

MEMORANDUM

Date: April 26, 2022

To: File

From: William F.C. Umlauf, P.E.
CONSOR Engineers

Subject: **Access Management Plan**

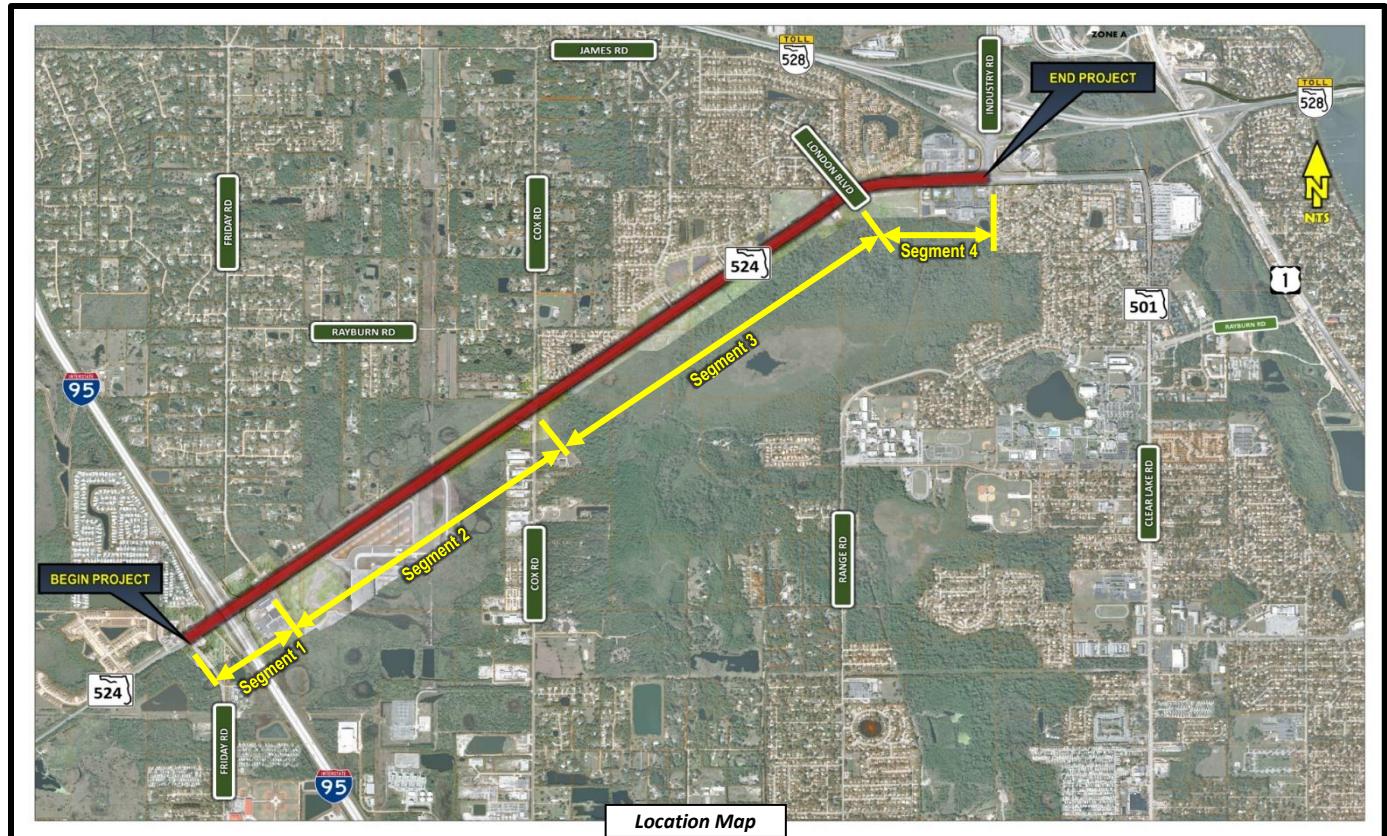
State Road No.: 524
Financial Project ID: 437983-1-22-01
County: Brevard
Project Limits: From Friday Road (South) to Industry Road

PROJECT DESCRIPTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to analyze the impacts of updating an existing two-lane undivided roadway to a proposed four-lane divided corridor within the City limits of Cocoa, Brevard County. Specific project limits are from Friday Road (South) to Industry Road, approximately 3.15 miles in length (see Location Map). The PD&E study will analyze design alternatives that widen SR 524; improve capacity at the I-95 interchange; and increase safety at the intersections of Cox Road, London Boulevard, and Industry Road. The project corridor has been divided into four separate and distinct segments with Context Classifications and Access Management Classes as follows:

Table 1: SR 524 Segment, Context Classification, Access Management Classification

Segment No.	Segment Description	Context Classification	Access Management Class
1	I-95 Interchange (South Friday Road to North Friday Road)	C3C (Suburban Commercial)	5
2	North Friday Road to Cox Road	C3R (Suburban Residential)	3
3	Cox Road to London Boulevard	C3R (Suburban Residential)	5
4	London Boulevard to Industry Road	C3C (Suburban Commercial)	5



ACCESS MANAGEMENT STANDARDS

Access Management provides for the orderly movement of traffic to and from adjacent land uses along a roadway and helps a facility to operate in a more efficient, safe, and accessible manner by reducing the number of potential vehicle and pedestrian conflict points. FDOT has minimum spacing standards (Rule 14-97) for connections, median openings, and signalized intersections on the State Highway System (SHS). The minimum spacing standards are summarized in Table 2.

Table 2: Access Management Standards

Access Class	Median Type	Connection Spacing (feet)		Median Opening Spacing (feet)		Signal Spacing (feet)
		> 45 mph	≤ 45 mph	Directional	Full	
2	Restrictive with Service Roads	1320	660	1320	2640	2640
3	Restrictive	660	440	1320	2640	2640
4	Non-Restrictive	660	440			2640
5	Restrictive	440	245	660		2640 > 45 mph 1320 ≤ 45 mph
6	Non-Restrictive	440	245			1320
7	Both Median Types	125		330	660	1320

PROPOSED ACCESS MANAGEMENT PLAN

An access management plan was prepared as part of a previous corridor study, presented to the public in June of 2017 and will be the basis for this plan (See Figure No. 1).



Figure No.1

Median Openings

Per Table 2, Access Management Standards, for median opening spacing under a Class 3 designated roadway, median opening spacing is 1320' and 2640' for directional and full median openings, respectively. For median opening spacing under a Class 5 designated roadway, spacing for design speed of 45-mph or less is 660' and 1320' for directional and full median openings, respectively. Of the 16 proposed median openings, nine are not in compliance with access management standards. Segment 1, the I-95 Interchange between the two Friday Road intersections, includes three of the nine non-standard locations with deviation percentages of 50.4%, 76.4% and 43.8%. Two directional openings are proposed between Friday Road (North) and the Walmart Distribution Center and deviate from access management standards by 13.3% and 8.3%. The full median opening at Cox Road, which is proposed to be modified to a roundabout from the existing signalized intersection, deviates from access management standards by 22.5%. Coventry Court is currently an unrestricted median opening that will become a directional opening into the Coventry Cove subdivision. The intersection at CVS creates the remaining two substandard distances as the spacings between London Boulevard and CVS and between CVS and Industry Road deviate by 1.7% and 17.0%, respectively (See Table 3).

Table 3: Median Opening Spacing

Existing Opening Location		Existing Opening Type	Proposed Opening Type	Distance Between Openings	Required Spacing	Deviation from Standard (%)
S	South Friday Road	Full	Full	---	---	---
S	I-95 SB Off Ramp / NB On Ramp	Full	Full	655'	1320'	50.4%
S	I-95 SB On Ramp / NB Off Ramp	Full	Full	312'	1320'	76.4%
S	North Friday Road	Full	Full	742'	1320'	43.8%
NS	Station 410+25	Non-Restrictive	Directional	1145'	1320'	13.3%
NS	Station 421+70	Non-Restrictive	Directional	1230'	1320'	8.3%
S	Walmart Distribution Center	Full	Full	3620'	2640'	---
R	Cox Road	Full	Full	2045'	2640'	22.5%
NS	Pinyon Drive	Full	Directional	1882'	660'	---
NS	Westminster Drive	Full	Full	1125'	660' / 1320'	---
NS	Lance Boulevard	Full	Directional	1210'	660'	---
NS	Fred Gay Golf Academy	Non-Restrictive	Directional	870'	660'	---
NS	Fire Station Emergency Access	Non-Restrictive	Emergency	---	---	---
R	London Boulevard	Full	Full	2550'	1320'	---
NS	Coventry Court	Full	Directional	575'	660'	12.9%
S	CVS / Publix Shopping	Full	Full	720'	660' / 1320'	1.7%
S	Industry Road	Full	Full	1095'	1320'	17.0%

NS = Non-Signalized / S = Signalized / R = Roundabout

Signal / Roundabout Openings

Per Table 2, Access Management Standards, for signal spacing under a Class 3 designated roadway, the required spacing is 2640' while the required spacing for a Class 5 designated roadway is 1320' and 2640' for design speeds of less than or equal to 45-mph and greater than 45-mph, respectively. The four signals within the I-95 Interchange area do not meet minimum access management standards while the existing signal at Cox Road is proposed to be modified to a roundabout. The CVS signalized intersection deviates 1.7% from London Boulevard and 17.0% from Industry Road (See Table 4).

Table 4: Signal / Roundabout Spacing

Existing Opening Location		Existing Opening Type	Proposed Opening Type	Distance Between Openings	Required Spacing	Deviation from Standard (%)
S	South Friday Road	Full	Full	---	---	---
S	I-95 SB Off Ramp / NB On Ramp	Full	Full	655'	1320'	50.4%
S	I-95 SB On Ramp / NB Off Ramp	Full	Full	312'	1320'	76.4%
S	North Friday Road	Full	Full	742'	1320'	43.8%
S	Walmart Distribution Center	Full	Full	3615'	2640'	---
R	Cox Road	Full	Full	2050'	2640'	22.5%
R	London Boulevard	Full	Full	6767'	1320'	---
S	CVS / Publix Shopping	Full	Full	1295'	1320'	1.7%
S	Industry Road	Full	Full	1095'	1320'	17.0%

S = Signalized Intersection / R = Roundabout

Roadway Connection Spacing

Per Table 2, Roadway Connection Spacing for a Class 3 roadway with a design speed of less than or equal to 45-mph and greater than 45-mph is 440' and 660', respectively. Roadway Connection Spacing for a Class 5 roadway with a design speed of less than or equal to 45-mph and greater than 45-mph is 245' and 440', respectively. The proposed roadway connection plan is provided in Table 5 and the Conceptual Plans.

Table 5: Roadway Connection Spacing

From	To	Connection Spacing	Required Spacing	Proposed Condition	Deviation from Standard (%)
Eastbound					
South Friday Road	Abandoned Service Station 1	90'	245'	Remain	---
Abandoned Service Station 1	Abandoned Service Station 2	90'	245'	Close	26.5%
Abandoned Service Station 2	I-95 SB On-Ramp	440'	245'	Remain	---
I-95 SB On-Ramp	I-95 NB Off-Ramp	330'	245'	Remain	---
I-95 NB Off-Ramp	North Friday Road	750'	245'	Remain	---
North Friday Road	Walmart Distribution	3500'	660'	Remain	---
Walmart Distribution	Service Station	1620'	660'	Remain	---
Service Station	Cox Road	440'	660'	Remain	33.3%
Cox Road	Cocoa Landings 1 (Future)	850'	245'	Proposed	---
Cocoa Landings 1 (Future)	Cocoa Landings 2 (Future)	1065'	245'	Proposed	---
Cocoa Landings 2 (Future)	Integra Preserve 1 (Future)	1440'	245'	Proposed	---
Integra Preserve 1 (Future)	Integra Preserve 2 (Future)	880'	245'	Proposed	---
Integra Preserve 2 (Future)	Integra Preserve 3 (Future)	1080'	245'	Proposed	---
Integra Preserve 3 (Future)	Fire Station Drive 1	760'	245'	Remain	---
Fire Station Drive 1	Fire Station Drive 2	260'	245'	Remain	---
Fire Station Drive 2	London Cove Entrance (Future)	450'	245'	Proposed	---
London Cove Entrance (Future)	Vet Hospital / Publix Drive 1	1290'	245'	Remain	---
Vet Hospital / Publix Drive 1	Publix Drive 2	500'	245'	Remain	---
Publix Drive 2	Industry Road	600'	245'	Remain	---
Westbound					
South Friday Road	Service Station 1	80'	245'	Remain	---
Service Station 1	Service Station 2	120'	245'	Close	18.4%
Service Station 2	I-95 SB Off-Ramp	460'	245'	Remain	---
I-95 SB Off-Ramp	I-95 NB On-Ramp	330'	245'	Remain	---
I-95 NB On-Ramp	Service Station Driveway	540'	245'	Remain	---
Service Station Driveway	North Friday Road	180'	245'	Remain	26.5%
North Friday Road	Driveway 1	680'	660'	Remain	---
Driveway 1	Driveway 2	1630'	660'	Remain	---
Driveway 2	Thien Thai Lane	120'	660'	Remain	81.8%
Thien Thai Lane	Cox Road	3300'	660'	Remain	---
Cox Road	Dentistry Driveway	450'	245'	Remain	---
Dentistry Driveway	Pinyon Drive	1430'	245'	Remain	---
Pinyon Drive	Westminster Drive	1100'	245'	Remain	---
Westminster Drive	Easement Driveway	340'	245'	Remain	---
Easement Driveway	Lance Boulevard	860'	245'	Remain	---
Lance Boulevard	Fred Gay Golf Academy	885'	245'	Remain	---
Fred Gay Golf Academy	Sunoco Driveway 1	1215'	245'	Remain	---
Sunoco Driveway 1	Sunoco Driveway 2	210'	245'	Remain	14.3%
Sunoco Driveway 2	London Boulevard	270'	245'	Right In Only	---
London Boulevard	Coventry Court	580'	245'	Remain	---
Coventry Court	CVS Driveway	700'	245'	Remain	---
CVS Driveway	Abandoned Plaza Drive	400'	245'	Remain	---
Abandoned Plaza Drive	Industry Drive	700'	245'	Remain	---

RECOMMENDATION

The preferred alternative alignment for the corridor is to provide a four-lane divided curbed typical section for each roadway segment. Preferred intersection layouts include a diverging diamond interchange (DDI) at the I-95 Interchange, roundabouts at Cox Road and London Boulevard, and a signalized intersection at Industry Road. Through coordination meetings with the Department, Tables 3 through 5 represent the proposed and recommended access management plan with respect to median opening spacing, signalized / roundabout spacing, and roadway connection spacing. Specific adjustments from existing conditions include the following:

Median Openings / Signal Spacing

- Approximately 85% of the SR 524 project corridor exists with a roadway typical that consists of a two-lane undivided roadway and unlimited ability to make a left turn. Adding capacity from the existing typical section to a four-lane divided roadway restricts the ability to make left turns and introduces the need for median openings per access management guidelines.
- Deviations with respect to median openings and signal spacing at the I-95 interchange are directly related to the interchange layout. An Interchange Modification Report and an Intersection Control Evaluation (ICE) analysis was performed for the interchange, on/off ramps, and the Friday Road intersections. The approved concept included a diverging diamond interchange (DDI) at the I-95 interchange and signalized conditions at the Friday Road intersections. The intersections at Friday Road (South), I-95 on/off ramps, and Friday Road (North) deviate from access management standards by 50.4%, 76.4%, and 43.8%.
- Directional median openings are proposed between Friday Road (North) and the Walmart Distribution Center at Station 410+25 and Station 421+70. These directional openings deviate from access management standards by 13.3% and 8.3%, respectively, but provide the ability to make u-turns reducing the amount of travel time for those movements. An eastbound left turn lane is also recommended at the Walmart Distribution Center allowing for u-turns and a potential future connection to the north.
- The existing signalized intersection at Cox Road is proposed to be controlled via a roundabout.
- The intersections of Pinyon Drive, Lance Boulevard, and Fred Gay Golf Academy are proposed to be controlled by a directional median opening.
- To allow for faster response times, an emergency median opening is recommended for the left turning movement out of Fire Station No. 3 located just west of the London Boulevard roundabout. The proposed emergency median opening should consist of mountable curb & gutter with concrete pavement in the median to accommodate the larger fire engines. The concrete median should continue to the west allowing for the return of the fire engine into the fire station.
- The existing signalized intersection at London Boulevard is proposed to be controlled via a roundabout.
- Coventry Court is currently a full median opening and is proposed to be a directional opening. This intersection deviates from access management standards by 12.9%.
- The signalized intersections at CVS and Industry Road remain full signalized openings, but do not meet minimum access management standards by 1.7% and 17.0%, respectively.

Roadway Connections

Eastbound:

- The abandoned service station just east of Friday Road (South) has two access points along SR 524 and an additional access along Friday Road (South). Given the three separate access points (two along SR 524 and one along Friday Road (South)), it is recommended to close the western driveway along SR 524. This recommendation acknowledges that the roadway connection deviates from access management criteria by 26.5%.
- With future developments anticipated at Cocoa Landings, Integra Preserve, and London Cove, it is recommended to provide roadway connections for these future planned developments.

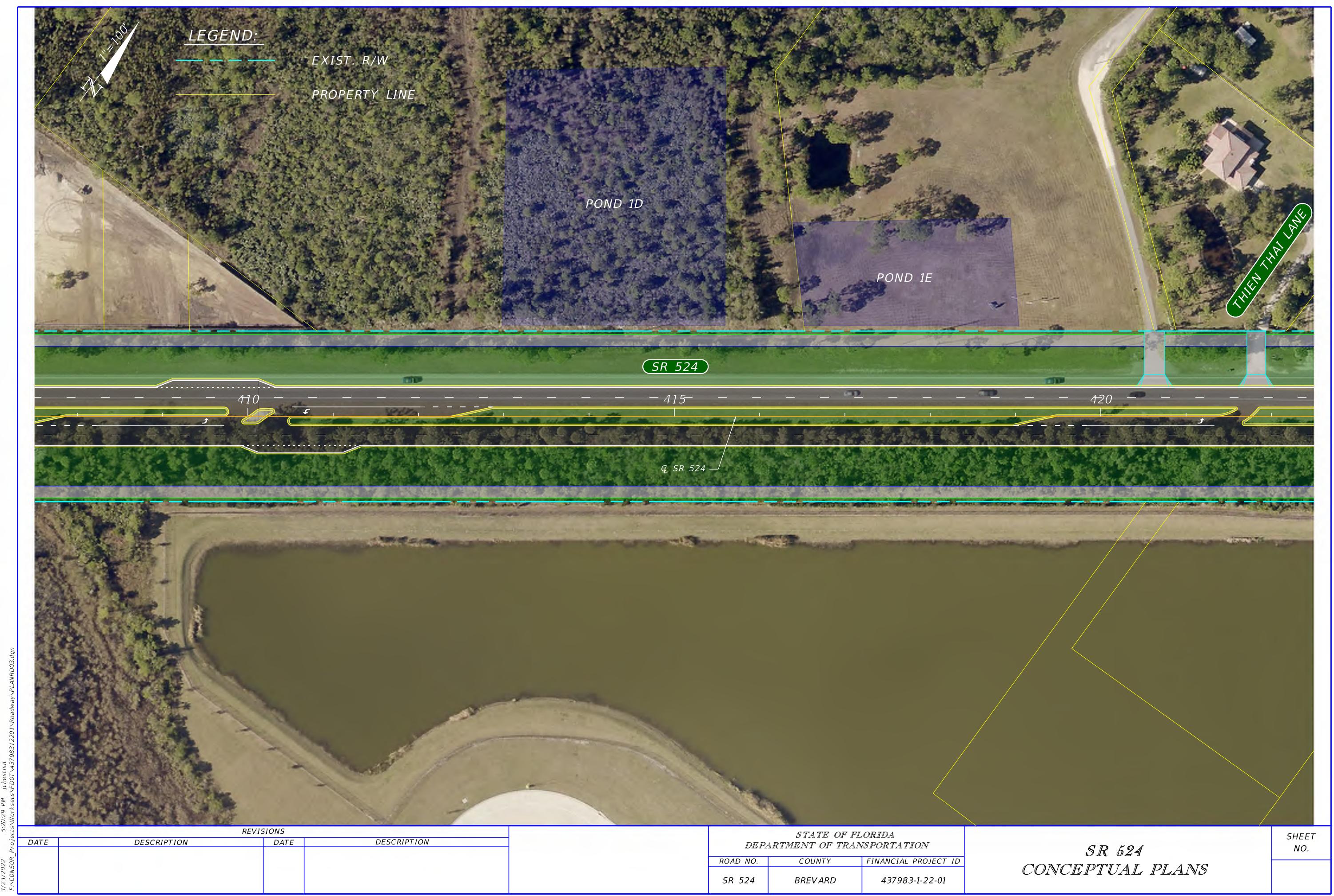
Westbound:

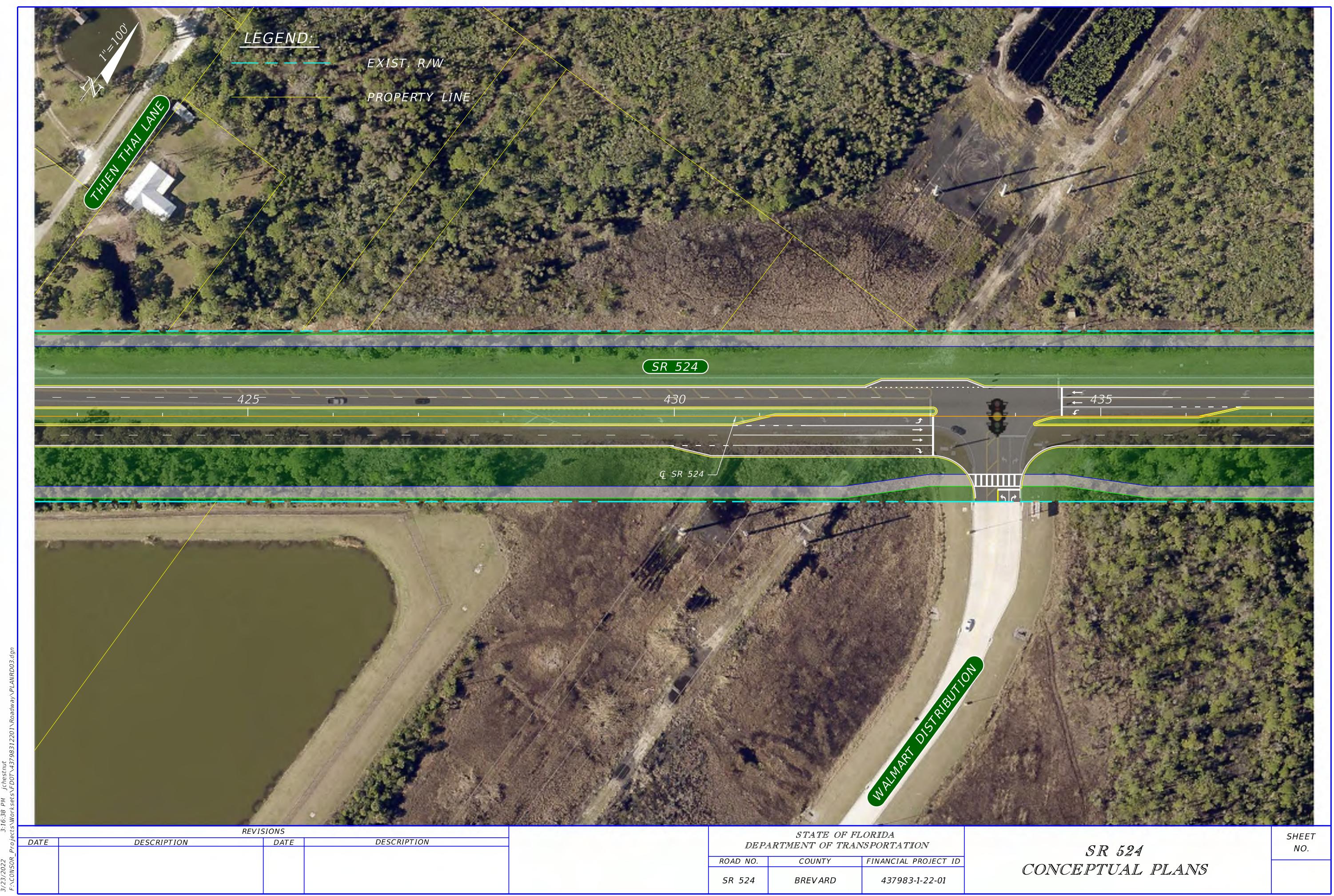
- The existing BP service station just east of Friday Road (South) has two access points along SR 524. It is recommended to close the western driveway and provide an additional access along Friday Road (South) to the north. This recommendation acknowledges that the remaining roadway connection along SR 524 deviates from access management criteria by 18.4%.
- The existing Sonoco service station just west of London Boulevard has two access points along SR 524 and a third access along London Boulevard. It is recommended to modify the eastern access to a right-in only which deviates from access management criteria by 14.3%.



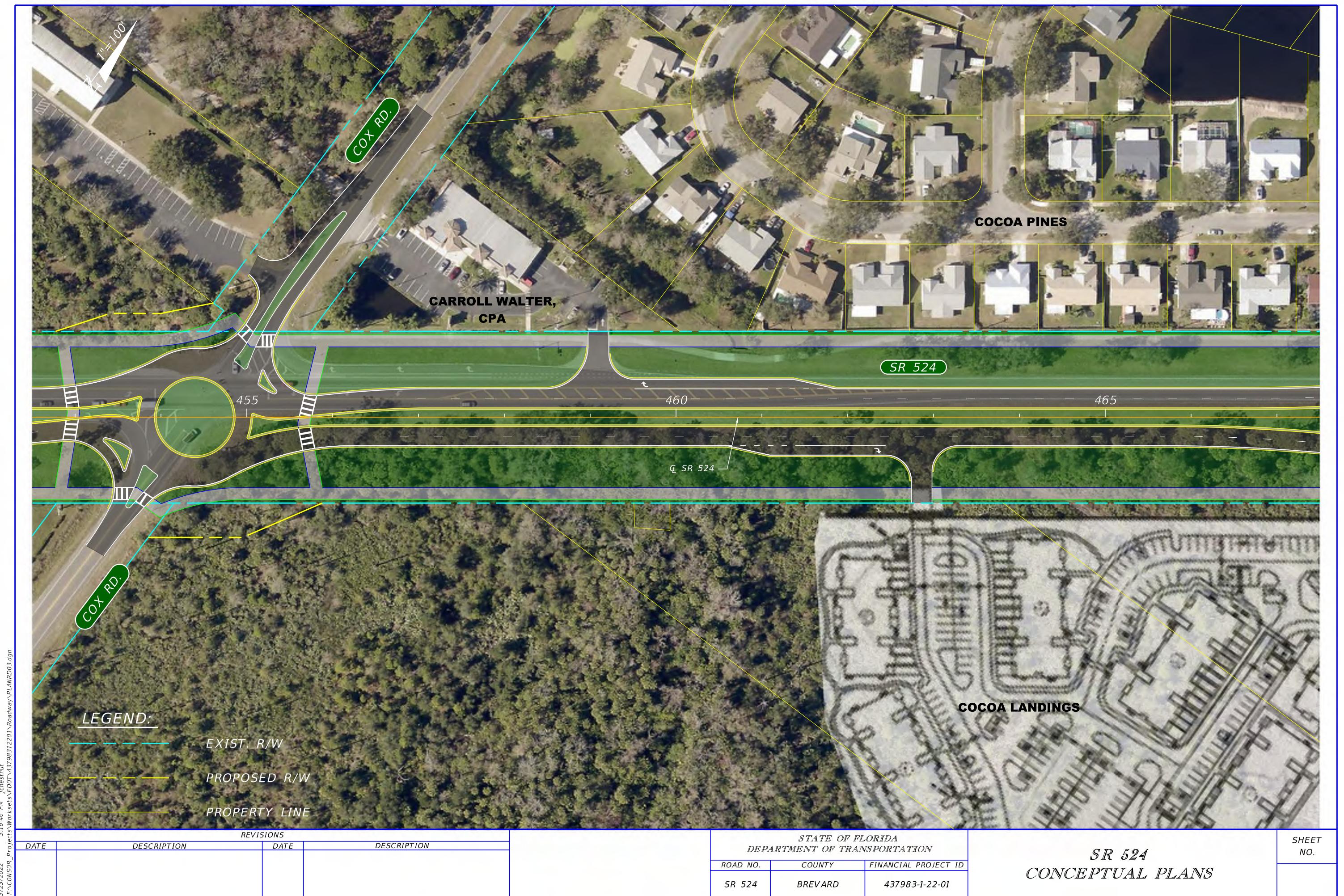


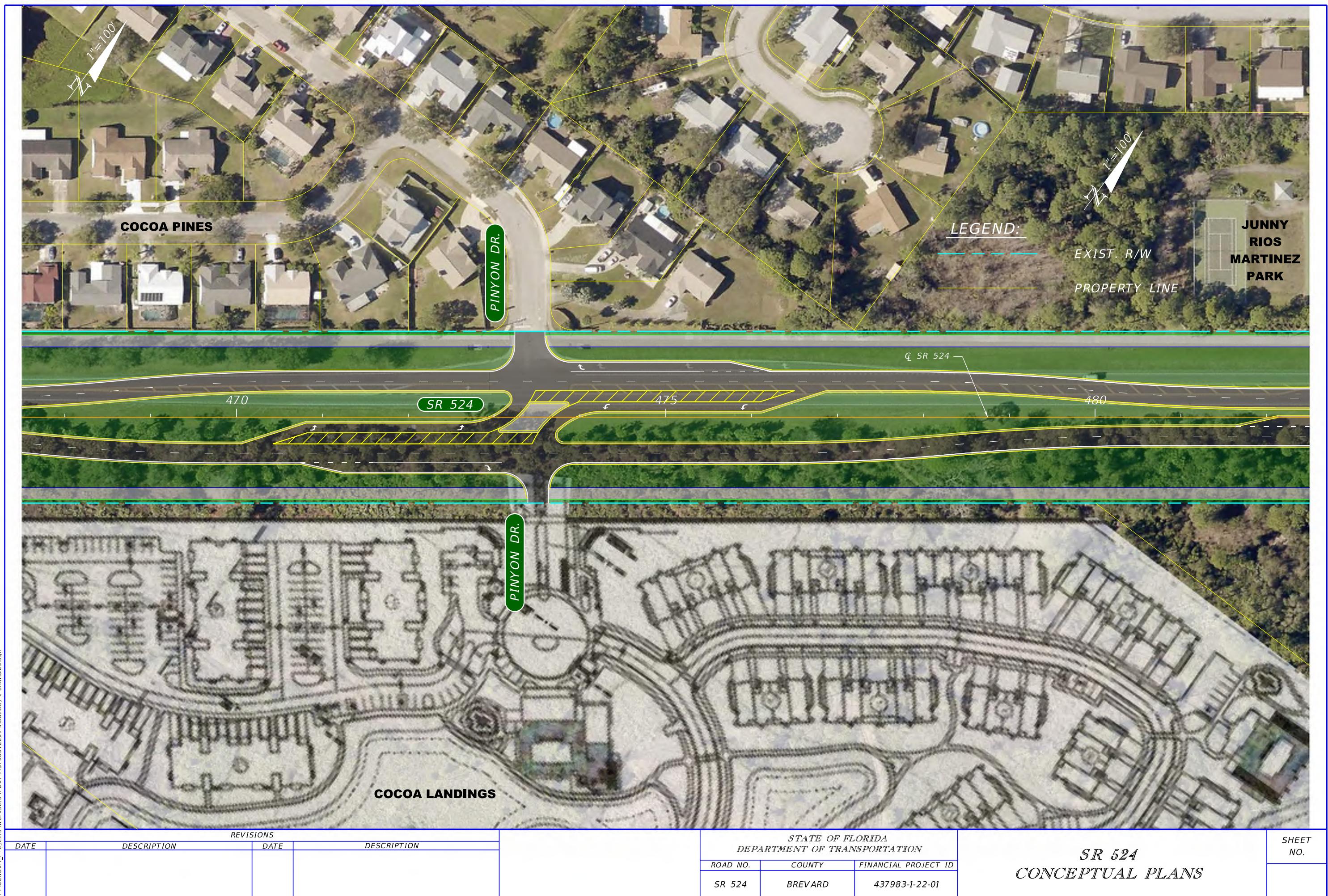


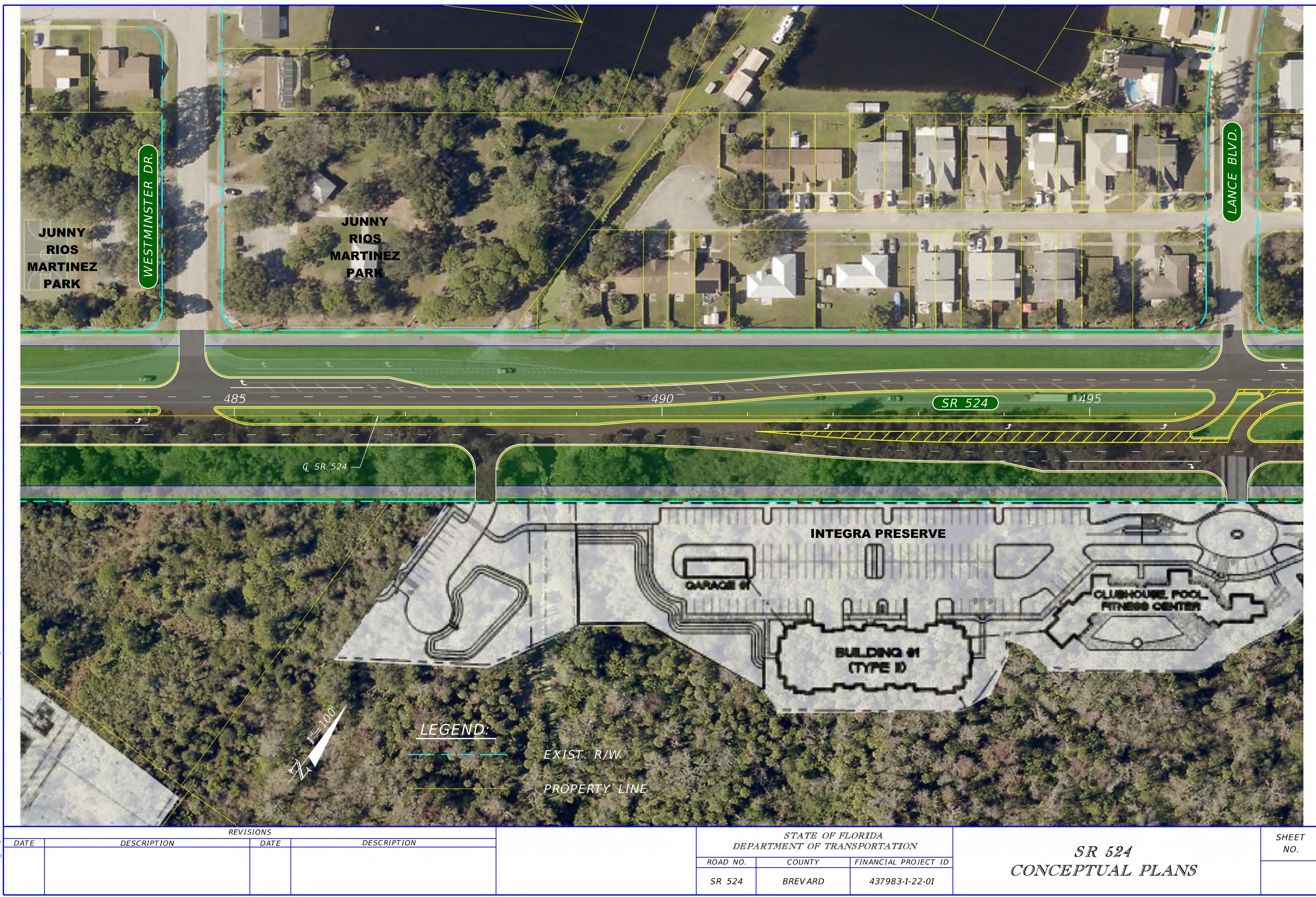


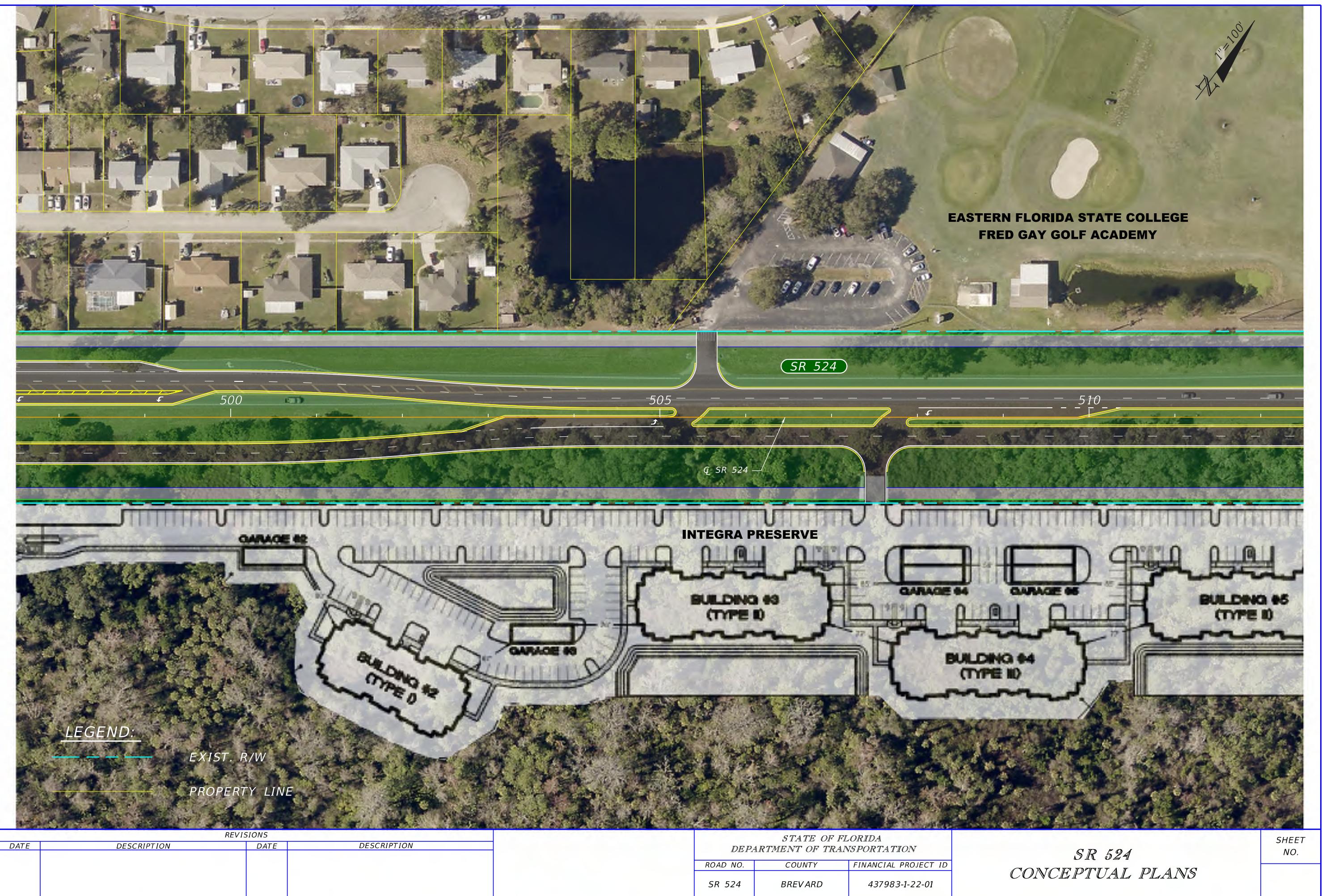














REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.		
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				SR 524	BREVARD	437983-1-22-01	SR 524 CONCEPTUAL PLANS



REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	ROAD NO. COUNTY FINANCIAL PROJECT ID	SR 524 BREVARD 437983-1-22-01	SHEET NO.
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