of the meeting was to review the project and present an update on the status of potential impacts. There were 38 attendees, including representatives from the following:

- Brevard County Utilities
- City of Cocoa
- City of Rockledge
- City of West Melbourne
- Deseret Ranches
- East Central Florida Regional Planning Council (ECFRPC)
- Florida Department of Transportation (FDOT)
- Florida Gas Transmission
- Florida's Turnpike Enterprise
- Lockheed Martin
- MetroPlan Orlando
- Orange County
- Osceola County

- Osceola County Public Schools Facilities
- Space Coast Transportation Planning Organization (TPO)
- Suburban Land Reserve
- The Viera Company (Viera)

Highlights of the comments included:

- Recognize restrictions and implications for impacting N. Ranch mosaic and agricultural easements.
- Recognize restrictions and implications for impacting River Lakes Conservation Area, and Viera's conservation land and development plan.
- Consider traffic operations for existing interchange locations.
- Consider impacts to FGT facilities and City of Cocoa water facilities.
- Exclude alignments through Viera (F1 & F1b) because of their stated opposition to a corridor traversing their development.
- Exclude alignments through agricultural easements (F3 & F4) because Deseret's highest value farmlands are in this area.
- Exclude alignments in Orange County (D1 & D2) because of the highly rural nature of the area and other factors.

The second PAG meeting was held on March 9, 2021. The purpose of this EAG meeting was to review the study findings and receive input from the PAG. There were 13 attendees including representatives from the following:

- Space Coast TPO
- Osceola County
- Lockheed Martin
- Suburban Land Reserve
- MetroPlan Orlando
- ECFRPC
- City of West Melbourne
- Florida's Turnpike Enterprise
- Viera
- Florida Gas Transmission
- FDOT
- Orange County
- Deseret Ranches

Responses to previous comments were provided, including:

- The study team is recognizing restrictions and implications for impacting mosaic east of the Econ River and east of the potential reservoir within the North Ranch Sector Plan.

- The study team is recognizing restrictions and effects for impacting the River Lakes Conservation Area and Viera's conservation land.
- The study team is considering traffic operations for existing interchange locations; however, all alternatives have direct connections to I-95 so they would not be impacted by the traffic operations of existing interchanges.
- The study team is considering impacts to FGT facilities.
- At this feasibility stage of the process, all alignments are being considered and evaluated independently and equally; thus, the study team will continue to evaluate these alignments. However, opposition from Viera, Deseret Ranches, and Orange County has been noted.

New comments provided by the PAG included:

- Give credence to the Viera plan.
- Viera opposes Alternatives F1 and F1b, and supports Alternatives F2, F3 and F4, as well as the EAG Alternative.
- Viera noted their commitment to connect a roadway to the planned Washingtonia Boulevard.
- Viera stated that Alternatives F1 and F1b are fatally flawed and requested that they be removed from further consideration.
- Conflicts with Florida Gas Transmission pipelines, as depicted on the graphics, were confirmed.
- Deseret Ranches opposes Alternatives F2, F3 and F4, which interfere with their operations; and Deseret supports Alternatives F1, F1b and the EAG Alternative.
- Alternatives F1 and F1b are the most consistent with Osceola County's comprehensive plan, and the north/south portion of the EAG alternative is consistent with their comprehensive plan.
- Viera noted that they opposed Osceola County's North Ranch Sector Plan (part of Osceola County's comprehensive plan) because Alternatives F1 and F1b impact portions of Viera that will be built out within the next 10-years.
- Orange County's comprehensive plan does not include Alternatives D1 or D2, and the county does not support these alternatives at this time.
- Support for wildlife crossings.
- The ECFRPC is in favor of alternatives through existing development and/or run along existing roadways (i.e., D2 and the EAG Alternative) over alternatives that travel through virgin land.

8.2.4 LOCAL GOVERNMENT ENTITIES

The study team met with the following local government entities:

- Osceola County
- Brevard County
- Orange County
- City of Cocoa
- City of Melbourne
- City of West Melbourne

On April 30, 2020, the study team met with Osceola County to provide an overview of the study and receive feedback. Osceola County staff expressed support for tying this study into the Osceola Parkway Extension (SR 534) and the extension to Nova Road. They are happy to hear the study team is meeting with Deseret Ranches to make sure the study is consistent with the North Ranch Sector Plan for general alignments and connection to activity nodes. The County inquired how this corridor will tie into Corridor I/Northeast Connector Expressway Extension (NCEE). The study team assured that the results of the previous Corridor I study are being considered, but the location and connection will not be finalized at this early stage. The County noted that there are several solar farms in this area that need to be avoided. In response to inquiry from the study team, the County confirmed that it envisions a new OBCC corridor connecting to the NCEE and that they will update the transportation maps in their comprehensive plan to reflect that. It was noted that the development plans in the area have changed since CFX conducted the NCEE Study and the most recent county Future Land Use Map is updated to incorporate this. The County was not aware of any additional challenges with this corridor beyond what was summarized by the study team in the presentation.

On May 5, 2020, the study team met with Brevard County and Space Coast TPO to provide an overview of the study and receive feedback. County staff inquired why the study boundary was so extensive along I-95. The study team described the background noting that the boundary was drawn from the original ECFCTF recommendation and then expanded to provide an option north of Viera due to their opposition to a corridor going through their development. County staff noted that it would be better to consider a corridor that travels more east-west rather than connecting along I-95 on the southern tip of the study area which would be similar to the current option of US 192. There was also discussion about the proposed new interchanges and the limits due to the requirement of a 2-mile separation from existing interchanges. The study team inquired about the County's thought on tying into existing interchanges. The County noted that Viera isn't interested in anything through their development but avoiding development will impact environmental areas. When asked about priorities for preferred alignments or areas to avoid, the topic of an historic easement for a crossing of the St. Johns River came up. It was mentioned that others with the County or SJRWMD might have more information. Space Coast TPO staff inquired if the conservation area included Viera's conservation lands and the study team confirmed that it does not on the current map, but that Viera is providing the data. In response to a study team question about the Pineda Extension reference in the long range transportation plan (LRTP), Space Coast TPO staff noted that the 2045 LRTP will just include the corridor in the vision until the results of this study are known.

On June 9, 2020, the study team met with Orange County to provide an overview of the study and receive feedback. County staff inquired if there is an existing road in Corridor D and if the alternatives in Corridor D connect to SR 534. The study team responded that there is no existing road within Corridor D and that alternatives within Corridor D will connect to SR 534. Lockheed Martin's ownership was brought up and it was noted that they have received a mitigation bank permit from SJRWMD and the U.S. Army Corps of Engineers. The City of Cocoa wells in the area were also pointed out and discussed. The study team will be meeting with Lockheed and Cocoa. County staff inquired about the timing of public outreach and if a meeting would be held in Orange County as well. The study team summarized the schedule for future EAG and PAG meetings. Public workshops are tentatively scheduled for May of 2021 in Osceola and Brevard counties. The study team explained that the only property owners in the Orange County portion of the study area appear to be Deseret Ranches and Lockheed Martin which are both being coordinated with directly. County staff stated that accessibility of the Osceola and/or Brevard

meetings to Orange County should be considered since the groups involved with SR 534 may also want to attend the public meeting for this project. When asked if this is the last of the studies for recommended Task Force corridors, the study team confirmed that it likely is for those identified in the CFX Master Plan. Initially, this study was focused on Corridor F, but CFX brought in Corridor D at the urging of stakeholders. CFX already studied Corridor I and the Lake/Orange Connector, but this is all that is planned at this time.

On July 6, 2020, the study team met with City of Cocoa, Utilities Department to provide an overview of the study and receive feedback. The study team and City staff discussed the Cocoa wellfields. The study team said that they would seek to avoid the wellfields but would potentially cross connecting utilities. Cocoa noted that a crossing of the water line makes repairs difficult and also mentioned another planned north-south corridor going through their wellfield (referring to Corridor I/Northeast Connector Expressway Extension). City staff noted that the worst place for a corridor to be placed would be between the reservoir and plant. City staff asked if planned development in this area is the reason these corridors are being studied. The study team responded that it also stems from Task Force recommendations and the interest to improve regional connectivity such as between the Orlando International Airport and southern Brevard/Melbourne. City staff reiterated that the wellfield areas are sensitive and that they serve Cocoa, Cape Canaveral, Viera, and other areas. If something happens to break the raw water pipe, it will restrict the source to push it out to the distribution system. The point was also made that development and a new roadway would make it generally challenging for the wellfield areas. This raises the issue of where to put the wells in the future. Distant piping is difficult, and the Cocoa has to protect its supply for the long run. They also have agreements with Tohopekaliga Water Authority, Orlando Utilities Commission and Orange County so they may turn to Cocoa for water supply.

On August 11, 2020, the study team met again with Osceola County to provide an update of the study and receive feedback. The presentation slides describing the Northeast District and North Ranch were reviewed to confirm their accuracy in reflecting the plans. Copies of these slides were sent to the County for further review. The County requested copies of the conceptual corridors. Since these are very preliminary at this time, the study team noted that corridors will be sent to the County following the EAG and PAG meetings scheduled for September 1 so that any potential adjustments based upon input received can be incorporated. The County would like to preserve a wildlife corridor running east west between the Taylor Creek Reservoir and the Econ River. The County also noted that the study area includes habitat for the Crested Caracara and suggested this be added to the environmental board.

On August 12, 2020, the study team met again with Orange County to provide an update of the study and receive feedback. In reviewing the proposed alignments, County staff noted that some alternatives go into Orange County and inquired how those are being evaluated. The study team provided background on the traffic model to be used out to 2045. From a traffic standpoint, there is no development being assumed for Orange County except what's currently in the comprehensive plan and no interchanges are being considered within Orange County. The study team inquired about scenarios that Orange County would like to be evaluated. County staff expressed concerns about the impact of a road being built in a rural area and the pressure to develop adjacent land. The study team noted that this is a pre-Project Development and Environment (PD&E) study. If the project moves forward, it would need to be consistent with the Orange County comprehensive plan which would likely be the place to document restrictions addressing these concerns. There was discussion about the SR 50/SR 408 Eastern

Extension. County staff reminded about the public opposition and advised that alternatives under the current study should avoid Orange County. The challenges of SR 534 were also raised. The study team reiterated that the study began with just Corridor F, but stakeholders suggested bringing in Corridor D so that is why it was expanded into Orange County.

On October 6, 2020, the study team met with City of Melbourne to provide an overview of the study and receive feedback. City staff were asked if there are any development plans in the Melbourne area along I-95 that the study team should be considering. The Enclave of Lake Washington just south of Viera was discussed. To the west of the area around I-95 and SR 518, staff also noted the city's wetland mitigation bank. There was also discussion about other areas where a property owner is seeking a possible annexation that touches Eau Gallie Boulevard. It is not annexed because of the Washingtonia Drive Extension, a future roadway with reserved right-of-way (ROW). The Washingtonia Drive Extension would go from the Ellis Road interchange north into Viera. In that same area, on the edge of the road at the north side of Eau Gallie Boulevard, the properties will be annexed into the City and existing development to the west could be redeveloped. At the I-95/US 192 interchange, there is a large piece of property on north and south side of US 192 that is a ranch property of almost 4,000 acres that may be developed. City staff inquired if CFX is coordinating with FDOT on the alignments. The study team affirmed that early coordination is taking place and explained that a new expressway would be owned by CFX while the state highway system is owned by FDOT. This would be a separate facility from FDOT. City staff noted that, because of heavy growth, a connection to south Brevard would be helpful and asked if Alternatives F1 and F1b line up with Pineda Causeway. The study team reminded that Viera is opposed to a road going through their property, so it would be south of that. Staff noted that the Causeway is one of the main routes to the beach. They also noted that the northeastern part of the plan is where the City accesses surface water intake from Lake Washington and the City's wells are in the same area.

On October 6, 2020, the study team met with City of West Melbourne to provide an overview of the study and receive feedback. The study team inquired if there any development plans in the area of I-95/US 192 that the study team should be aware of. City staff discussed various proposals including property annexed to the city on the north side of US 192 that will likely be developed as well as the Space Coast Town Center area along the south. There have been past discussions about a direct tie-in to the Ellis Road interchange to potentially expand northward parallel to I-95 and potentially westward. City staff inquired why the Ellis Road interchange was not being considered for one of the alternatives versus US 192. The study team mentioned EAG support for existing facilities to avoid new crossings of the St. Johns River. While Ellis Road is a connector to the airport, it does not extend across the intracoastal waterway like other options which help to meet the identified need for improved evacuation. Discussions continued regarding the points of connection to I-95, including how interchanges might be configured. It was noted that a future interchange, such as between US 192 and Ellis Road, would require extensive coordination with FDOT and entails a detailed process. City staff noted the FP&L transmission line parallel to I-95 that would be a significant cost if it is impacted. They asked that an Ellis Road connection be considered. A similar comment was made during the EAG meeting so the study team agreed to evaluate whether it should be added to the study. The issue of ROW costs for areas that are developed or expected to be developed was raised by the City; ROW at various locations was also discussed.

On October 7, 2020, the study team met with City of Cocoa to provide an overview of the study and receive feedback. The study team inquired if City staff is aware of any development plans in the area around I-95/SR 520. There have been some discussions about it, but the only thing specific is a recently approved annexation of the westernmost property near SR 520 west of Adamson. City staff were not aware of definitive plans at this time, but it will possibly be some residential in this area. The discussion turned to the broader SR 520 corridor and the current concept for the study alternative to run along the south side of SR 520 and come through toward I-95 with a high-speed interchange. City staff noted that development is very strong in the SR 520 corridor with discussions regarding every parcel out there. The study team stated it would be helpful if the City will provide information on any development that might come in. City staff inquired about how the alternative at I-95/SR 520 stands relative to others in the study. The study team explained that the five locations discussed in the presentation are what is currently being considered and each alternative has opposition at some level. The current study will not make a recommendation regarding alternatives but will document impacts and environmental and social constraints. The study team mentioned the discussions with Melbourne and West Melbourne and the suggestion from one of those meetings to look at the possibility of connecting through Ellis Road.

On April 19, 2021, the study team met with Brevard County – Solid Waste Management to provide an overview of the study and receive input. Brevard County discussed concerns about potential impacts of a new corridor connecting to I-95 on the proposed Washingtonia Drive Extension that will parallel the west side of the interstate. The study team affirmed that it has been coordinating with Space Coast TPO and is aware of the proposed road and its status. Brevard County described the proposed county landfill that is in development and raised concerns about alternatives that might impact their ability to manage the facility which has its southern boundary along US 192. F3, F4, and the EAG Alternative were all discussed. Brevard County noted concerns about a future rail corridor on the north side of US 192 that might impact their entrance to the solid waste facility. The study team clarified that rail is not included in the project, but additional ROW will be identified for future plans. Deseret's potential rail plans were briefly discussed. Brevard County described their plans for the landfill, including the effort to provide screening, and expressed concern that anything along the north side of US 192 could impact significant investment already made in laying out the facility. The County will provide a site plan for the facility which will be in development soon. In response to a question about whether there is a need for this road from the perspective of Brevard County, the County responded yes and noted that the concept has been envisioned since the mid-70s.

8.2.5 OTHER STAKEHOLDER MEETINGS

The study team met with the following stakeholders:

- South Florida Water Management District (SFWMD)
- Deseret Ranches
- St. Johns River Water Management District (SJRWMD)
- Florida Department of Transportation (FDOT), District Five
- Space Coast Transportation Planning Organization (TPO)
- Florida Department of Economic Opportunity (FDEO)
- The Viera Company (Viera)
- Audubon of Florida
- Florida Department of Environmental Protection (FDEP)

- U.S. Fish and Wildlife Service (USFWS)
- USDA Natural Resources Conservation Service (NRCS)
- Florida Fish and Wildlife Conservation Commission (FWC)
- MetroPlan Orlando
- Florida's Turnpike Enterprise (FTE)
- Lockheed Martin
- Tavistock
- Suburban Land Reserve (SLR)
- Lake Washington Mitigation Bank (LWMB)

On April 27, 2020, the study team met with SFWMD to provide an overview of the study and receive their input. SFWMD staff inquired if the study area includes any conservation easements. The study team informed that there are no regulatory easements within their jurisdiction. In response to questions, there was discussion about the future approach to permitting and PD&E. The study team also confirmed that floodplains and wetland impacts will be analyzed as part of the study. SFWMD staff noted the need to be aware of conservation easements that may not exist but are in process of being recorded. They also mentioned the Deseret area as an opportunity to attenuate water where the property is not developed and expressed the need to consider wildlife corridor impacts. SFWMD staff confirmed their representatives on the EAG.

On April 30, 2020, the study team met with representatives of Deseret Ranches to provide an overview of the study and receive their input. Deseret explained that they expect a new expressway to be co-located with Nova Road across the Econ River and through the wetland mosaic area west of Lime Rock, then separating from Nova Road in the east. It will be important to accommodate an interchange with Corridor I (Northeast Connector Expressway Extension). The expressway needs to be located so it doesn't impact reservoirs to the north or south. Deseret said that ROW for the expressway would be separate from a parallel arterial and transit corridor. They have encumbered land to the Osceola County line and their assumption for the corridor east of the Ranch is a connection to Melbourne because of the economic development there. Deseret said that in previous coordination with Viera, they identified an interchange with I-95 in the vicinity of Post Road that was acceptable to them. They do not want the expressway to dip south until after crossing Deer Park Road, so they can keep more land open for development. Osceola County wants to maintain transportation and road grid networks. They expressed concern about corridor proposals that dip into large development blocks within their plan. The North Ranch development will not occur until after 2040 unless the start of development can take place without negatively impacting the Northeast District. The plan there is different than land near the North Ranch town center. A large user couldn't be accommodated in the Northeast District, but they could in the North Ranch.

On May 1, 2020, the study team met with SJRWMD to provide an overview of the study and receive input. SJRWMD staff expressed the importance of considering the Viera mitigation and conservation easements coordinated with SJRWMD that are in place and in development. They expressed concern about the impact of a corridor through Viera's mitigation areas and noted that several listed species are in the area. They have been coordinating with USFWS and FWC. They inquired how permitting would be coordinated considering that SFWMD is also in the study area. The study team stated that detailed efforts like that would take place later if the project advances to PD&E. There was discussion about how conservation and mitigation areas were depicted on the map. The study team confirmed the boundary

for the River Lakes Conservation Area. SJRWMD noted that the River Lakes land management staff should be contacted and said they will provide the contact information. There was discussion about mitigation and SJRWMD noted it will likely be of regional significance, even to the extent of a mini-mitigation bank, because of the potential scale of the project. SJRWMD noted that they will check in with its Upper Basin group to make sure they are aware this project is on the horizon. The district brought up the 50-foot easement for crossing the river in the area south of Lake Winder and noted that Brevard County Natural Resources may have more information. SJRMWD members for the EAG were confirmed by the study team.

On May 5, 2020, the study team met with FDOT District Five to provide an overview of the study and receive input. FDOT reminded that if the connection to I-95 is a system interchange, CFX will need to coordinate with FDOT District 5, FDOT Central Office, and the Federal Highway Administration. The study team acknowledged and noted that new interchange locations consider a two-mile separation from existing interchanges and would be a system interchange. This stage is ahead of a more detailed Interchange Justification Report or Interchange Modification Report which would only happen if the project advances beyond this stage. In response to a general question about timeframes for future phases, the study team explained that no phases are scheduled beyond this study. The CFX Board would decide after the study is complete whether the project would move into PD&E. FDOT staff mentioned that the Space Coast TPO is not including this in the model because they expect it to be beyond the 2045 horizon. FDOT inquired about the relationship, if any, of this project to the M-CORES Southwest-Central Florida Connector and Polk Parkway. The study team noted that this project would likely not have an affect but that any known improvements would be considered in the study's regional network modeling. FDOT confirmed that the Washingtonia Drive Extension is on hold but Space Coast TPO wants it included in the model for the 2045 network. They're also showing a need to have the segment of I-95 between Eau Gallie and Pineda to be widened to eight lanes. In response to FDOT comments on the importance of coordinating with environmental agencies and non-governmental organizations, the study team summarized the EAG and environmental stakeholder outreach. Regarding inquiries about future development in the study area, the study team mentioned Viera, the Northeast District, and North Ranch, though the latter would be very far into the future.

On May 6, 2020, the study team met with Viera to provide an overview of the study and receive input. Vierastated that it has been consistent in strongly objecting to anything that would cross the Viera Development of Regional Impact (DRI). In 2014, Viera sent the Osceola County Commission objections related to any crossing when the North Ranch Sector Plan was being considered. Viera summarized subsequent communications to FDOT, CFX and Deseret to express their objections. They supported alternative improvements like Washingtonia Drive Extension for a north/south route for improved connections, but nothing through the DRI. They requested that the study should include other Task Force recommendations such as Corridor D and improvements to existing facilities (e.g. SR 520 and US 192). Viera noted that the conservation easements in the DRI order are a contiguous system that wraps the western boundary of the Viera DRI and provides a buffer between River Lakes Conservation Area and the DRI. A new corridor would impact this area, Viera Wilderness Park (VWP), and require plans to be opened up and amendments that would cause impacts to the Viera master plan and adjacent SJRWMD lands. They expressed that this would impact third party agreements and be a "loss of confidence" with the public, regulatory agencies, and environmental stakeholders. Viera discussed the Village 2 sketch plan and development approvals, describing how a proposed corridor would impact neighborhood development plans and mitigation. They noted that VWP is recognized by agencies as a

regionally significant environmental element and that they are proceeding with infrastructure improvements in Village 2. The study team described how the study area was expanded to the north to connect to I-95 to provide an additional alternative that would not cross Viera. The current analysis will examine connections at Fisk, Viera and Wickham to look at all possibilities as necessary due diligence that all options have been considered. If the project moves forward, this is critical to document. Viera said they could support any location that doesn't come through the Viera DRI.

On May 6, 2020, the study team met with the Florida Department of Economic Opportunity (FDEO) to provide an overview of the study and receive input. FDEO staff inquired if Deseret Ranches is a willing partner and the study team confirmed that they have expressed support for the study. The timing of the North Ranch Sector Plan was discussed including the policy to require major development in the Northeast District prior to any development in the North Ranch. However, if a major developer cannot be accommodated in the Northeast District, they could possibly build in the North Ranch. FDEO inquired if the project is contingent upon a connection into Medical City and the Northeast District. The study team noted that this question is likely referring to SR 534 which has proceeded through the PD&E phase. A portion of the Northeast District has been purchased by Tavistock and is being developed. In response to a question about alternative modes of transportation, the study team noted that CFX is looking at a range of mobility options. The FDOT Regional Transit Study was briefly discussed. In response to a question about when a roadway could be open to traffic if the project proceeds forward through all phases, the study team said that the best-case scenario would be 20-25 years. The current plan for the Pineda Causeway Extension, St. Johns Heritage Parkway, and Washingtonia Drive Extension were all discussed in response to FDEO questions about roads in the Viera area. FDEO inquired if there is any public input against the project. The study team noted that, at this point, they have met with various organizations and property owners but will receive public input through future planned public meetings.

On May 7, 2020, the study team met with Charles Lee of Audubon of Florida to provide an overview of the study and receive input. Mr. Lee said that only evaluating Corridor F is a mistake and that both Corridors D and F should be evaluated together. He also suggested that a north/south alignment could eventually join and collocate with US 192 in the south as a third option. The study team noted the need to consider the scale and scope of the study. Discussion continued regarding how the study came to focus on Corridor F. Mr. Lee said that the Task Force noted significant challenges with Corridor F. The study team noted that Corridor D would be making a connection further north and differed from the purpose of Corridor F which connects to southern Brevard/Melbourne area. Mr. Lee noted that the northern boundary of the extended study area where it connects to I-95 is about two miles south of SR 520 and suggested using the existing SR 520 to connect rather than a new interchange so close to that. He said that even if Deseret would compensate Viera to the point that they agreed to have the road through their property, there would still be significant cost and infrastructure to get through the St. Johns River floodplain and crossing. He warned that there will be entrenched opposition from environmental groups. He acknowledged that Deseret would not be as pleased with the SR 520 option, but that others would be very pleased with a route that does not require a new river crossing. He recommended taking the corridor options from the Task Force to the CFX Board and let them vote on corridors to study after the chance for public input. The study team noted that the Northeast Connector Expressway Extension (Corridor I) CF&M Study took a preliminary look at connection options to SR 520 and SR 408/SR 50, and that those connections didn't work well in that study. They reiterated that the focus of the current study is a connection from SR 417 in the Orlando International Airport area, working down SR 534 and continuing southeast to the Melbourne area. To reach south Brevard, Mr. Lee

suggested combining a portion of Corridor F with Corridor I (north/south) to intersect with US 192 and continue to I-95. He said this would avoid challenges with Viera and environmentalists and noted that the St. Johns River at US 192 has hydraulic flow problems and upgrades to the road could provide an opportunity to restore flow. The study team stated the FDOT does not intend to improve US 192 to an expressway-level facility.

On May 7, 2020, the study team met with FDEP to provide an overview of the study and receive input. FDEP staff and the study team discussed the public lands in the area and FDEP inquired about coordination with the water management districts. The study team mentioned that they have already met with both districts but the majority of the study area within the SJRWMD, and the major conservation land is the River Lakes Conservation Area under SJRWMD management. FDEP asked about where this would connect to on the west and the study team described that it would tie into the planned SR 534 that comes off SR 417 then comes down south to Nova Road. FDEP inquired about any existing Florida Communities Trust projects that might be impacted by this corridor. The study team said that none have been identified so far but would appreciate any data on potential state and SJRWMD acquisitions. The study team asked if is possible to obtain information about variances or encumbrances that are tied to specific public land acquisitions. FDEP said they would be happy to help get that information. The study team clarified FDEP's members to serve on the EAG.

On May 7, 2020, the study team met with USFWS to provide an overview of the proposed study and receive input. USFWS noted that they will be mapping wildlife corridors in the study area in the future and that it is an important area for connectivity, so it is important to be aware of the need for species movement. The study team inquired if this is related to the state ecological greenway data and USWFS said it is mapping that started with Florida FWC plans so it may mirror that. In response to a question about potential impacts to public lands, the study team displayed the conservation lands and noted that the majority of public land is the River Lakes Conservation Area, managed by SJRWMD, and there are conservation easements in areas like Viera. USFWS recommended avoiding those areas and discussed their consultation with Viera regarding caracaras. They also noted that the caracara has strict survey timeframes and another known species in the area is the Eastern indigo snake. The study team said that there will be no species surveys under this study, and that they would be part of a PD&E study, if the project moves forward.

On May 14, 2020, the study team met with FWC to provide an overview of the study and receive input. FWC staff stated that the most important issue is to minimize impacts to public conservation lands. They noted that the southern boundary of this goes through significant SJRWMD conservation lands. CFX would need to mitigate heavily for that level of impact. On the western side, it was also suggested to stay away from areas that are proposed for conservation. FWC stated that there are many minor habitat issues where species are using an area that would need to be coordinated with them. They expressed the recommendation for buffers around conservation lands and noted that they have worked closely with the North Ranch Sector Plan and Viera to buffer publicly held lands. The study team affirmed that they are coordinating with Viera and Deseret Ranches. FWC noted the importance of looking for wildlife crossing opportunities but said that this is outside of their bear and panther ranges, so they don't have that data here but have other sources including data from road kills and tracked animals in this area. They stated that wooded floodplains are important, and they would push for the longest bridge possible in the St. Johns River floodplain. They inquired if Deseret Ranches wants a particular route and the study team referred to the east-west corridor that was identified in the North Ranch Sector Plan, although

that may change over time. The study team noted that they have also met with Viera, SJRWMD, FDEP, and other stakeholders. With the input so far, an expansion of the overall boundary is being considered to include more of what the ECFCTF discussed. This may also affect the timeframe of the study which was to be 15 months. FWC confirmed their members for the EAG.

On June 17, 2020, the study team met with MetroPlan Orlando to provide an overview of the study and receive input. MetroPlan staff noted that Board and advisory committees have packed agendas for the next 3-4 months, so there's likely no need for face-to-face meetings with them. The study team inquired how the current update of the Metropolitan Transportation Plan (MTP) is addressing these corridors, including corridor I. MetroPlan said they intend to include the full CFX Master Plan in the MTP, but not as cost feasible except for projects identified as cost feasible. MetroPlan asked about the connections to I-95 and Ellis Road. The options for connecting at SR 518, Ellis Road or maybe US 192 were mentioned. There are no specific alternatives defined yet. In response to a question about how this study will consider the planned Northeast Connector Expressway Extension (Corridor I), the study team noted that modeling will be conducted both with and without Corridor I.

On June 22, 2020, the study team met with FTE to provide an overview of the plan and receive input. FTE inquired as to the average length of a potential corridor, which the study team said would be approximately 30 miles west to east. FTE asked if there are particular issues or challenges given that the study area extends across three counties. Other than typical coordination with each county, the study team doesn't see any issues, particularly now that the CFX Board includes Brevard County. In response to a question about support for the project, it was noted that Deseret Ranches is very supportive and the SJRWMD hasn't come forward with any formal opinions. Viera supports the project provided it does not impact their property. The study team noted that the big issues are where to cross the St. Johns River and where to connect to I-95. The study area boundary is expected to be expanded to evaluate a connection to SR 520 and consider additional options for connecting to I-95. The study team asked if FTE has any projects planned which could affect travel within the study area. FTE mentioned a PD&E in a year or so for widening the Turnpike to six lanes.

On June 23, 2020, the study team met with Lockheed Martin to provide an overview of the plan and to receive input. Lockheed expressed their concern about being included in the study area with the most critical issue being that classified government military research is being conducted by them. They need to use the full width and length of the property for this research and anything that would disrupt the property would disrupt the operation. The study boundary as proposed would have serious implications to operations. In addition, Lockheed noted that they have approval to convert the property into a mitigation bank (in three phases) once they conclude use of the property. Phase 1 of the mitigation bank is the full east side of the range, which is under conservation easement. The study team sought clarification as to whether Lockheed is asking to be removed from the study area, and they responded yes. Lockheed inquired about the "implication of being in the study area." The study team noted that CFX could evaluate a road anywhere within the boundary, but a study area is typically beyond where the road would likely occur to provide options and potential alternatives. Lockheed asked for the study boundary line to be lowered south of their property to run along the county line. The study team said that their request will be reviewed with others on the broader study team and they will be provided a response. Based on the information provided, it was anticipated that their request will be granted (and it was).

On June 23, 2020, the study team met with Tavistock, SLR, and Deseret Ranches to discuss the status of the updated study boundary and receive input. Deseret Ranches stated that the expansion of the study area and the possibility of connecting to SR 520 has the potential to distract from the need for an improvement in Corridor F. Modeling for the sector plan incorporated impacts through 2080 and the volumes showed the need for a third crossing of the St. Johns River in addition to SR 520 and US 192. There is a travel demand need from Orlando to Melbourne. Deseret Ranches said that to do D and not F would cause real problems from the perspective of their sector plan. The study team explained that the study area was expanded to evaluate various options and determine which ones are viable and which ones aren't. Deseret Ranches noted that if recommendations from this study are inconsistent with the sector plan, it will be a problem. For example, options running west of Lake Washington pass over their best agricultural land which is intended for protection. Tavistock asked about putting a system to system connection back at Cyrils Drive and making the turn south. The study team responded that CFX evaluated that area extensively during the SR 534 study which led to removal of the connection to Cyrils Drive. SLR noted that, for the Nova Road connection to the expressway in the Northeast District, they pushed that interchange further south. Deseret Ranches stated that Corridor I should be considered as part of this evaluation. The study team affirmed that Corridor I will be an option considered in the modeling. Deseret Ranches emphasized the importance of the sector plan's stipulated conditions stipulated, that ROW is committed to CFX, and that growth will be significant by 2080 with tremendous demand. The study team acknowledged and noted that, for this study, a preferred alternative will not be selected so those issues would be addressed more fully if the project moves forward.

On September 23, 2020, the study team met with Deseret Ranches and SLR to provide an update on the study and receive input. The study team discussed Corridor F and inquired about the Deseret Ranches "mosaic area" which was previously noted as having restrictions in the North Ranch Sector Plan. Deseret Ranches discussed the plan for a wildlife corridor in the area and described the mix of wetlands and uplands. A solar lease has been executed for this area as well. Deseret further discussed the areas of potential crossings through the mosaic and noted that it is a high point between the Kissimmee River and St. Johns River so it would not need to be extensively bridged. There was discussion regarding how Corridor D might be configured relative to SR 534, Sunbridge Parkway, and Corridor I. Deseret Ranches expressed concern about the proposed location of Corridor D noting that it needs to connect to SR 534 or it will not work. The study team responded that everything from Cyrils Drive to SR 534 is still as planned. The study team noted that Corridor I will be evaluated from south of Corridor F to US 192 where it will connect to an expressway along 192. Deseret Ranches emphasized that even if this is pursued, the remainder of Corridor F, east of Corridor I, will still be needed because their analysis indicates a third connection to I-95 (in addition to SR 520 and US 192) is necessary to meet future demand. The study team reminded that this study will not make a recommendation regarding a specific alternative, and said that within the new CFX master plan, CFX is contemplating keeping both Corridors D and F in for long-term planning. Deseret Ranches said they are concerned that something beyond what the Task Force recommended will pop up.

On January 27, 2021, the study team met with Viera to provide an update on the study and receive input. The study team emphasized that the study will not make a recommendation regarding a preferred alternative. If pursued, a future PD&E Study would serve the purpose of determining preferred alternatives. That will only happen if the Board makes that recommendation after the study is completed. Viera stated that the Viera DRI Development Order includes an obligation for a connection to future improvements to Washingtonia Drive (which is also on the Space Coast TPO's Needs Plan) at

the southern boundary of the DRI. Viera stated that this connection cannot be foreclosed. When the improvement moves forward, Viera is obligated to provide $5 million to Brevard County for reimbursement of ROW acquisition as well as planning and engineering design as part of the DRI's approved mitigation of traffic impacts. A new Viera subdivision (Viera Village 2) extending from the Pineda Causeway Extension to the southern Viera boundary was pointed out. Since the last PAG meeting, a portion of the road network has already been paved and development activities for the subject neighborhoods are underway with County, SJRWMD and USACE approvals granted. There is a planned neighborhood within this subdivision where alignments F1 and F1b have been shown. It was discussed that the concept for a connection from Osceola to Brevard is generally referenced in the Space Coast TPO's 2060 Vision within the 2045 LRTP without identifying any specific alignment and deferring to this study. Viera reminded that the Viera DRI is approved through buildout and all mitigation of transportation impacts through buildout of entitlements has been identified and committed to in the Development Order. The Notice of Proposed Change for the final phase was processed in 2017. Viera reiterated its opposition to the concept of any corridor, including alignments F1 and F1b, that cross through any portion of the Viera DRI and anything that will impact the DRI and existing/proposed development as well as the 5,300-acre VWP.

In June 2021, CFX made the decision to place the OBCC CF&M Study on hold instead of moving forward with public meetings. Opportunities for public input were provided during all EAG, PAG, and ESC meetings.

8.2.6 SUMMARY OF PUBLIC COMMENTS

A total of 27 email communications were recorded regarding the project. Of these:

- 15 were clarifying questions to which the Public Information Coordinator (PIC) responded
- Five were concerned about potential impacts from the project
- One requested to be added to the project database
- One requested expansion of the study area to include Corridor D

In addition to communications received by CFX, five general email communications were disseminated by the PIC regarding the project.

8.3 PROJECT WEBSITE

CF&M Study information was housed for easy access on a public involvement website (https://www.cfxway.com/agency-information/plans-studies/project-studies/osceola-brevard-county-connectors). The website pages were updated with the latest corridor exhibits, schedules, handouts, and EAG and PAG presentations and meeting summaries.

An electronic comment form was available on the public involvement page of the website, as well as a form to request to receive email updates.

8.4 MEDIA COVERAGE

On May 15, 2020, Florida Today published an article noting that the OBCC CF&M study was underway.

On May 21, 2020, Central Florida News 13 ran a story about CFX conducting the study to analyze potential expressway routes between Osceola and Brevard counties.

9.0 FEASIBILITY & VIABILITY OF THE PROPOSED PROJECT

9.1 BENEFITS OF THE PROPOSED PROJECT

The Osceola/Brevard County Connectors (OBCC), within both Corridor D and Corridor F, address the project needs by providing system linkage, providing regional connectivity and mobility, meeting social and economic needs, achieving consistency with transportation plans, providing multi-modal opportunities, and improving safety and evacuation.

9.1.1 SYSTEM LINKAGE

Alternatives within Corridor D (Alternatives D1 and D2) provide system linkage between the Orlando International Airport/Lake Nona area to the State Road 520 corridor. Corridor D connects the planned SR 534 (extending from SR 417) to I-95 in northern Brevard County.

Alternatives within Corridor F (Alternatives F1, F1b, F3, F4 and the EAG Alternative) provide system linkage between the Orlando International Airport/Lake Nona area to central/southern Brevard County. Corridor F connects the planned SR 534 (extending from SR 417) and the Northeast Connector Expressway – Phase 1 to I-95 in central/southern Brevard County.

Alternative F2 differs from the other Corridor F options in that it begins within the boundary of Corridor F as defined by the East Central Florida Corridor Task Force but extends north and outside of that boundary on the eastern end, connecting with I-95 in central/northern Brevard County.

9.1.2 REGIONAL CONNECTIVITY AND MOBILITY

Alternatives within Corridor D (Alternatives D1 and D2) provide regional connectivity and mobility from the Orlando International Airport/Lake Nona area to the State Road 520 corridor, serving the Northeast District and portions of the North Ranch (both are planned developments in Osceola County). This corridor serves the east-west travel between Orange and Osceola counties and northern Brevard County.

Alternatives within Corridor F (Alternatives F1, F1b, F3, F4 and the EAG Alternative) offer regional connectivity and mobility from the Orlando International Airport/Lake Nona area to central/southern Brevard County by providing a more direct connection between these economic centers, as well as serving the emerging population centers in the Northeast District and the North Ranch.

Alternative F2 differs from the other Corridor F options in that it provides regional connectivity and mobility from the Orlando International Airport/Lake Nona area to central/northern Brevard County to serve the emerging population centers in the Northeast District and the North Ranch.

9.1.3 SOCIAL AND ECONOMIC NEEDS

The proposed project would support the planned economic development within the study area consistent with the Northeast District plan, the North Ranch plan, as well as the regional vision (*How Shall We Grow?*) and recommendations of the East Central Florida Corridor Task Force (ECFCTF).

9.1.4 CONSISTENCY WITH TRANSPORTATION PLANS

The OBCCs were previously defined as Corridor D and Corridor F in the ECFCTF Summary Report, published in December 2014. New limited-access expressways within the OBCC study area are identified

in the Osceola County Comprehensive Plan 2040, CFX 2040 Master Plan, and the MetroPlan Orlando 2045 Metropolitan Transportation Plan. The Space Coast Transportation Planning Organization 2045 Long Range Transportation Plan includes a Vision Map with the Future OBCC identified generally in the ECFCTF Corridor F.

9.1.5 MULTIMODAL OPPORTUNITIES

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. In addition, through the incorporation of the North Ranch Element, Osceola County's Comprehensive Plan calls for an integrated, multimodal transportation network within the North Ranch. Opportunities to support multimodal improvements will be considered as part of any future project development efforts.

9.1.6 SAFETY, EVACUATION SUPPORT AND RESILIENCY

The Florida Division of Emergency Management has identified I-95, SR 520, SR 524, Nova Road, and US 192 as evacuation routes in the study area. In addition, SR 417 is an evacuation route which will be connected to Corridors D and F. Alternative D1 would provide a direct connection to SR 520 while all other alternatives would provide a direct connection to I-95. Individual alternatives also provide direct connections to SR 520, SR 518 and US 192. None of the OBCC study area or alternatives are projected to be impacted by inundation from rising sea level through 2100.

9.2 CONTROVERSY OF THE PROPOSED PROJECT

All alternatives received opposition from one or more stakeholders. Orange County expressed opposition to Alternatives D1 and D2. The Viera Company expressed opposition to Alternatives F1 and F1b. Deseret Ranches expressed opposition to Alternatives F3 and F4. Several members of the Environmental Advisory Group (EAG) expressed opposition to any alternative(s) that introduce a new crossing of the St. Johns River (Alternatives D2, F1, F1b, F2, F3, F4 and the EAG Alternative). The EAG did prefer alternatives that cross the St. Johns River adjacent to an existing crossing (Alternatives D1, F4 and the EAG Alternative) and requested both roadways to be combined to decrease the impacts of the existing roadway (SR 520 and US 192) to the St. Johns River.

In June 2021, CFX made the decision to pause the OBCC Concept, Feasibility, and Mobility (CF&M) Study instead of moving forward with public meetings. While significant evaluation was completed and input received leading up to this determination, a range of factors, including an overall lack of consensus, indicated that a study pause was prudent and in the best interest of planning for these corridors. At this stage in a CF&M study, there is typically analysis and evaluation results regarding the feasibility and retention of alternatives, including a general consensus of support around a particular alternative or alternatives. However, most OBCC alternatives continue to have significant opposition from one or more key stakeholders. The Study Team has also evaluated the travel demand forecast and believes that it is challenged to adequately provide an appropriate view of the future transportation need in the study area at this time. This study is evaluating corridors that are not expected to be developed for some time. The input received and evaluation conducted during this study effort made clear that land use and economic plans within this area continue to evolve. As they mature in the years ahead, the likely pattern of growth that would drive the need for OBCC corridors will become more evident.

The concept for these corridors (D and F) was formalized through recommendations of the East Central Florida Corridor Task Force in 2014. Because of their potential importance to the growing regional transportation network, these corridors were included in the CFX 2040 Master Plan in 2016. This laid the groundwork for the OBCC study which began in 2020. Owing to their continued importance, Corridor D and F are expected to remain in CFX's 2045 Master Plan which will be presented for approval by the CFX Board in 2022. These corridors have also been included in other plans. For example, prior to start of the CF&M study, a proposed corridor similar to Alternative F1 was included in Osceola County's North Ranch Sector Plan within the Comprehensive Plan and in the Space Coast TPO Vision Plan, documented in their Long Range Transportation Plan in place at that time. Looking ahead, CFX will monitor plans for growth and development in the study area and will remain engaged with key stakeholders to determine the appropriate point to continue further study of the alternatives within Corridors D and F identified in this report. In the meantime, the CF&M study effort completed to date, including high-level evaluation of eight alternatives and extensive input of stakeholders, Environmental Advisory Group, Project Advisory Group, and Environmental Stewardship Committee, is being documented in this Interim Report.

The public was able to provide comments through the OBCC web page, but the study was paused prior to soliciting input through formal public meetings. When the study resumes, soliciting public input will be an important component.

9.3 SUPPORT FOR THE PROPOSED PROJECT

Osceola County and Deseret Ranches expressed support for: Alternatives D1 and D2 in Corridor D; F1 and F1b in Corridor F; and the EAG Alternative which includes portions of Alternative F1 and the Northeast Connector Expressway Extension.

The Viera Company expressed support for any alternative that does not impact their property: Alternatives D1 and D2 in Corridor D; F2, F3, and F4 in Corridor F; and the EAG Alternative.

As noted in Section 9.2, the public was able to provide comments through the OBCC web page, but the study was paused prior to soliciting input through formal public meetings. When the study resumes, soliciting public input will be an important component.

9.4 PROJECTED PROJECT COSTS

Table 9-1 summarizes the projected cost for each alternative. These costs include roadway construction with retention ponds, bridge construction, interchange construction, toll collection equipment, right-of-way, utilities, and mitigation costs for wetlands and species. For this study, costs are presented as a range due to various unknowns at this stage and level of analysis.

Table 9-1: Projected Project Costs

Cost Element	Measure	Alt. D1	Alt. D2	Alt. F1	Alt. F1b	Alt. F2	Alt. F3	Alt. F4	EAG Alt.
Roadway Construction	2019 $ Million	$316 - $379	$510 - $612	$618 - $742	$602 - $722	$423 - $508	$656 - $787	$561 - $781	$689 - $827
Bridges Construction	2019 $ Million	$301 - $361	$615 - $738	$501 - $601	$443 - $532	$995 - $1,194	$865 - 1,038	$819 - $983	$707 - $848
Interchanges Construction	2019 $ Million	$436 - $523	$595 - $714	$284 - $341	$277 - $332	$344 - $413	$420 - $504	$494 - $593	$668 - $802
Toll Collection Equipment	2019 $ Million	$11 - $13	$11 - $13	$16 - $19	$16 - $19	$9 - $11	$16 - $19	$16 - $19	$9 - $11
Right-of-Way Areas [1]	2020 $ Million	$20 - $40	$75 - $150	$40 - $80	$40 - $80	$20 - $40	$40 - $80	$50 - $100	$55 - $110
Mitigation Bank and Wetland Impacts	2020 $ Million	$37 - $44	$53 - $64	$53 - $64	$53 - $64	$68 - $82	$93 - $112	$67 - $80	$54 - $65
Utilities	2020 $ Million	$1 - $2	$44 - $53	$23 - $28	$23 - $28	$22 - $26	$27 - $32	$20 - $24	$19 - $23
Total Estimated Alternative Costs	**$ Billion**	**$1.1 - $1.4**	**$1.9 - $2.4**	**$1.6 - $1.9**	**$1.5 - $1.8**	**$1.9 - $2.3**	**$2.2 - $2.6**	**$2.2 - $2.6**	**$2.2 - $2.6**

1. Based on current market value and does not include a market analysis to estimate future values.

9.5 PROJECTED TRAFFIC AND REVENUE

9.5.1 2045 REVENUE ANALYSIS

Since this project is not expected to be implemented until sometime after 2040, a revenue analysis was not performed. As the project moves forward in subsequent studies, detailed traffic and revenue analyses will be completed.

9.5.2 PRESENT VALUE

Based on the high-level, conceptual nature of this study, the Present Value analysis was not performed. As the project moves forward in subsequent studies, detailed analyses will be completed.

9.6 ALTERNATIVE COMPARISON MATRIX

An alternative comparison matrix is provided in **Table 9-2**. This matrix provides a summary compilation of information and data, detailed throughout this study, to compare the evaluated alternatives.

Table 9-2: Alternative Comparison Matrix

		Corridor D Alternatives		Corridor F & EAG Alternatives					
Evaluation Criteria	**Unit of Measure**	**D1**	**D2**	**F1**	**F1b**	**F2**	**F3**	**F4**	**EAG**
Design									
Alternative Length	Miles	17.1	24.7	29.0	28.9	23.8	33.3	33.7	36.4
Right-of-Way Width	feet	500	500	500	500	500	500	500	500
Proposed Bridges	Structures	40	52	42	37	36	61	67	58
	miles	7.4	15.3	10.6	9.4	17.7	17.5	16.4	15.5
Projected 2060 Traffic Volume	Daily vehicles	15,000 to 18,700	13,400 to 16,400	11,200 to 13,600	11,200 to 13,600	20,300 to 24,900	8,200 to 10,000	6,400 to 7,800	2,500 to 3,100
Physical									
Major Utility Conflicts	No. of Conflicts	5	16	8	8	9	8	8	12
Contamination Sites	No. of Conflicts	1	25	2	2	2	15	13	13
Railroad Involvement	No. of Conflicts	0	0	0	0	0	0	0	0
Cultural Environment Effects									
Public Lands	acres	0	115	391	385	276	65	65	52
Public Recreation Lands, Wildlife Refuges Impacted	Y/N	N	Y	Y	Y	Y	Y	Y	Y
Potential Known Historic Resources	No. of Conflicts	0	0	0	0	0	0	0	0
Potential Known Historic Resource Groups	No. of Resources	0	0	0	0	0	0	1	0
Potential Known Archaeological Resources	No. of Resources	1	0	2	0	1	0	0	0

Table 9-2 (continued): Alternative Comparison Matrix

		Corridor D Alternatives		Corridor F & EAG Alternatives					
Evaluation Criteria	**Unit of Measure**	**D1**	**D2**	**F1**	**F1b**	**F2**	**F3**	**F4**	**EAG**
Potential Archaeological Resources	Rating	Low, some areas Medium to High	Low, some areas Medium to High	Low, some areas Medium to High	Low, some areas Medium to High	Low, some areas Medium to High	Low, some areas Medium to High	Low, some areas Medium to High	Low, some areas Medium to High
Natural Environment									
Water Features	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
Ponds / Lakes	acres	0	14	20	15	19	19	20	15
Canals / Regulated Floodways	No. of Conflicts	6	13	56	43	44	103	100	52
Flood Hazard Areas - 100 Year Floodplain	acres	407	1033	1378	1352	1310	1737	1863	1762
Wetlands (non-forested and forested)	acres	308	489	415	418	545	538	517	543
Potential Habitat - Federal Listed Species	acres	1083	1439	808	1746	1455	2000	2076	2451
Potential Habitat - State Listed Species	acres	1083	1439	808	1746	1455	2000	2076	2451
Potential Bald Eagle Nest	Y/N	N	N	N	N	N	Y	N	N
Potential Species Impacts (composite rating)	Rating	Medium	High	Low	Medium	Medium	High	High	High
Mitigation Banks	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
Lake Washington	acres	0	0	0	0	0	76	0	0
Conservation Easements	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
Tosohatchee Wildlife Management Area	acres	0	115	0	0	0	0	0	0
River Lakes Conservation Area	acres	0	0	391	385	263	65	65	52
Viera Wilderness Park	acres	0	0	157	157	0	0	0	0

Table 9-2 (continued): Alternative Comparison Matrix

		Corridor D Alternatives		Corridor F & EAG Alternatives					
Evaluation Criteria	**Unit of Measure**	**D1**	**D2**	**F1**	**F1b**	**F2**	**F3**	**F4**	**EAG**
Wadsworth-Greenbaum Conservation Easement	acres	0	0	0	0	12	0	0	0
Social									
Right-of-Way Area (not including proposed ponds)	acres	1,083	1,552	1,739	1,743	1,453	2,051	2,095	2,470
Deseret Ranches	acres	1,076	1,066	1,026	1,047	1,179	1,754	1,776	1,915
St. Johns River Water Management District	acres	0	2	385	370	261	14	66	58
Viera or Parent Company Duda	acres	0	0	319	319	0	0	0	0
Brevard County	acres	0	76	0	0	0	10	3	100
City of Melbourne	acres	0	0	0	0	0	36	0	0
Deer Park Ranch	acres	0	0	0	0	0	0	0	121
Other	acres	7	408	9	7	13	237	250	276
Ponds Needed	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
Number	Ponds	29	32	38	37	34	43	44	52
Area	acres	149	372	609	587	165	611	689	616
Potential Residential Impacts	Total Parcels	36	158	27	27	4	102	11	12
Existing	*Parcels*	*0*	*93*	*24*	*24*	*0*	*98*	*2*	*4*
Planned	*Parcels*	*36*	*65*	*3*	*3*	*4*	*4*	*9*	*8*
Potential Non-Residential Impacts	Total Parcels	6	68	11	11	4	40	41	52
Existing	*Parcels*	*4*	*40*	*8*	*8*	*2*	*21*	*16*	*26*
Planned	*Parcels*	*2*	*28*	*3*	*3*	*2*	*19*	*25*	*26*

Table 9-2 (continued): Alternative Comparison Matrix

		Corridor D Alternatives		Corridor F & EAG Alternatives					
Evaluation Criteria	**Unit of Measure**	**D1**	**D2**	**F1**	**F1b**	**F2**	**F3**	**F4**	**EAG**
Community Facilities	No. of Conflicts	0	2	0	0	0	0	0	0
Consistent with North Ranch Sector Plan		Yes	Yes	Yes	Yes	No	No	No	No
Consistent with Viera Master Plan		n/a	n/a	No	No	n/a	n/a	n/a	n/a
Parks and Recreational Facilities	No. of Conflicts	0	2	0	0	0	0	0	0
Trails	No. of Conflicts	1	3	4	4	3	3	3	3
Community Cohesion Effects	Ranking	Low	Low	Low	Low	Low	Low	Low	Low
Socioeconomic Impacts to Special Populations	Ranking	Low	Low	Low	Low	Low	Low	Low	Low
Proposed Development (PD)/Development of Regional Impact (DRI)	acres	192	192	332	332	13	13	13	13

RED = Relatively High Impacts when Compared to Other Alternatives Within Corridor D or Within Corridor F

YELLOW = Relatively Medium Impacts when Compared to Other Alternatives Within Corridor D or Within Corridor F

GREEN = Relatively Low Impacts when Compared to Other Alternatives Within Corridor D or Within Corridor F

9.7 CFX FINANCIAL VIABILITY CRITERIA

Based on the high-level, conceptual nature of this study, the financial viability of the alternatives was not performed. As the project moves forward in subsequent studies, detailed analyses will be completed.

9.8 FINDINGS OF THE CONCEPT, FEASIBILITY, & MOBILITY STUDY

The purpose of this Concept, Feasibility, and Mobility report was to determine if the identified alternatives are feasible from an engineering and environmental standpoint. Based upon the evaluation of the engineering and environmental criteria discussed in this report, it is not warranted at this time to remove any alternatives from further study. As development within or near the study area progresses, more comprehensive studies are recommended to determine a preferred alternative within each corridor (Corridors D and F) that will serve the needs of the communities and region.