

CFX Contract Number: 001844 CFX Project Number: 408-175

# LEVEL 1 PROJECT ENVIRONMENTAL IMPACT REPORT (PEIR)

# SR 408 WESTBOUND CAPACITY IMPROVEMENTS FROM I-4 TO GOLDENROD ROAD

**PROJECT DEVELOPMENT & ENVIRONMENT STUDY** 

Prepared by:



# SR 408 CAPACITY IMPROVEMENTS I-4 TO GOLDENROD ROAD

PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

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#### 1.0 - Project Description and Purpose and Need

#### 1.A - Project Information

Project Name: Westbound SR 408 Capacity Improvements from I-4 to Goldenrod

Road PD&E Study

Projects Limits: Westbound SR 408 from I-4 to Goldenrod Road (Error! R

eference source not found.)

County: Orange County

Proposed Activity: Analyze and evaluate the addition of one lane along the

westbound direction of SR 408 from I-4 to Bumby Avenue and SR 436 (Semoran Boulevard) to Goldenrod Road.

**Responsible Agency:** Central Florida Expressway Authority (CFX)

**Planning Organization:** CFX

Phase: Project Development & Environment (PD&E) Study

**Project Contact Information:** 

CFX Director of Engineering CFX Project Manager

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Central Florida Expressway Authority Central Florida Expressway Authority

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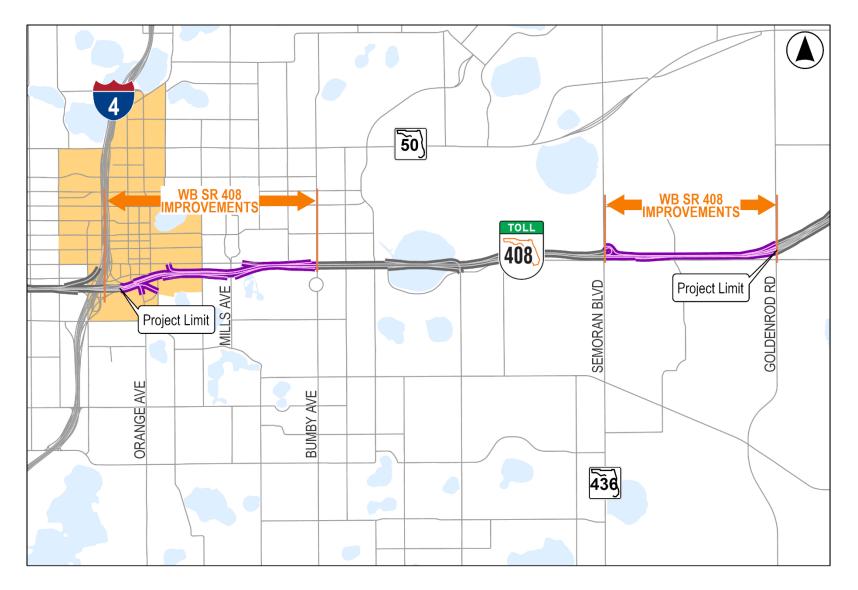
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Figure 1: Project Location Map



#### 1.B – PROPOSED IMPROVEMENTS

Proposed improvements include adding a travel lane in the westbound direction along SR 408 from the east side of the I-4 interchange to Bumby Avenue and from Semoran Boulevard to Goldenrod Road. Within the segment parallel to the Rosalind Avenue exit ramp, the additional lane will be accommodated by utilizing reduced shoulders and 11.5-ft wide travel lanes. Widening will also occur to the inside by reducing the existing median landscaping from 10 ft wide to 6.5 ft wide. From Mills Avenue to Bumby Avenue, a 12-ft wide travel lane will be added by widening to the outside. From Semoran Boulevard to Goldenrod Road, a 14-ft wide lane will be added by widening to the outside. A 14-ft wide lane provides CFX with the flexibility to implement Flex Lanes if needed in the future. The proposed work includes adding a second exit lane for the Semoran Boulevard off-ramp, widening of the overpass bridges, reconstructing or adding new noise walls, reconstruction of existing ramp toll gantries (on-ramp from Bumby Avenue and off-ramp to Semoran Boulevard), and modification to the existing median landscaping from the east side of the I-4 interchange to Bumby Avenue. No additional right of way is anticipated for the proposed improvements.

#### 1.C – PURPOSE AND NEED

The purpose and need provide the basis for developing, considering, evaluating, and eliminating alternatives.

#### **Purpose**

The purpose of the study is to address increasing traffic congestion and improve mobility along the westbound lanes of SR 408 between I-4 and Goldenrod Road. With over 164,000 vehicles traveling daily in the area, the traffic volume has been steadily rising and is expected to continue growing. The project aims to improve SR 408 by adding an additional travel lane in the westbound direction from I-4 to Bumby Ave and from Semoran Boulevard to Goldenrod Road. The goal is to improve traffic flow, accommodate growing demands, reduce congestion and delay, and enhance safety.

#### Need

The need for adding capacity on SR 408 is based on several factors:

- 1) Improve traffic flow: The westbound segment of SR 408 from Semoran Boulevard to Goldenrod Road currently operates at an acceptable Level of Service (LOS) D or better during the AM peak hour. The segment from I-4 to Bumby Avenue operates at an unacceptable LOS of E and F in the AM. As travel demands continue to increase, the LOS is expected to deteriorate if nothing is done. By 2045, travel demands on westbound SR 408 are expected to increase by over 18%.
- 2) Reduce congestion and delay: If nothing is done, increasing travel demands will result in more congestion and delays. This will affect the reliability of SR 408 for those who rely on it for their daily commute.
- 3) **Enhance safety:** A review of existing crash data indicates that rear end collisions account for approximately 53% of all crash types. This is indicative of increasing congestion and vehicles having to abruptly stop or slow down within a limited distance. If nothing is done, it is expected that crashes would increase.
- 4) **Support regional connectivity:** SR 408 is a vital transportation corridor connecting commuters to downtown Orlando and Interstate 4 (I-4). By enhancing the capacity and efficiency of SR 408, the improvements will contribute to regional connectivity and

### SR 408 CAPACITY IMPROVEMENTS I-4 TO GOLDENROD ROAD

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support economic growth and development.

- 5) **Provide consistency with local plans and policies:** Improvements to SR 408 are aligned with local plans and policies related to transportation infrastructure and land use. By providing a more efficient roadway, the project will ensure consistency with the existing land use patterns and support the area's planned growth and development.
- 6) **Support economic benefits:** Successful implementation of the study recommendations will bring economic benefits to the region. Reducing congestion and improving traffic flow will enhance logistics and other business transportation routes for goods and services. Commuters will also experience shorter travel times, leading to increased productivity and quality of life.

### 2.0 - Environmental Analysis

Issue/Resource	Substantial Impacts*							
		Yes		No		Enhance	No Inv	Supporting Information**
A. Social and Economic								
1. Social				Χ				Attachment 1.A.1
2. Economic						X		Attachment 1.A.2
3. Land Use Changes				Χ				Attachment 1.A.3
4. Mobility						X		Attachment 1.A.4
<ol><li>Aesthetic Effects</li></ol>				Χ				Attachment 1.A.5
<ol><li>Relocation Potential</li></ol>							Χ	Attachment 1.A.6
B. Cultural								
<ol> <li>Historic Sites/Districts</li> </ol>				Χ				Attachment 1.B.1
<ol><li>Archaeological Sites</li></ol>				Χ				Attachment 1.B.1
<ol><li>Recreational Areas and Protected Lands</li></ol>							X	Attachment 1.B.2
C. Natural		L						
Wetlands and Other				2.6				
Surface Waters				Χ				Attachment 1.C.1
<ol><li>Aquatic Preserves and Outstanding FL Waters</li></ol>							X	Attachment 1.C.2
3. Water Resources			ı				Х	Attachment 1.C.3
4. Wild and Scenic Rivers			ı				Х	Attachment 1.C.4
5. Floodplains			ı	Χ				Attachment 1.C.5
Coastal Barrier Resources							Х	Attachment 1.C.6
7. Protected Species and Habitat				Χ				Attachment 1.C.7
8. Essential Fish Habitat			ı				Х	Attachment 1.C.8
D. Physical			•					
Air Quality				Χ				Attachment 1.D.1
Water Quality				Χ			·	Attachment 1.D.2
3. Contamination				Χ				Attachment 1.D.3
4. Highway Traffic Noise				Χ				Attachment 1.D.4
5. Construction				Χ				Attachment 1.D.5
6. Bicycles and				Х				Attachment 1.D.6
Pedestrians				^				
7. Navigation							X	Attachment 1.D.7

Yes: Substantial Impact No: No Substantial Impact Enhance: Enhancement

No Inv: Issue absent; no involvement

<sup>\*\*</sup> Supporting information is documented in the referenced attachment(s).

#### 3.0 – Anticipated Permits

The following permits are anticipated:

	Section 404 Clean Water Act Dredge and Fill Permit - (USACE or FDEP 404)
	Nationwide/General Permit- (USACE or FDEP 404)
<u>X</u> _	Environmental Resource Permit (SFWMD)
<u>X</u> _	National Pollutant Discharge Elimination System (FDEP)
<u>X</u> _	Listed Species Coordination (USFWS and FWC)
	Gopher Tortoise Conservation Permit (FWC)

#### 4.0 - Engineering Analysis

An engineering analysis of alternatives began with a review of existing conditions. SR 408, from the I-4 interchange to Bumby Avenue and Semoran Boulevard to Goldenrod Road, currently provides four, 12-ft wide travel lanes in the westbound direction.

The traffic analysis conducted for this study demonstrated the need to add a fifth westbound lane within these segments. The following alternatives were considered for the segment from the I-4 interchange to Bumby Avenue:

- Provide a three-lane exit to I-4 with a 2/2 split between the I-4 EB and WB ramps. The I-4 EB ramp would merge back down to a single lane before crossing over South Street.
   This alternative was eliminated due to the requirement of preparing an Interchange Modification Report (IMR) with approval from FDOT Central Office and the Federal Highway Administration (FHWA).
- Provide a three-lane exit to I-4 with a 2/1 split as provided today between the I-4 EB and WB ramps. This alternative was eliminated due to the requirement of preparing an IMR with approval from FDOT Central Office and the FHWA.
- For the segment parallel to the Rosalind Avenue off-ramp, widen to the outside to avoid
  impacting the existing median landscaping. This would involve right of way acquisition
  impacting the existing Orange County owned parking lot. This alternative was eliminated
  as Orange County indicated that there is a shortage of parking at this location and a
  reduction of spaces would be impactful.
- For the segment parallel to the Rosalind Avenue off-ramp, widen to the inside to avoid impacting Orange County owned property. This alternative was eliminated as it would impact the existing median landscaping which is an important feature for the City of Orlando.
- For the segment parallel to the Rosalind Avenue off-ramp, narrow the outside shoulder along the Rosalind Avenue off-ramp to 4 ft, reduce the outside mainline shoulder to 8 ft, and reduce the lane widths to 11.5 ft. This alternative avoids the Orange County owned property and only partially impacts the existing median landscaping. The existing median landscaping would be reduced from 10 ft to 6.5 ft. This alternative was selected as part of the Preferred Alternative.

One Build Alternative was evaluated for the segment from Semoran Boulevard to Goldenrod Road. The Build Alternative includes adding a lane by widening to the outside. Accommodating

the additional lane involves widening of the overpass bridge over Oxalis Avenue. This segment also includes a two-lane exit to Semoran Boulevard.

No additional right of way is anticipated for the proposed improvements.

#### **4.A - NO-BUILD ALTERNATIVE**

Under the No-Build Alternative, no improvements are made to SR 408 from the I-4 interchange to Bumby Avenue and Semoran Boulevard to Goldenrod Road except for standard planned maintenance. The No-Build Alternative forms a basis of comparison with the Build Alternative.

A traffic analysis was conducted for this project and indicates that, under the No-Build Alternative, SR 408 would operate at lower speeds and higher travel times when compared with the Build Alternative. A summary of the traffic analysis is provided in the **Project Traffic Analysis Memorandum** provided under separate cover.

The advantages of the No-Build Alternative include the following:

- No impact to adjacent social, cultural, natural, or physical environments
- No utility impacts
- No expenditure of funds for design or construction

The disadvantages of the No-Build Alternative include the following:

- Does not improve traffic flow
- Does not address increasing congestion and travel delays
- Does not address safety as accidents would be expected to increase
- Does not support regional connectivity
- Does not support local plans and policies
- Does not support economic benefits

#### **4.B - BUILD ALTERNATIVE**

The Build Alternative includes adding a fifth travel lane along westbound SR 408. The traffic analysis conducted for this study indicates that westbound SR 408 will require five travel lanes in order to serve projected traffic demands through 2045. A summary of the traffic analysis is provided in the **Project Traffic Analysis Memorandum** provided under separate cover.

Additional details of the Build Alternative are provided below:

#### **Typical Sections**

For the segment parallel to the Rosalind Avenue off-ramp, the typical section includes an 8-ft wide outside shoulder, 11.5-ft wide travel lanes, and a 10-ft wide inside shoulder. The Rosalind Avenue off-ramp includes 11-ft wide lanes with 4-ft wide inside and outside shoulders. This typical section configuration avoids impacting the Orange County property and maintains a portion of the median landscaping barrier.

For the segment from Mills Avenue to Bumby Avenue, the typical section includes a 6-12 ft wide outside shoulder, a 12-ft wide auxiliary lane, five 12-ft wide travel lanes, and a 10-ft wide inside shoulder.

For the segment from Semoran Boulevard to Goldenrod Road, the typical section includes an 8-ft wide paved outside shoulder, a 14-ft wide outside lane, four 12-ft wide inside lanes, and a 10-ft wide inside shoulder. A 14-ft wide outside lane provides flexibility to repurpose the lanes to include Flex Lanes in the future.

Typical sections are provided in the **Typical Section Package** provided under separate cover.

#### **Bridges and Structures**

There are four existing bridges that will need to be widened to the outside. All bridges can be widened utilizing Florida-I Beam girders. A summary and description of bridge widening needs is provided in the **Preliminary Engineering Report** provided under separate cover.

#### **Right of Way and Relocations**

No additional right of way is anticipated for the project.

#### **Horizontal and Vertical Geometry**

The horizontal and vertical profile of SR 408 will not change from existing conditions.

#### **Tolling Sites**

There is a toll gantry on the Bumby Avenue on-ramp with two lanes—one for exact change and one transponder reader only. Reconstruction of the ramp toll gantry at Bumby Avenue is needed to accommodate proposed improvements and will result in only one lane with a transponder reader only.

There is a toll gantry on the Semoran Boulevard off-ramp with two lanes—one for exact change and one transponder reader only. Reconstruction of this ramp toll gantry may be needed to accommodate proposed improvements and should be verified during the design phase.

#### **Bicycle and Pedestrian Accommodations**

No changes to bicycle and pedestrian accommodations are proposed as part of this project.

#### **Multimodal Accommodations**

No changes to multimodal accommodations are proposed as part of this project.

#### **Access Management**

No change in access is proposed as part of this project.

#### **Intersection and Interchange Concepts**

Proposed recommendations to the interchange ramps include the following:

- Rosalind Avenue off-ramp (Exit 11A): Maintain two-lane exit
- Mills Avenue off-ramp (Exit 11B): Maintain single-lane exit
- Bumby Avenue on-ramp Maintain single-lane on-ramp
- Semoran Boulevard off-ramp (Exit 14) expand to two-lane exit

#### **Intelligent Transportation System (ITS)**

To increase the safety of the traveling public, SR 408 proposed ITS infrastructure will include equipment consistent with CFX's overall ITS vision for the future. The safety aspect of ITS equipment consists of its ability to monitor traffic and provide incident management and travel

information to travelers on SR 408. The Build Alternative may result in impacts to some of the existing ITS System along SR 408. ITS Improvements will be further evaluated during the design phase.

#### **Utilities**

There are 27 utility agency owners with various facilities throughout the project limits. Utilities generally consist of buried and overhead electric, buried fiber optic cables, buried telephone, water, sewer, and gas. A list of all utilities is provided in the **Preliminary Engineering Report** available under separate cover. Cost, scheduling, and any UAO dispositions and agreements pertaining to the potential relocation of any facilities will be further investigated as part of the design phase for this project.

#### **Drainage and Stormwater Facilities**

The existing stormwater management facilities serving the limits of the project have already been permitted through the St. Johns River Water Management District (SJRWMD) to provide treatment and attenuation for an ultimate 10-lane mainline condition. A preliminary analysis of the net additional proposed impervious area compared to the permitted 10-lane impervious area was conducted and determined that no additional treatment and attenuation is required for the proposed improvements. This conclusion was based on a preliminary analysis and should be verified during the design phase. In addition, possible control structure modification or regrading of existing stormwater management facilities to accommodate the change in peak flowrate for the proposed improvements should be verified during the design phase. Additional information is provided the **Preliminary Engineering Report** provided under separate cover.

#### **Floodplain Analysis**

SR 408 mainline is being widened within existing right of way, which is anticipated to not have an adverse effect on surrounding floodplains or regulated floodways; however, there is one location where widening to the outside to accommodate auxiliary lanes and ramps for operational improvements is located within a FEMA floodplain and over a regulated FEMA Floodway. This encroachment occurs within Lake Greenwood's floodplain, between Mills Avenue and Bumby Avenue, within the City of Orlando's Southeastern Lakes Basin. The City of Orlando is currently revising the existing conditions model for the Southeast Lakes Basin, which was originally used to evaluate peak stages of Lake Greenwood during the permitting of SR 408 Widening project for Contract 253A. Additionally, this encroachment is also to occur within the limits of Fern Creek's regulated FEMA Floodway, which flows south under SR 408 into Lake Greenwood. This will require the design phase to obtain a FEMA No Rise Certification for these improvements.

#### **Noise Walls**

Modification to existing walls and new noise walls are proposed in several locations as summarized in the **Traffic Noise Study Report** available under separate cover.

Noise wall construction is proposed on the westbound side, approximately from the east side of the bridge over Rosalind Avenue to the Rosalind Avenue ramp terminal, from Summerlin Avenue to Mills Avenue, and from the Mills Avenue off-ramp to east of Bumby Avenue.

From Semoran Boulevard to Goldenrod Road, noise wall construction is proposed from Semoran Boulevard to Yucatan Drive. The remainder of the segment includes existing noise walls. A re-evaluation of the Traffic Noise Study will be conducted as part of the design phase.

#### Lighting

Upon review of the corridor, many existing light poles are currently installed behind guardrail or behind a wall section. Assuming that future conditions will have similar accommodations, the clear zone requirement along the corridor could be significantly reduced. A lighting analysis determined that light poles are needed approximately every 200 ft. Additional details are provided in the **Preliminary Engineering Report** available under separate cover.

#### **Design Variations and Exceptions**

No design variations or exceptions are needed for this project.

#### **Cost Estimates**

The total estimated construction cost for the Preferred Alternative is \$61,123,062.

Additional details of the engineering analysis are provided in the **Preliminary Engineering Report** available under separate cover.

#### 5.0 - Commitments

The following commitments have been made for this project:

- CFX commits to re-evaluate the Traffic Noise Study during the Design Phase of the project.
- CFX commits to re-evaluate the need for a Phase I Cultural Resource Assessment Survey (CRAS) during the Design Phase of the project.
- Best Management Practices to control erosion and sedimentation in accordance with Standard Specifications for Road and Bridge Construction will be implemented.
- Wetland impacts which may result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. §1344.
- Any species-specific surveys will first be coordinated with the United States Fish and Wildlife Service (USFWS) and Florida Fish and Wildlife Conservation Commission (FFWCC), then conducted as agreed to with USFWS and FFWCC during the permitting phase.
- A preconstruction gopher tortoise burrow survey and any resultant permitting will be conducted in accordance with FWC protocols.
- The project will implement the USFWS-approved Standard Protection Measures for the Eastern Indigo Snake (updated August 1, 2017) during the proposed roadway improvements.
- Avoidance and minimization of wetland and listed species impacts will continue to be evaluated and all possible and practicable measures to avoid or minimize these impacts will be incorporated.
- CFX commits to conducting an additional public meeting during the Design Phase of the project.
- The need for a Contamination Screening Evaluation Report will be re-evaluated during the design phase.

#### 6.0 - Preferred Alternative

The Build Alternative is selected as the Preferred Alternative. The Build Alternative improves traffic flow, reduces congestion and delay, improves safety, and is consistent with local plans and policies to provide regional connectivity and support sustained economic growth.

The Build Alternative includes adding a travel lane in the westbound direction along SR 408 from the east side of the I-4 interchange to Bumby Avenue and from Semoran Boulevard to Goldenrod Road. Within the segment parallel to the Rosalind Avenue exit ramp, the additional lane will be accommodated by utilizing reduced shoulders and 11.5-ft wide travel lanes. Widening will also occur to the inside by reducing the existing median landscaping from 10 ft wide to 6.5 ft wide. From Mills Avenue to Bumby Avenue, a 12-ft wide travel lane will be added by widening to the outside. From Semoran Boulevard to Goldenrod Road, a 14-ft wide lane will be added by widening to the outside. The proposed work includes adding a second exit lane for the Semoran Boulevard off-ramp, widening of the overpass bridges, reconstructing or adding new noise walls, reconstruction of existing ramp toll gantries (on-ramp from Bumby Avenue and off-ramp to Semoran Boulevard), and modification to the existing median landscaping from the east side of the I-4 interchange to Bumby Avenue. All proposed improvements are anticipated to occur within the existing right of way.

#### 7.0 - Public Involvement

1	A public meeting is not required.
2	A public meeting will be held on (insert date). This draft document is publicly available, and comments can be submitted to (insert entity) until (insert date). Contact Information:
	Name: Title: Central Florida Expressway Authority 4974 ORL Tower Road Orlando, Florida 32807 Phone: (xxx) xxx-xxxx Email address:
3. <u>X</u>	A public meeting was held on <b>February 27, 2023</b> and a meeting summary is available.
4	An opportunity for a public meeting was afforded and was documented on (insert date).
5	Other public engagement opportunity(ies) provided:

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#### 8.0 - Approval of Final Document

This project has been developed without regard to race, color, national origin, age, sex, religion, disability, or family status.

The final Level 1 PEIR reflects consideration of the Project Development and Environment Study and Public Involvement.

Michael Garau, PE Project Manager

Kimley-Horn & Associates

David V. Jule

Date: \_\_\_\_\_

David Falk, PE Project Manager

Central Florida Expressway Authority

Date: Nov 16, 2023

Date: Nov 17, 2023

Glenn Pressimone, PE

Chief of Infrastructure

Central Florida Expressway Authority

SR 408 CAPACITY IMPROVEMENTS I-4 TO GOLDENROD ROAD

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**Attachment 1 – Environmental Analysis** 

#### **Attachment 1**

#### **A: Social & Economic Environment Analysis**

#### A.1: Social

#### **Demographics**

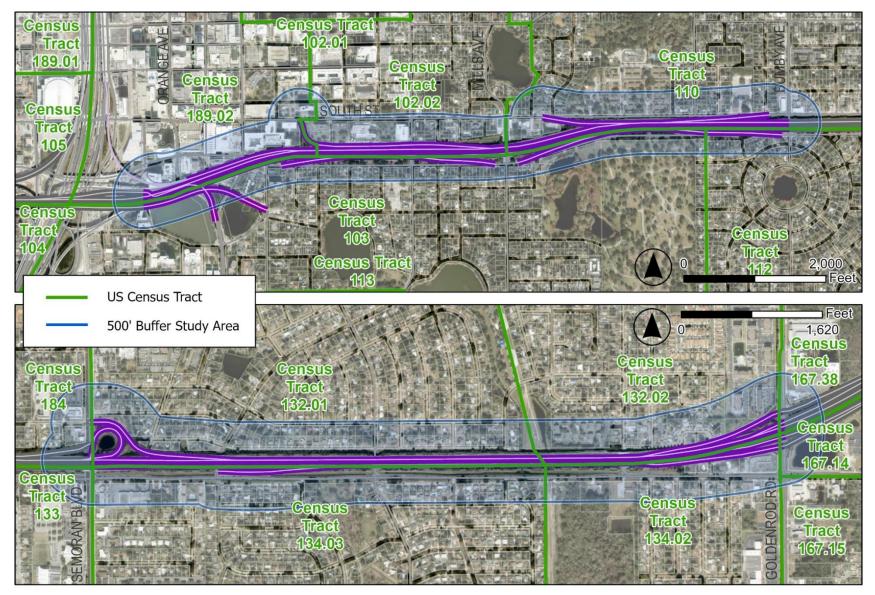
The study area was reviewed to identify minority and/or low-income populations as well as underrepresented population groups protected under *Title VI of the Civil Rights Act of 1964* and related nondiscrimination statutes and regulations. **Table 1** provides study area demographics based on the US Census Tracts in which the project is located. See **Figure 1** for the location of the tracts. Construction of the Preferred Alternative is not anticipated to cause adverse or disproportionate impacts to the demographics of the study area.

Table 1: Study Area Demographics by Census Tract

Location	Census Tract	Total Population	Percent Minority Population	Percent Population Below Poverty Level	Percent Population Aged 65 and Over
	132.01	4,480	79.17%	4.35%	20.36%
	132.02	6,812	84.70%	9.97%	18.01%
Ave	133*	6,655	66.60%	14.53%	28.58%
mby	134.02	3,679	69.50%	1.53%	29.74%
l-4 to Bumby Ave	134.03	4,153	77.37%	9.93%	14.91%
1-4 tc	167.38*	4,505	76.78%	6.26%	8.63%
_	167.14*	3,264	73.01%	2.30%	12.97%
	184*	2,723	52.15%	0.77%	11.35%
to J	102.02	3,453	31.71%	0.00%	11.44%
Slvd d Rc	103	2,510	28.69%	2.68%	18.85%
an E enro	110	3,069	43.53%	12.23%	6.14%
Semoran Blvd to Goldenrod Rd	112	3,236	21.08%	10.40%	14.31%
Š	189.02	3,893	47.96%	2.51%	17.23%
Orang	je County	1,340,469	56.0%	14.2%	12.0%

Source: 2020 U.S. Census (Total Population, Minority Population); 2020 ACS 5-Year Estimates (Poverty, 65 and Over)

Figure 1: Study Area Census Tracts



#### **Community Features**

A desktop review of the study area indicates that there are several community features within the study area: Dr. Phillips Center for the Performing Arts, WFTV television studios, Greenwood Urban Wetland, Greenwood Cemetery, Reeves Terrace Apartments, and H2O Church, all located within the I-4 to Bumby Ave segment. Within the segment from Semoran Blvd to Goldenrod Rd there are the following community features: Engelwood Park, Grace Church, and La Petite Academy daycare. These features along with others in close proximity to the study area are included in **Table 2** below.

It should be noted that just to the north of the I-4 to Bumby Ave segment there is a City of Orlando fire station and just to the east of the Semoran Blvd to Goldenrod Rd segment there is an Advent Health hospital campus. **Figure 2** presents the community features locations.

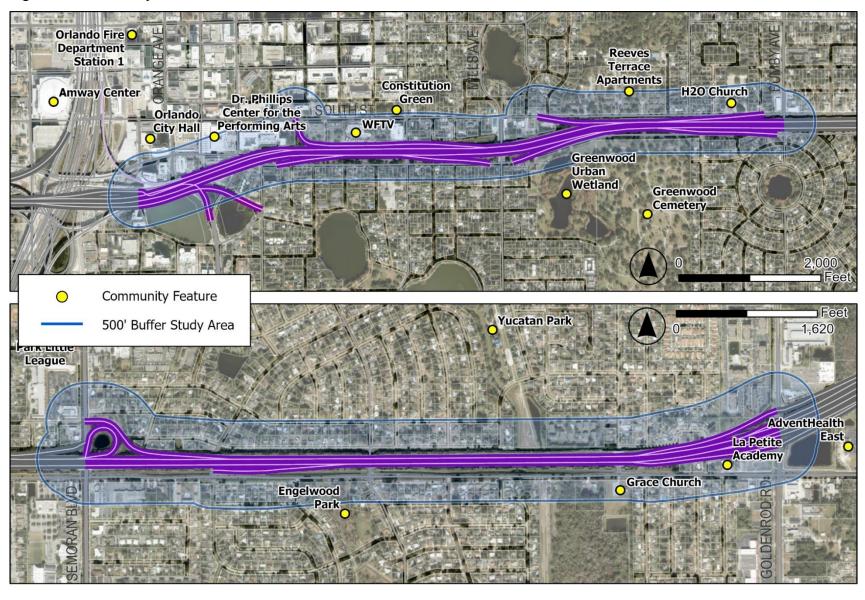
Additionally, the area within and surrounding the project is mostly developed, with much of the land dedicated to residential uses, including Reeves Terrace Apartments, a public housing development, which is located just west of Bumby Ave, to the north of SR 408. Construction of the Preferred Alternative is not anticipated to cause adverse impacts to Community Features.

**Table 2: Community Features** 

Location	Name	Type of Facility	Relative Location		
	City of Orlando Fire Station 1	Institutional	±315 feet northeast of study area		
	Amway Center	Recreation/ Entertainment	±105 feet west of study area		
	Orlando City Hall	Institutional	±155 feet northeast of study area		
	Dr. Phillips Center for the Performing Arts	Cultural	Partially within study area		
Ave	First United Methodist Church of Orlando	Place of Worship	±250 feet north of study area		
I-4 to Bumby Ave	WFTV	Television Studio and Equipment	Partially within study area		
to B	Orange County Administration	Institutional	Several located along north side of study area		
7	Constitution Green	Recreation/Park	±120 feet north of study area		
	Greenwood Urban Wetlands	Recreation/Park	Partially within study area		
	Greenwood Cemetery	Cemetery	Partially within study area		
	Reeves Terrace Apartments	Low-Income Housing	Partially within study area		
	H2O Church Orlando	Place of Worship	Partially within study area		
0	Engelwood Park	Recreation/Park	Partially within study area		
/d t Rd	Yucatan Park	Recreation/Park	±480 feet west of study area		
emoran Blvd t Goldenrod Rd	Grace Church	Place of Worship	Partially within study area		
an	La Petite Academy	Daycare	Within study area		
nor	AventHealth East	Hospital	±800 feet north of study area		
Semoran Blvd to Goldenrod Rd	Azalea Park Little League	Recreation/Park	±960 feet north of study area		

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Figure 2: Community Features



#### A.2: Economic

The proposed improvements will provide improved safety, enhanced capacity, and reduced congestion and travel time. As this stretch of SR 408 includes several connections to surface roads as well as the approach to the interchange with I-4, it is a critical connection to one of Central Florida's major economic centers of downtown Orlando and surrounding neighborhoods. Construction of the Preferred Alternative is anticipated to enhance economic development in the area.

#### **A.3: Land Use Changes**

Adjacent land includes parcels within Orlando City Limits and within unincorporated Orange County. Future Land Use (FLU) designations are summarized in **Table 3** and shown on **Figure 3**. Land adjacent to the study area generally consists of developed properties, the majority of which are residential. There are park features and commercial areas within 250 feet of the project, including portions of the central business district of Orlando.

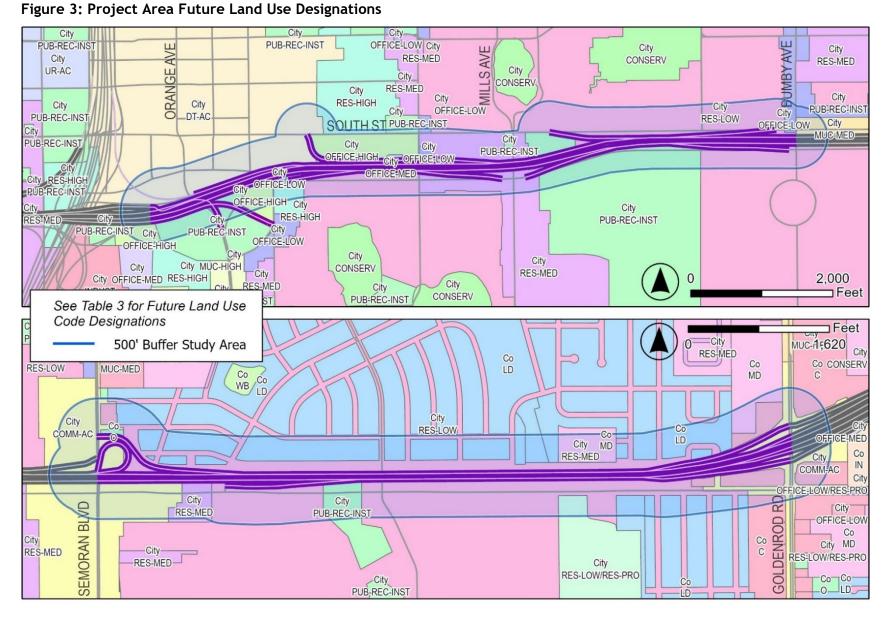
Table 3: Future Land Uses Within Project Area

Jurisdiction	Future Land Use (FLU) Designation	FLU Code
	Community Activity Center	COMM-AC
	Conservation	CONSERV
	Downtown Activity Center	DT-AC
	Industrial	INDUST
	Mixed Use Corridor High Intensity	MUC-HIGH
	Mixed Use Corridor Medium Intensity	MUC-MED
	Neighborhood Activity Center	NEIGH-AC
City of Orlanda	Office High Intensity	OFFICE-HIGH
City of Orlando	Office Low Intensity	OFFICE-LOW
	Office Low Intensity/Resource Protection Overlay	OFFICE-LOW/RES-PRO
	Office Medium Intensity	OFFICE-MED
	Public/Recreational & Institutional	PUB-REC-INST
	Residential Low Intensity	RES-LOW
	Residential Low Intensity/Resource Protection Overlay	RES-LOW/RES-PRO
	Residential Medium Intensity	RES-MED
	Urban Reserve	UR-AC
	Commercial	С
	Institutional	IN
Oranga Cauntu	Low-Density Residential	LD
Orange County	Medium-Density Residential	MD
	Office	0
	Water Body	WB

In addition to the Orange County and City of Orlando Future Land Use classifications, the Florida Department of Environmental Protection (FDEP) Florida Land Use Cover Classification System (FLUCCS) was used to classify various land uses and land covers within the study area. Construction of the Preferred Alternative is not anticipated to cause significant changes to the land use of the Study Area. **Table 4** summarizes the FLUCCS codes and the locations are depicted on **Figure 4**.

Table 4: FLUCCS Codes Within Project Area

FLUCCS Code	Description
1200	Medium Density Residential
1300	Residential High Density
1400	Commercial and Services
1480	Cemetery
1550	Other Light Industrial
1700	Institutional
1850	Parks
1860	Community Recreation Facilities
1900	Open Land
2430	Ornamentals
3100	Herbaceous (Dry Prairie)
4340	Upland Mixed Coniferous/Hardwood
5200	Lakes
5300	Reservoirs
6410	Freshwater Marshes
6460	Mixed Scrub-shrub Wetland
8140	Roads and Highways
8370	Surface Water Collection Features



3100 4340 6410 **BUMBY AVE ORANGE AVE** SOUTHST 2,000 Feet See Table 4 for FLUCCS Code Designations #Feet 500' Buffer Study Area 1,620 1400 5200/ 4340 6300 6410 SEMORAN BLYD RD GOLDENROD F 

Figure 4: FLUCCS Within Project Area

#### A.4: Mobility

There are no existing transit routes that travel on SR 408 within the project area. Lynx Link 13 and Link 15 each travel parallel to SR 408 on Anderson St and South St between Orange Ave and Bumby Ave, with stops located along these roads. Several other routes travel under SR 408 along Orange Ave, including Links 7, 11, 18, and 40.

There is also a SunRail commuter rail station located between South St and Church St on the rail tracks, which crosses under the I-4/SR 408 interchange.

Between Semoran Blvd and Goldenrod Rd, two routes cross through the project area. Link 28 travels northbound on Semoran Blvd and southbound on Oxalis Ave, and Link 436S travels northbound and southbound on Semoran Blvd.

Between I-4 and Bumby Ave, there is sidewalk present along Anderson St and South St generally throughout the project area. A multiuse path is present on Anderson St from Summerlin Ave to Crystal Lake Dr and serves as part of the City of Orlando Downtown Loop. This area is also within the service area of micromobility vendors, and users of bikeshare and scootershare frequently travel within this area.

There is sidewalk present on the south side of Lake Underhill Rd throughout the project area, and on both sides from Dial Dr to Goldenrod Rd.

This project's proposed improvements will provide more efficient connections via SR 408, potentially taking additional automobiles off of surface roads to minimize potential conflicts with transit, pedestrians, and bicyclists. Construction of the Preferred Alternative will positively impact mobility within the project area and surrounding area.

#### A.5: Aesthetic Effects

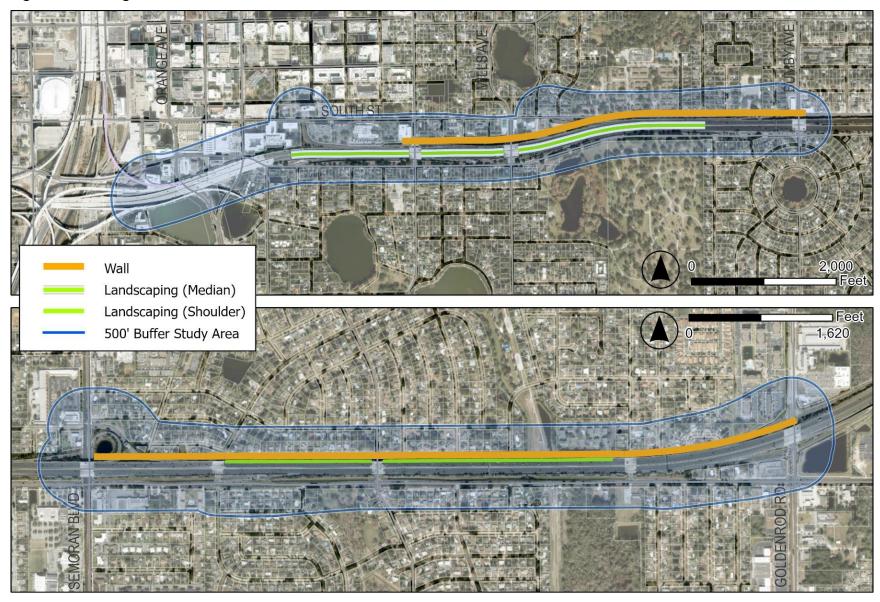
There is an existing noise wall present along part of the I-4 to Bumby Ave segment and along most of the Semoran Blvd to Goldenrod Rd segment. There is also landscaping present in the median along the western segment and along the northern right of way within the eastern segment. A map illustrating these features is included on **Figure 5**.

Aesthetic impacts of the proposed improvements may include opportunities for landscaping and hardscaping enhancements. The project is anticipated to largely use existing right of way, and the context of the area will remain urban in nature as it is currently. As such, it is not anticipated that the project will negatively impact the overall aesthetics of the area.

#### A.5: Relocation Potential

Construction of the Preferred Alternative will not result in any relocations.

Figure 5: Existing Aesthetic Features



# **B: Cultural Environment Analysis** B.1: Historic and Archaeological Sites

This project will not have significant impacts to cultural resources. Below is a summary of the evaluation performed:

On January 4, 2023, SEARCH reviewed concept plans for the widening of SR 408 from SR 436 to Goldenrod Rd. The purpose of this review was to identify previously recorded cultural resources within the project area. The Study Area was defined as the parcels where the proposed widening will take place (the potential construction area) in addition to a 152-meter (500-foot) buffer to address potential viewshed effects to historic resources. The present document is for information purposes only and does not satisfy any requirements under the National Environmental Policy Act or Section 106 of the National Historic Preservation Act.

Review of the Florida Master Site File (FMSF) database indicates that 131 historic buildings, one archaeological site, one historic cemetery, and five resource groups are located within the Study Area (**Table 5 – Table 8**; see **Figure 6**). Of these resources, two buildings (8OR00111 and 8OR09989) and one resource group (8OR08984) are listed on the National Register of Historic Places (NRHP). In addition, 37 historic buildings, the historic cemetery (8OR09088), and four resource groups (8OR00258, 8OR00422, 8OR09612, and 8OR10041) have been recommended eligible or potentially eligible for the NRHP. The remaining resources have not been evaluated by the State Historic Preservation Office for NRHP eligibility or have been recommended ineligible.

Table 5: Previously Recorded Building Resources in the Study Area

FMSF No.	Address	Year Built	Surveyor Recommendation	NRHP Eligibility Status
8OR00022	125 N Lucerne Circle	ca. 1900	Ineligible for NRHP	Eligible for NRHP
8OR00111	135 Lucerne Circle NE	1893	Eligible for NRHP	NRHP listed 1979
8OR00112	500 South Magnolia	1919	Not Evaluated	Ineligible for NRHP
8OR00128	518 Delaney Street	1904	Not Evaluated	Not Evaluated
8OR00209	426 E South Street	1908	Not Evaluated	Not Evaluated
8OR00262	310 E Anderson Street	1921	Not Evaluated	Ineligible for NRHP
8OR00263	314 E Anderson Street	1908	Not Evaluated	Ineligible for NRHP
8OR00264	332 E Anderson Street	1935	Not Evaluated	Ineligible for NRHP
8OR00265	338 Anderson Street	1935	Not Evaluated	Ineligible for NRHP
8OR00266	340 E Anderson Street	1935	Not Evaluated	Ineligible for NRHP
8OR00267	400 E Anderson Street	1914	Not Evaluated	Ineligible for NRHP
8OR00268	404 E Anderson Street	1913	Not Evaluated	Ineligible for NRHP
8OR00269	408 E Anderson Street	1913	Not Evaluated	Ineligible for NRHP
8OR00270	412 E Anderson Street	1913	Not Evaluated	Ineligible for NRHP
8OR00271	416 E Anderson Street	1916	Not Evaluated	Ineligible for NRHP
8OR00272	420 E Anderson Street	1919	Not Evaluated	Ineligible for NRHP
8OR00273	502 E Anderson Street	1925	Not Evaluated	Ineligible for NRHP
8OR00274	508 E Anderson Street	1919	Not Evaluated	Ineligible for NRHP
8OR00275	516 E Anderson Street	ca. 1923	Not Evaluated	Ineligible for NRHP
8OR00276	520 E Anderson Street	ca. 1916	Not Evaluated	Ineligible for NRHP
8OR00277	600 E Anderson Street	ca. 1916	Not Evaluated	Ineligible for NRHP
8OR00278	608 E Anderson Street	ca. 1916	Not Evaluated	Ineligible for NRHP

# SR 408 CAPACITY IMPROVEMENTS I-4 TO GOLDENROD ROAD

FMSF No.	Address	Year Built	Surveyor Recommendation	NRHP Eligibility Status
8OR00279	612 E Anderson Street	ca. 1923	Not Evaluated	Ineligible for NRHP
8OR00280	618 E Anderson Street	ca. 1916	Not Evaluated	Ineligible for NRHP
8OR00281	620 E Anderson Street	1923	Not Evaluated	Ineligible for NRHP
8OR00304	507 S Delaney Avenue	1913	Not Evaluated	Ineligible for NRHP
8OR00305	510 S Delaney Avenue	1905	Not Evaluated	Not Evaluated
8OR00312	505 S Eola Drive	1913	Not Evaluated	Ineligible for NRHP
8OR00327	502 S Lake Avenue	ca. 1910	Not Evaluated	Ineligible for NRHP
8OR00336	211 N Lucerne Circle	ca. 1925	Ineligible for NRHP	Eligible for NRHP
8OR00338	505 Margaret Court	1923	Not Evaluated	Ineligible for NRHP
8OR00346	500 S Osceola Avenue	1914	Not Evaluated	Ineligible for NRHP
8OR00347	504 S Osceola Avenue	1913	Not Evaluated	Ineligible for NRHP
8OR00446	300 E Anderson Street	ca. 1930	Ineligible for NRHP	Eligible for NRHP
8OR00461	101 W Jackson Street	n/a	Not Evaluated	Not Evaluated
8OR01389	413 Bryan Avenue	ca. 1930	Ineligible for NRHP	Not Evaluated
8OR01390	415 Bryan Avenue	ca. 1920	Ineligible for NRHP	Ineligible for NRHP
8OR01391	417 Bryan Avenue	ca. 1910	Ineligible for NRHP	Not Evaluated
8OR02524	309 S Lawsona Boulevard	ca. 1935	Ineligible for NRHP	Ineligible for NRHP
8OR02525	229 S Lawsona Boulevard	ca. 1935	Ineligible for NRHP	Ineligible for NRHP
8OR03354	415 S Delaney Avenue	ca. 1919	Ineligible for NRHP	Not Evaluated
8OR03355	430 Anderson Court	ca. 1923	Ineligible for NRHP	Ineligible for NRHP
8OR03356	426 Anderson Court	ca. 1923	Ineligible for NRHP	Ineligible for NRHP
8OR03357	424 Anderson Court	ca. 1923	Ineligible for NRHP	Ineligible for NRHP
8OR03358	427 Anderson Court	ca. 1923	Ineligible for NRHP	Ineligible for NRHP
80R04889	1525–1537 E South Street	1942	Eligible for NRHP	Potentially Eligible for NRHP
8OR04890	324–332 Reeves Court	1942	Eligible for NRHP	Potentially Eligible for NRHP
8OR04891	316–322 Reeves Court	1942	Eligible for NRHP	Potentially Eligible for NRHP
80R04893	334–344 Reeves Court	1942	Eligible for NRHP	Potentially Eligible for NRHP
80R04894	310–314 Reeves Court	1942	Eligible for NRHP	Potentially Eligible for NRHP
8OR04895	335–345 Reeves Court	1942	Eligible for NRHP	Potentially Eligible for NRHP
8OR04897	1615–1621 Reeves Court	1942	Eligible for NRHP	Potentially Eligible for NRHP
80R04898	338–340 Victor Avenue	1942	Eligible for NRHP	Potentially Eligible for NRHP
80R04900	1633–1639 E South Street	1942	Eligible for NRHP	Potentially Eligible for NRHP
80R04901	350–356 Victor Avenue	1942	Eligible for NRHP	Potentially Eligible for NRHP
80R04902	342–348 Victor Avenue	1942	Eligible for NRHP	Potentially Eligible for NRHP
8OR04914	333–335 Victor Avenue	1951	Eligible for NRHP	Potentially Eligible for NRHP
80R04915	345–347 Victor Avenue	1951	Eligible for NRHP	Potentially Eligible for NRHP
80R04916	1721–1729 E South Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
80R06112	428 S Crystal Lake Drive	1958	Ineligible for NRHP	Ineligible for NRHP
80R06115	409 S Crystal Lake Drive	1950	Ineligible for NRHP	Ineligible for NRHP
80R06116	3029 E South Street	1958	Ineligible for NRHP	Ineligible for NRHP
80R06117	300 Maynard Avenue	1949	Ineligible for NRHP	Ineligible for NRHP
80R06118	220 Maynard Avenue	1949	Ineligible for NRHP	Ineligible for NRHP
80R08150	341–343 Victor Avenue	1951	Eligible for NRHP	Potentially Eligible for NRHP
80R08235	506 S Garland Avenue	ca. 1917	Ineligible for NRHP	Ineligible for NRHP
80R08472	1214 E South Street	ca. 1948	Ineligible for NRHP	Ineligible for NRHP

# SR 408 CAPACITY IMPROVEMENTS I-4 TO GOLDENROD ROAD

FMSF No.	Address	Year Built	Surveyor Recommendation	NRHP Eligibility Status
8OR08498	337–339 Victor Avenue	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08549	2001 E South Street	ca. 1949	Ineligible for NRHP	Not Evaluated
8OR08550	2015 E South Street	ca. 1945	Ineligible for NRHP	Not Evaluated
8OR08551	2021 E South Street	ca. 1949	Ineligible for NRHP	Not Evaluated
8OR08562	328–330 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08563	332–331 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08564	1743–1745 E South Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08565	336–338 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08566	324–326 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08569	325–327 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08570	337–339 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08571	1861–1863 E South Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08572	333–335 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08573	329–331 Johnson Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR08990	2120 Newman Street	ca. 1935	Ineligible for NRHP	Not Evaluated
8OR09001	503 S Orange Avenue	ca. 1943	Ineligible for NRHP	Not Evaluated
8OR09009	203 N Lucerne Circle	1946	Ineligible for NRHP	Not Evaluated
8OR09032	1018 E Anderson Street	ca. 1926	Ineligible for NRHP	Not Evaluated
8OR09033	812 E Anderson Street	ca. 1918	Ineligible for NRHP	Not Evaluated
8OR09034	700 E Anderson Street	ca. 1925	Ineligible for NRHP	Ineligible for NRHP
8OR09035	720 E Anderson Street	ca. 1947	Ineligible for NRHP	Not Evaluated
8OR09036	800 E Anderson Street	ca. 1920	Ineligible for NRHP	Not Evaluated
8OR09037	806 E Anderson Street	ca. 1920	Ineligible for NRHP	Not Evaluated
8OR09038	808 E Anderson Street	ca. 1920	Ineligible for NRHP	Not Evaluated
8OR09039	1000 E Anderson Street	ca. 1924	Ineligible for NRHP	Not Evaluated
8OR09040	1104 E Anderson Street	ca. 1924	Ineligible for NRHP	Not Evaluated
8OR09041	1108 E Anderson Street	ca. 1924	Ineligible for NRHP	Not Evaluated
8OR09042	507 Daniels Avenue	ca. 1925	Ineligible for NRHP	Not Evaluated
8OR09056	500 S Eola Drive	ca. 1910	Ineligible for NRHP	Eligible for NRHP
8OR09060	505 Summerlin Avenue	ca. 1920	Ineligible for NRHP	Ineligible for NRHP
8OR09061	509 Summerlin Avenue	ca. 1920	Ineligible for NRHP	Ineligible for NRHP
8OR09064	405 S Hyer Avenue	ca. 1935	Ineligible for NRHP	Ineligible for NRHP
80R09065	416 S Hyer Avenue	ca. 1949	Ineligible for NRHP	Ineligible for NRHP
8OR09066	415 S Hyer Avenue	ca. 1949	Ineligible for NRHP	Ineligible for NRHP
80R09071	420 Daniels Avenue	ca. 1948	Ineligible for NRHP	Ineligible for NRHP
8OR09072	417 Daniels Avenue	ca. 1948	Ineligible for NRHP	Ineligible for NRHP
8OR09073	416 Daniels Avenue	ca. 1948	Ineligible for NRHP	Ineligible for NRHP
8OR09074	412 Daniels Avenue	ca. 1948	Ineligible for NRHP	Ineligible for NRHP
8OR09075	408 Daniels Avenue	ca. 1948	Ineligible for NRHP	Ineligible for NRHP
80R09076	708–710 E South Street	ca. 1949	Ineligible for NRHP	Ineligible for NRHP
80R09077	712 E South Street	ca. 1949	Ineligible for NRHP	Ineligible for NRHP
80R09078	718–720 E South Street	ca. 1948	Ineligible for NRHP	Ineligible for NRHP
80R09079	800 E South Street	ca. 1935	Ineligible for NRHP	Ineligible for NRHP
80R09080	814 E South Street	ca. 1930	Ineligible for NRHP	Ineligible for NRHP
80R09081	900 E South Street	ca. 1935	Ineligible for NRHP	Ineligible for NRHP

FMSF No.	Address	Year Built	Surveyor Recommendation	NRHP Eligibility Status
8OR09082	1004 E South Street	ca. 1935	Ineligible for NRHP	Ineligible for NRHP
8OR09114	332–334 McJordan Avenue	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR09157	Garland Avenue	ca. 1942	Ineligible for NRHP	Not Evaluated
8OR09187	336–338 E South Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR09224	211 N Lucerne Circle	1916	Ineligible for NRHP	Eligible for NRHP
8OR09568	1877–1879 E South Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR09569	340–344 McJordan Street	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR09570	328–330 McJordan Avenue	1951	Eligible for NRHP	Potentially Eligible for NRHP
8OR09989	500 S Orange Avenue	1966	Eligible for NRHP	NRHP listed 2012
8OR10148	712 Anderson Street	ca. 1958	Ineligible for NRHP	Ineligible for NRHP
8OR10149	4215 Summerlin Avenue	ca. 1945	Ineligible for NRHP	Ineligible for NRHP
80R11186	1216 E Anderson Street	ca. 1954	Ineligible for NRHP	Not Evaluated
80R11187	1212 E Anderson Street	ca. 1953	Ineligible for NRHP	Not Evaluated
8OR11188	1206 E Anderson Street	ca. 1954	Ineligible for NRHP	Not Evaluated
80R11437	506 Hyer Avenue	ca. 1920	Ineligible for NRHP	Not Evaluated
8OR11455	1010 Anderson Avenue	ca. 1960	Ineligible for NRHP	Not Evaluated
80R11456	1114 Anderson Avenue	ca. 1949	Ineligible for NRHP	Not Evaluated
80R11457	1122 Elmwood Street	ca. 1952	Ineligible for NRHP	Not Evaluated

#### Table 6: Previously Recorded Archaeological Resources in the Study Area

Archaeological Site				
FMSF No.	Name	Time Period	Surveyor	NRHP Eligibility
			Recommendation	Status
	Center for	Nineteenth-century American,		Ineligible for
8OR10062	Performing	1821–1899; Twentieth-century	Ineligible for NRHP	NRHP
	Arts Site	American, 1900-present		

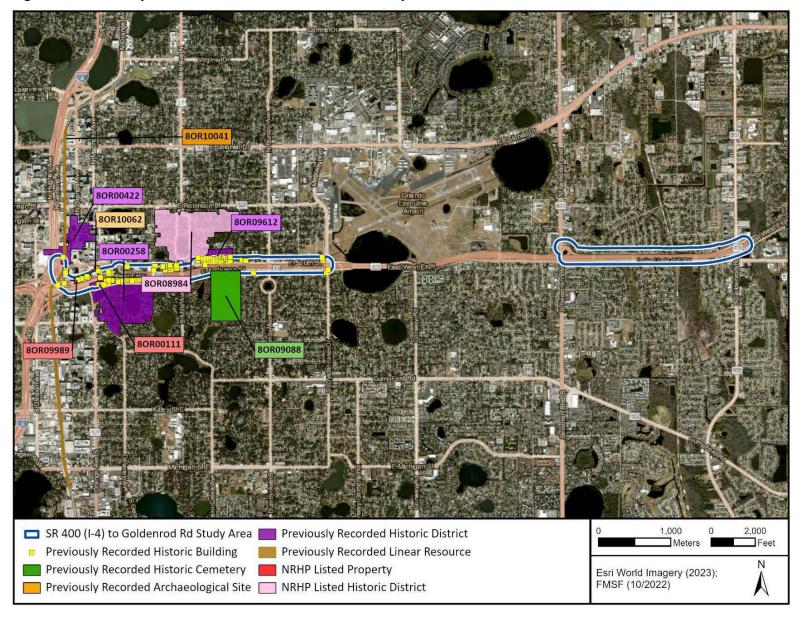
#### Table 7: Previously Recorded Cemetery Resources in the Study Area

Cemeteries				
FMSF No.	Name	Year Established	Condition	NRHP Eligibility Status
8OR09088	Greenwood Cemetery	ca. 1880	Well-maintained	Eligible for NRHP

#### Table 8: Previously Recorded Group and District and Resources in the Study Area

Resource Groups and Historic Districts			
FMSF No.	Name	Period of Significance	NRHP Eligibility Status
8OR00258	Lake Cherokee Historic District	Late twentieth century	Eligible for NRHP
8OR00422	Downton Orlando Historic District	Late nineteenth- and early twentieth century	Eligible for NRHP
8OR08984	Lake Lawsona Historic District	American twentieth-century; Boom Times, 1921–1929; Post-Reconstruction, 1880–1897; WWI and Aftermath, 1917–1920; ca. 1887–1949	NRHP Listed 2019
8OR09612	Orlando Reeves Terrace	World War II & Aftermath, 1941–1950	Eligible for NRHP
8OR10041	South Florida Railroad	American 1821-present; Nineteenth-century American, 1821-1899; Disston Era of Expansion & Consolidation, 1881-1899	Eligible for NRHP

Figure 6: Previously Recorded Historic Resources in Study Area



This area of downtown Orlando has been subjected to numerous cultural resource surveys (**Table 9**, **Figure 7**), although the majority of these are centered on the Interstate 4 interchange and the eastern and western ends of the Study Area are comparatively unsurveyed. Portions of the Study Area that have been subjected previously to Module Three-compliant survey typically will not need additional archaeological survey but may need an updated architectural history survey.

Table 9: Cultural Resource Surveys Conducted within the Study Area

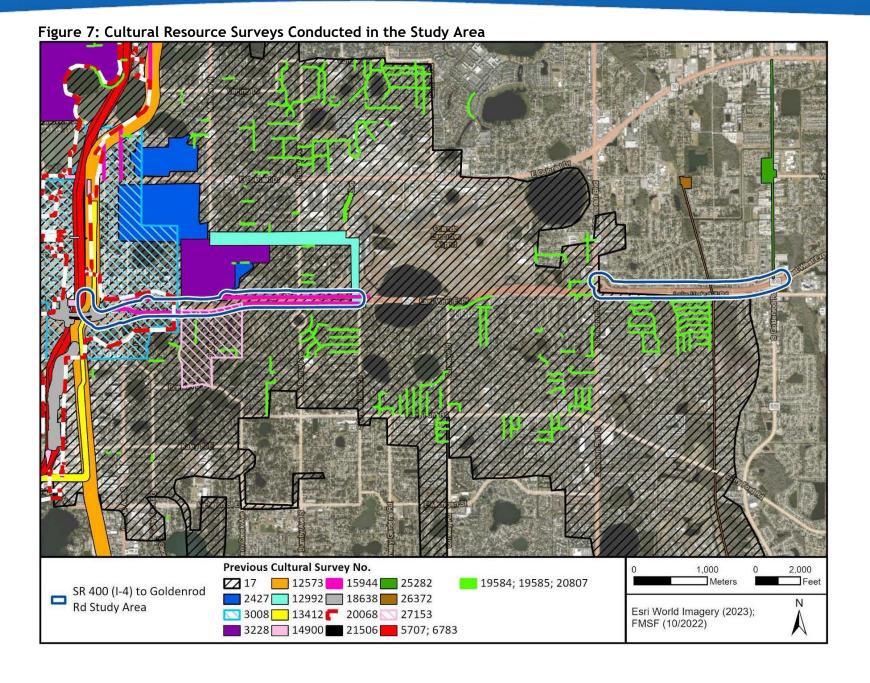
FMSF No.	Title	Year	Consultant
17	Historical, Architectural, and Archaeological Survey of Orlando, Florida	1978	Carr and Werndli
2427	Historic Properties Survey of Lake Eola Heights, Lake Lawsona, Park	1990	Historic Property
	Lake/Highland and Spring Lake in the City of Orlando, Florida	1990	Associates
3008	Downton Orlando Historic Resource Survey Update	1991	Elliott and Logsdon
3228	Orlando Neighborhood Survey Project	1992	Elliot and Logsdon
5707	Cultural Resource Assessment Survey Interstate 4 Section 2 Project		Almy, Marion
	Development and Environment Study from Bee Line Expressway (S.R. 528)	1999	
	to S.R. 472 Interchange, Orange, Seminole, and Volusia Counties, Florida		
	Section 106 Effects Determination for the I-4 Interim Improvements from		Janus Research
6783	S.R. 423 (John Young Parkway) to S.R. 436 Semoran Boulevard) Orange and	2000	
	Seminole Counties, Florida		
	Cultural Resource Assessment Survey Report Central Florida Commuter		Archaeological
12573	Rail Transit (CFCRT) Environmental Assessment, Volusia, Seminole, Orange,	2005	Consultants, Inc.
	and Osceola Counties, Florida		(ACI)
	A Cultural Resource Assessment Survey E Robinson Street from Mills		
12002	Avenue to S Crystal Lake Drive and Along S Crystal Lake Drive from E	2006	Janus Research
12992	Robinson Street to Just South of Anderson Street City: Orlando County:	2006	
	Orange		
12412	Central Florida Light Rail Transit System, Downton CSXT Corridor Aerial	1000	Janua Dagagash
13412	Alternative, Cultural Resource Assessment Survey	1999	Janus Research
	I-4 Ultimate Improvement Project Additional Ponds and Improvements	2007	Janus Research
14900	Cultural Resources Information (242484-4) I-4 from South of US 441/OBT		
	to South of Ivanhoe Boulevard, Orlando, Orange County		
	Cultural Resource Reconnaissance Survey Six Segments of South Street,		
15944	Anderson Street, Magnolia Avenue, and Orange Avenue to be Transferred	2008	Chambless and Fulk
	to the City of Orlando in Orange County, Florida		
	Cultural Resource Assessment Survey Re-evaluation of Interstate 4 (State		
18638	Road 500) Ultimate from South of Orange Blossom Trail to South of	2011	Janus Research
	Ivanhoe Boulevard, Orange County, Florida		
	Tech Memo No. 4: Cultural Resources Effects Evaluation for the City of		
19584	Orlando Sidewalks Project Work Zones 12, 13, 14, and 20, Orange County,	2012	Chambless, et al.
	Florida		
	Technical Memorandum No. 5: Cultural Resources Effects Evaluation for		
19585	the City of Orlando Sidewalks Project Work Zones 2, 3, 4, 5, 6, 8, 10, 18,	2013	Salo, et al.
	and 21		
20068	I-4 CRAS Re-evaluation from West of Kirkman Road (SR 435) to North of	2012	Janua Dagaguah
	Sanlando Springs Road (SR 434)	2013	Janus Research

# SR 408 CAPACITY IMPROVEMENTS I-4 TO GOLDENROD ROAD

PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FMSF No.	Title	Year	Consultant
20807	Cultural Resource Assessment Survey for Phase 2 of the City of Orlando Sidewalks Project, Orange County, Florida	2014	Bartlett et al.
21506	Cultural Resources Desktop Analysis and Field Review for Two I-4 Ultimate Design Changes	2015	Chambless, Elizabeth
25282	FM No. 437634-1-52-01, SR 441 (Goldenrod Road) from SR 408 to SR 50 (Colonial Drive) Safety Improvements, Orange County, Florida	2018	Armstrong et al.
26372	Cultural Resource Assessment Survey of the OUC Pershing to Azalea 230kV Transmission Line, Orlando, Orange County, Florida	2018	ACI
27153	Lake Davis-Greenwood Historic District Survey Report	2019	Cress, Dana B.

Given the number of NRHP-listed and -eligible resources in proximity to the Study Area, the lack of cultural resource survey at the east and west ends of the project corridor, and the presence of numerous evaluated resources in the Study Area, a Phase I Cultural Resource Assessment Survey (CRAS) will be considered as part of the design phase for this project.



#### **B.2: Recreational Areas and Protected Lands**

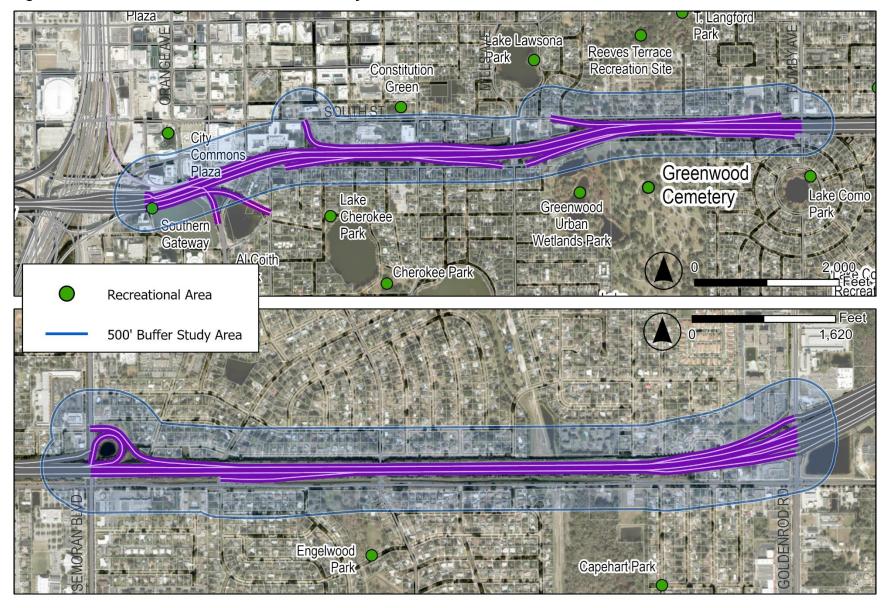
There are two recreational areas located within the project area. Greenwood Urban Wetlands/Greenwood Cemetery is located south of SR 408, between Mills Ave and Hampton Ave. Engelwood Park is located south of SR 408 between Engel Dr and S Oxalis Ave.

There are several other recreational and other public areas located nearby the project area, including City Commons Plaza, Southern Gateway, Lake Cherokee Park, Constitution Green, Lake Lawsona Park, Mayor Carl T. Langford Park, Reeves Terrace Recreation Site, Lake Como Park, and Capehart Park.

There are no other protected lands within the area. The locations of these recreational areas and protected lands are shown on **Figure 8**.

No direct impacts are anticipated to any recreational areas or protected lands.

Figure 8: Recreational Areas and Parks Within Project Area



#### **C:** Natural Environment Analysis

The project will not have significant impacts to natural resources. Below is a summary of the evaluation performed.

#### C.1: Wetlands and Other Surface Waters

An assessment of wetlands and surface waters was conducted within the project study area utilizing the 2014 St Johns River Water Management District (SJRWMD) Florida Land Use, Cover and Forms Classification System (FLUCFCS) and the National Wetland Inventory (NWI) GIS datasets. The project study area contains two (2) potential wetland areas primarily adjacent to SR 408. There are 11 additional potential surface waters, consisting of Fern Creek and 10 storm water management facilities. Due to the hydrologic connections of the on-site wetlands, these wetlands may fall under the jurisdiction of the SJRWMD and FDEP.

Using the 2014 SJRWMD Land Use Land Cover data, the wetlands within the proposed limits of disturbance were used to calculate proposed impacts to wetlands. As of the current design, there are no proposed direct wetland impacts (**Figure 9**).

#### **C.2: Aquatic Preserves and Outstanding FL Waters**

There are no aquatic preserves or Outstanding Florida Waters (OFWs) in the project area; therefore, there is no involvement with this resource.

#### C.3: Water Resources

There are no aquatic preserves or OFWs in the project area; therefore, there is no involvement with this resource.

#### C.4: Wild and Scenic Rivers

There are no designated Wild and Scenic Rivers or other protected rivers in the project area; therefore, there is no involvement with this resource.

#### **C.5: Floodplains**

The Federal Emergency Management Agency (FEMA) flood hazard GIS data for Orange County was used to determine proposed impacts to floodplain. Based on currently mapped FEMA data, both floodplain and floodway are within the proposed limits of disturbance.

Approximately 11 acres of the ±619-acre study area (1.8%) is classified as being within the FEMA Flood Zone A, within the Special Flood Hazard Areas, where an established Base Flood Elevation (BFE) has been determined. Approximately 64 acres of the ±619-acre study area (10.3%) is classified as being within the FEMA Flood Zone AE, within the Special Flood Hazard Areas, where an established Base Flood Elevation (BFE) has been determined. The remaining approximately 544 acres of the study area is classified as being within FEMA Flood Zone X, areas of minimal flood hazard. There is a FEMA Regulatory Floodway within the project study area at the SR 408 crossing of Fern Creek. The FEMA Flood maps are depicted on **Figure 10**.

Potential impacts are anticipated to be minimal and will be mitigated.

#### **C.6: Coastal Barrier Resources**

There are no Coastal Barrier Resources in the project area; therefore, there is no involvement with this resource.

Figure 9: Wetlands and Surface Waters Impacts Map

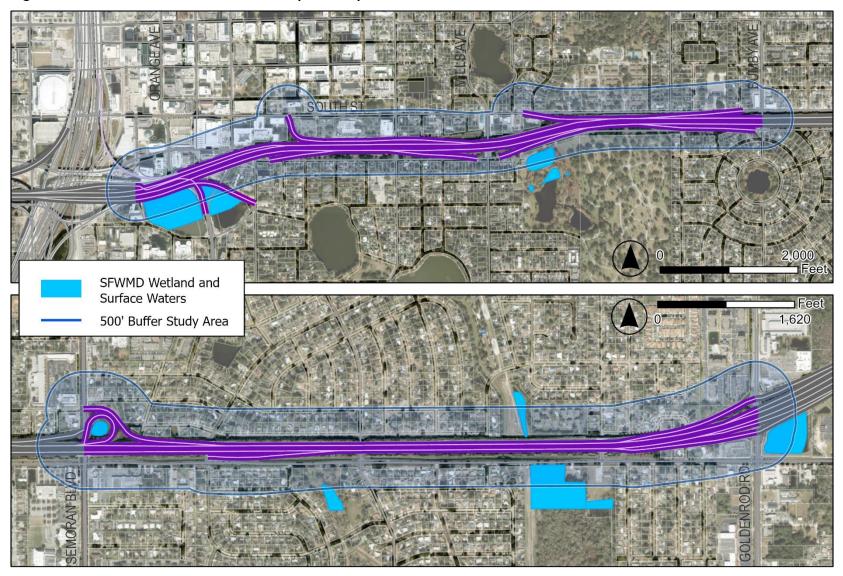
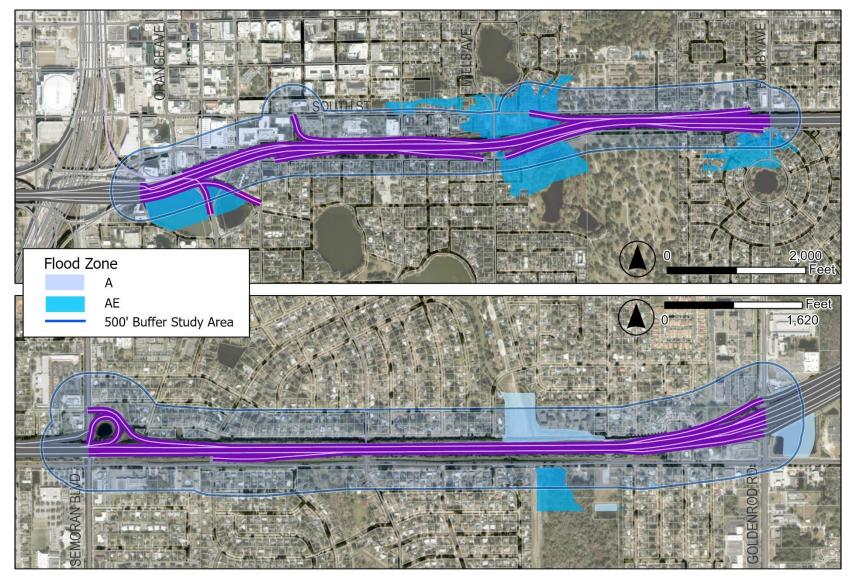


Figure 10: FEMA Flood Map



#### **C.7: Protected Species and Habitat**

A database review of potential species occurring within the project study area and immediate vicinity was conducted. Results of the database review are summarized below. For more information on protected species and habitat, refer to the **Environmental Assessment Technical Memorandum**, available under separate cover.

Based on a review of the U.S. Fish and Wildlife Service (USFWS) Critical Habitat Mapper, there is no USFWS designated Critical Habitat within the project study area. Areas identified by the Florida Fish and Wildlife Conservation Commission (FWC) as Strategic Habitat Conservation Areas (SHCA) are located within the project 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 FNAI and USFWS IPaC data, bald eagle (*Haliaeetus leucocephalus*) have been documented near the study area; additionally, the wood stork (*Mycteria americana*) is listed as likely to occur within one (1) mile of the study area. The study area lies within the Core Foraging Area (CFA) of four (4) active wood stork colonies. The study area also lies within the USFWS Consultation Area for the Everglade snail kite (*Rostrhamus sociabilis plumbeus*), Florida scrubjay (*Aphelocoma coerulescens*), red-cockaded woodpecker (*Picoides borealis*), and Lake Wales Ridge plants. Additional listed species with the potential to occur included the Florida sandhill crane (*Antigone canadensis pratensis*), Florida burrowing owl (*Athene cunicularia floridana*), Audubon's crested caracara (*Caracara cheriway*), bluetail mole skink (*Eumeces egregius lividus*), sand skink (*Neoseps reynoldsi*), Florida black bear (*Ursus americanus floridanus*), eastern indigo snake (*Drymarchon couperi*), red-cockaded woodpecker (*Dryobates borealis*), gopher tortoise (*Gopherus polyphemus*), eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*), and Everglade snail kite (*Rostrhamus sociabilis plumbeus*). There are no known wading bird rookeries within the project study area or within one (1) mile of the study area. There are four (4) bald eagle nests within one (1) mile of the study area.

A list of the state and federally listed species potentially occurring within the immediate vicinity of the project site has been compiled in **Table 10**. The table below lists species that may occur and their effect determinations.

Any species with a Moderate or higher Likelihood of Occurrence designation within the project area will be evaluated with the Florida Fish & Wildlife Service early in the design phase, where permitting and construction techniques will be identified.

#### C.8: Essential Fish Habitat

There is no Essential Fish Habitat in the project area; therefore, there is no involvement with this resource.

Table 10: Listed Species Potentially Within Project Area

Common Name	Scientific Name	Status	Documented (<1 mile)	Habitat Present	Effect Determination				
Avian									
Audubon's crested caracara	Caracara cheriway	FT	No	No	No effect				
Eastern black rail	Laterallus jamaicensis jamaicensis	FT	No	No	No effect				
Everglade snail kite	Rostrhamus sociabilis plumbeus	FE	No	No	No effect				
Florida scrub-jay	Aphelocoma coerulescens	FT	No	No	No effect				
Red-cockaded woodpecker	Picoides borealis	FE	No	No	No effect				
Wood stork	Mycteria americana	FT	No	No	No effect				
Florida burrowing owl	Athene cunicularia	ST	No	No	No adverse effect anticipated				
Florida sandhill crane	Grus canadensis pratensis	ST	No	No	No adverse effect anticipated				
Reptilian									
Eastern indigo snake	Drymarchon corais couperi	FT	No	Yes	Not likely to adversely affect				
Sand skink	Neoseps reynoldsi	FT	No	No	No effect				
Bluetail mole skink	Eumeces egregius lividus	FT	No	No	No effect				
Gopher tortoise	Gopherus polyphemus	ST	No	Yes	No adverse effect anticipated				
Short-tailed snake	Lampropeltis extenuate	ST	No	No	No adverse effect anticipated				

FE - Federally Endangered; FT - Federally Threatened; FT(S/A) – Threatened due to Similarity of Appearance; C - Candidate for Listing SE - State Endangered; ST - State Threatened

Note: Coordination is not required with FWC for federally listed species

# **D: Physical Environment Analysis**

# **D.1: Air Quality**

As part of this project study, an air quality evaluation has been performed consistent with the FDOT PD&E Manual, Part 2, Chapter 19. Based on this initial evaluation, a detailed Air Quality analysis is not needed because the project does not meet the two qualifying criteria per Section 19.2.2.1, Part 2, Chapter 19 of the PD&E Manual. It does not require an Environmental Impact Statement, and it is not expected to have community controversy regarding air quality.

This project is not expected to create adverse impacts on air quality because the project area is in attainment for all National Ambient Air Quality Standards (NAAQS) and because the project is expected to improve the Level of Service (LOS) and not change delay and congestion on all facilities within the study area. Additional information is provided in the **Air Quality Technical Memorandum**, available under separate cover.

Construction activities may cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to applicable FDOT Standard Specifications for Road and Bridge Construction.

### **D.2: Water Quality**

There are no aquatic preserves or Outstanding Florida Waters (OFWs) within the project study area. A review of EPA Sole Source Aquifer Protection Program maps of sole source aquifers in the southeastern United States indicated that the project study area is located within the Biscayne Sole Source Aquifer and Recharge Zone. The project will meet all applicable SJRWMD criteria related to water quality. The project is currently a non-federal action receiving no federal monies; therefore, concurrence from the EPA is not required according to the Safe Drinking Water Act. Best Management Practices (BMPs) to control erosion, sediment release, and storm water runoff to minimize adverse impacts on surface water resources will be implemented during design, permitting and construction. Determination has been made that there are no USACE retained waters.

A Water Quality Impact Evaluation (WQIE) was conducted for the project to comply with the Clean Water Act and is available under separate cover. The results of the WQIE indicate that the project will not result in significant impacts to water quality.

## **D.3: Contamination Screening**

A Contamination Screening Evaluation was prepared per the project scope as a part of the Evaluation of Physical Resources. Additional details are included in the **Contamination Screening Evaluation Technical Memorandum**, available under separate cover, which includes a site figure indicating the location of potential contamination sites and brief summaries of the most recent assessment information available through Map Direct and any recommendations on necessity for additional evaluation.

## **D.4: Highway Traffic Noise**

A traffic noise analysis was performed in accordance with the FDOT PD&E Manual. A Traffic Noise Model was used to evaluate existing conditions, the No-Build Alternative and the Build Alternative for the Noise Sensitive Areas (NSAs) potentially impacted by traffic noise within 400 feet of the project corridor.

Per these analyses, 725 sites (716 Category B, seven Category C, one Category D, and one

Category E) were analyzed for project-related impacts. Of the 725 analyzed sites, 88 (85 residential, two Category C, and one Category E) are currently affected by traffic noise. The noise levels associated with the 2045 No-Build Alternative are predicted to meet or exceed the FDOT NAC at 90 sites (87 residential, two Category C, and one Category E).

The analysis concluded that once the project is built, the overall traffic noise levels will increase by an average of 1.1 dB(A), with the average project-related noise level predicted to be 64.3 dB(A). The 2045 Build Alternative's noise levels are predicted to meet or exceed the applicable NAC at 183 sites (179 residential, three Category C, and one Category E). The greatest noise level increase is predicted to be 8.3 dB(A) in NSA 6. Most of the impacts result from the roadway footprint expansion, which necessitates removing existing noise barriers. None of the increases are considered substantial (i.e., 15 dB(A) or more over existing levels).

As required, noise abatement consideration was given to all 183 impacted sites. The 26 impacts (25 residential and cemetery) in NSAs 3, 5, 7, 9, 11, and 13 cannot be mitigated due to 1) no project improvements on the eastbound side and 2) the existing noise barriers being at the maximum allowed heights.

For the westbound side, Noise Barriers WB-A1, WB1, WB 2, and WB3 were evaluated to abate project impacts to the remaining 157 sites (154 residential, two daycares, and one hotel pool). Noise barrier WB-A1 was determined not to meet feasibility requirements. As described in **Table 11**, noise barriers WB1, WB2, and WB 3 meet acoustic and cost reasonableness criteria and are recommended for further consideration during the final design process.

Noise Study Area	Barrier ID	Barrier Height (ft)*2	Barrier Length (ft)	Barrier Location	Estimated Barrier Cost*1	Recommended for further evaluation?				
NSA 2	WB-A1	8	1,218	Ramp/Flyover Shoulder (new)	\$292,320	No				
NSA 2	WB1	8	545	MSE/Shoulder (new)	\$130,800	Yes				
NSAs 4, 6, and 8	WB2	8	5,324	MSE/Shoulder Replacement	\$1,277,760	Yes				
NSAs 10, 12, and 14	WB3	8	1,313	MSE/Shoulder (replacement)	\$315,120	Yes				

Table 11: Noise Barrier Recommendations

Construction of the Preferred Alternative is not anticipated to cause adverse impact. Additional information is available in the **Traffic Noise Study Report** available under separate cover.

#### **D.5: Construction**

Construction activities may cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to applicable FDOT Standard Specifications for Road and Bridge Construction.

Based on the existing land use within the limits of this project, construction of the proposed roadway improvements will not have any noise or vibration impact. If noise-sensitive land uses develop adjacent to the roadway prior to construction, additional impacts could result. It is anticipated that the application of the FDOT Standard Specifications for Road and Bridge Construction will minimize or eliminate most of the potential construction noise and vibration impacts. However, should unanticipated noise or vibration issues arise during the construction

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process, CFX and the Contractor will investigate additional methods of controlling these impacts.

Because no federally listed species are likely to be present in the action area and no critical habitat was identified, the construction of this project is not anticipated to impact any proposed threatened or endangered species, any threatened or endangered species, or affect or modify any critical habitat.

Further, construction will likely temporarily impact existing traffic patterns, but as with all construction impacts, will be temporary in nature and efforts will be made to minimize negative impacts by adhering to applicable state regulations and to applicable FDOT Standard Specifications for Road and Bridge Construction.

Construction of the Preferred Alternative is not anticipated to cause adverse impact.

#### **D.6: Bicycles & Pedestrians**

There are sidewalk facilities within the project area, along the surface roads that run parallel to SR 408. Additionally, there is a multiuse path currently under construction on the north side of South Street that spans from Summerlin Ave to Crystal Lake Rd, located outside the project area. Construction of the Preferred Alternative is not anticipated to impact any bicycle and pedestrian facilities.

#### **D.7: Navigation**

There are no navigable waterways in the project area; therefore, there is no involvement with this resource.

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**Attachment 2 – Concept Plans** 

