



# Truck and Freight Alternative Site Analysis Project Development and Environment (PD&E) Study

I-4 Corridor in Osceola, Orange, Seminole, and Volusia County, Florida

## DRAFT NOISE ANALYSIS TECHNICAL MEMORANDUM

FDOT Office

District Five

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*The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration (FHWA) and FDOT.*

# Noise Analysis Technical Memorandum

## PROJECT DESCRIPTION

The Florida Department of Transportation (FDOT) is conducting the Truck and Freight Alternative Site Analysis Project Development and Environment (PD&E) Study to evaluate potential truck and freight parking sites along or near the I-4 corridor in Osceola, Orange, Seminole, and Volusia counties that are viable for private and public operator use for rest stops. In 2018, FDOT conducted a statewide truck parking study to assess existing truck parking and future demand. The study found the I-4 corridor is the most critical corridor for truck parking needs in the state, specifically between the Osceola/Polk County Line and I-95. Based on the 2018 study, the existing average demand for the I-4 corridor within FDOT District 5 was 481 designated truck parking spaces (combined public and private) for rest stops. However, there are currently 36 truck-only parking spaces (combined public and private) for rest stops along the I-4 corridor within the study area.

The purpose of the PD&E Study is to identify, evaluate, and recommend viable concept sites for truck and freight parking. Based on study evaluations, viable sites were identified within the four counties. One potential site was identified each within Osceola, Orange, and Seminole Counties, and two potential sites within Volusia County. The PD&E Study will include social, economic, cultural, physical environment, and engineering evaluations to identify effects of the proposed improvements. Each potential site will be evaluated for operational and safety needs for existing and future transportation demand. A preliminary concept design will be performed for each recommended viable preliminary concept site.

## Site Descriptions

**Osceola County Site 1** is located approximately 3.87 miles east of the I-4 interchange along the south side of CR 532 (Osceola Polk Line Road) and east of the Poinciana Parkway Extension. This site would be bordered by the Poinciana Parkway Extension, CR 532, and US 17/92, providing access to I-4 as well as other high freight corridors. The planned Poinciana Parkway Extension is in the Design phase as of November 2023. Adjacent and north of the truck parking site, CR 532 is planned to be widened to four lanes as part of a separate project. The Design phase for the CR 532 widening was completed in June 2023 and is programmed for construction in Fiscal Year (FY) 2025 to 2026. The site is planned to be developed around a proposed pond for the Poinciana Parkway Extension. This site would be bordered by the Poinciana Parkway Extension, CR 532, and US 17/92, providing access to I-4 as well as other high freight corridors including the Poinciana Parkway Extension, CR 532, and US 17/92. The Osceola County Site 1 will supply 234 truck parking spaces and restroom facilities. Eight-foot sidewalks around the truck parking site are proposed to allow pedestrians to safely walk from their individual truck parking spot to the restroom facilities and to provide connection from the site to the sidewalks along CR 532, to be installed during the widening project.

The recommended site is anticipated to require approximately 40.1 acres of Right of Way (ROW), impacting a total of 18 parcels. No relocations are anticipated for the recommended site. Access to the site will be located along CR 532, approximately 0.66 miles west of the intersection with US 17/92. A new signalized entrance on CR 532 is proposed for the site access, which will require a new median opening once the CR 532 widening is constructed. There is a gas easement located on the western side of the site that will be maintained.

The recommended Osceola County Site 1 will include two wet detention stormwater ponds, with a combined pond area of 11.38 acres. The CR 532 widening project adjacent to the site includes construction of a new wet detention stormwater pond on the truck parking site. Since this pond will need to be removed to accommodate the Osceola County Site 1 recommended site, compensation has been provided for the lost pond volume. The site location is displayed in **Figure 1**.

**Orange County Site 1** is located along Sand Lake Road approximately 2.90 miles east of I-4. The site is proposed on the northeast corner of Sand Lake Road and John Young Parkway immediately west, and adjacent to, the limited access Florida's Turnpike facility. As part of a separate project, Florida's Turnpike is adding a new interchange with Sand Lake Road, which will increase access to this truck parking site. The Orange County Site 1 will supply 93 truck parking spaces and a restroom facility. An eight-foot sidewalk surrounding the truck parking site will be included to allow pedestrians to safely walk from their individual truck parking spot to the restroom facility and to provide connection from the site to the sidewalk along Sand Lake Road, to be installed during the Florida's Turnpike interchange project.

The recommended site is anticipated to require approximately 14.6 acres of ROW, impacting a total of two parcels. No relocations are anticipated for the recommended site. Access to the site will be provided with two unsignalized driveways (right-in/right-out) on John Young Parkway and on Sand Lake Road. The new driveway on Sand Lake Road is located approximately 480 feet west of the proposed Turnpike off-ramp to Sand Lake Road. The second driveway connects to the John Young Parkway northbound off-ramp (frontage road) and is located approximately 440 feet north of the John Young Parkway and Sand Lake Road intersection. No access or median modifications are proposed on either Sand Lake Road or John Young Parkway to accommodate the recommended truck parking site.

The recommended Orange County Site 1 will include two wet detention stormwater ponds, with a combined pond area of 5.01 acres. An existing wet detention pond in the southwest corner of the site currently serves as the stormwater management system for portions of John Young Parkway and Sand Lake Road. The existing pond will be removed with the construction of the recommended site; therefore, treatment and attenuation volumes must be replaced in kind, and the proposed stormwater ponds will serve as a joint-use stormwater management facility between the recommended site and John Young Parkway and Sand Lake Road.

The site is adjacent to the new proposed off-ramp from Florida's Turnpike to Sand Lake Road (FPID: 433663-1), in the Design phase as of October 2023, which includes construction of stormwater treatment ponds which overlap the recommended Orange County Site 1. The 5.62-acre pond proposed for the Turnpike project was reconfigured as part of the recommended alternative for Orange County Site 1 to optimize the number of truck parking spaces. As construction of the Turnpike pond is anticipated to begin in Spring 2024, the future pond modification will be verified in the Design phase for Orange County Site 1. The site location is displayed in **Figure 2**.

**Seminole County Site 1B** is located adjacent to eastbound I-4 and southeast of the I-4 / US 17/92 interchange in unincorporated Seminole County, immediately outside the Sanford city limits. In the existing condition, the site can access I-4 via US 17/92 (0.45 miles) and via SR 46 (1.85 miles). Additionally, there are planned I-4 BtU improvements at the I-4 / US 17/92 interchange, which will modify access to I-4 through a reconfigured ramp adjacent to the site. Following the I-4 BtU construction, the distance to I-4 via US 17/92 will be shortened to 0.25 miles. The project location is displayed in **Figure 3**.

The recommended site will supply 156 truck parking spaces and a restroom facility. Eight-foot sidewalks around the truck parking site are proposed to allow pedestrians to safely walk from their individual truck parking spot to the restroom facility. Additionally, an eight-foot sidewalk is proposed along School Street

to provide a connection from the entrance to Seminole County Site 1B to the existing sidewalk that runs along the west side of US 17/92.

The recommended site is anticipated to require 18.5 acres of ROW, impacting a total of eight parcels and requiring up to four relocations. One of the eight parcel impacts and one of the four relocations (existing Circle K) for the proposed Seminole County Site 1B was previously anticipated as an impact and relocation for the I-4 BtU Segment 3 project. A large, raised berm at the northeast corner of the site is proposed to decrease the visibility of the site to nearby properties. Access to the site will be provided with a signalized entrance on School Street. A median island on School Street just west of the site entrance is proposed to prevent trucks leaving the site from heading westbound on School Street and ultimately traveling on the narrower Elder Road. The median modification will still allow passenger vehicles to travel on School Street from US 17/92 to Elder Road.

The recommended Seminole County Site 1B will include two wet detention stormwater ponds and one dry detention pond, with a combined area of 4.01 acres. The site location is displayed in **Figure 3**. As of November 2023, Seminole County Site 1B is under Design as part of the Truck Parking Central Florida Corridor – Seminole County Site (FPID 446445-1).

**Volusia County Sites 1A** is located along I-4 approximately 4.5 miles west of the I-95 interchange. The recommended site, located at a former Volusia County rest area, will supply 275 truck parking spaces and restroom facilities. Eight-foot sidewalks will be provided around the recommended site to allow pedestrians to safely walk from their individual truck parking spot to the restroom facilities.

The recommended site is anticipated to require 73.3 acres of ROW, impacting two parcels both publicly owned by the City of Port Orange. Project commitments include wildlife fencing and wildlife sensitive lighting will be provided around the recommended site due to the proximity of the existing wildlife crossing. Ramps will be provided on I-4 Eastbound for direct access to and from Volusia County Site 1A. No local road access will be provided to the sites.

The recommended Volusia County Site 1A will include one wet detention stormwater pond located along the southeast parcel line and is 7.15 acres. The proposed ROW for the site includes a proposed conservation area outside the limits of construction and surrounding the fenced truck parking area to provide an enhanced natural buffer. The conservation area (31 acres) is east of the truck parking area and will remain as existing (undeveloped) land with no site clearing. The site location is displayed in **Figure 4**.

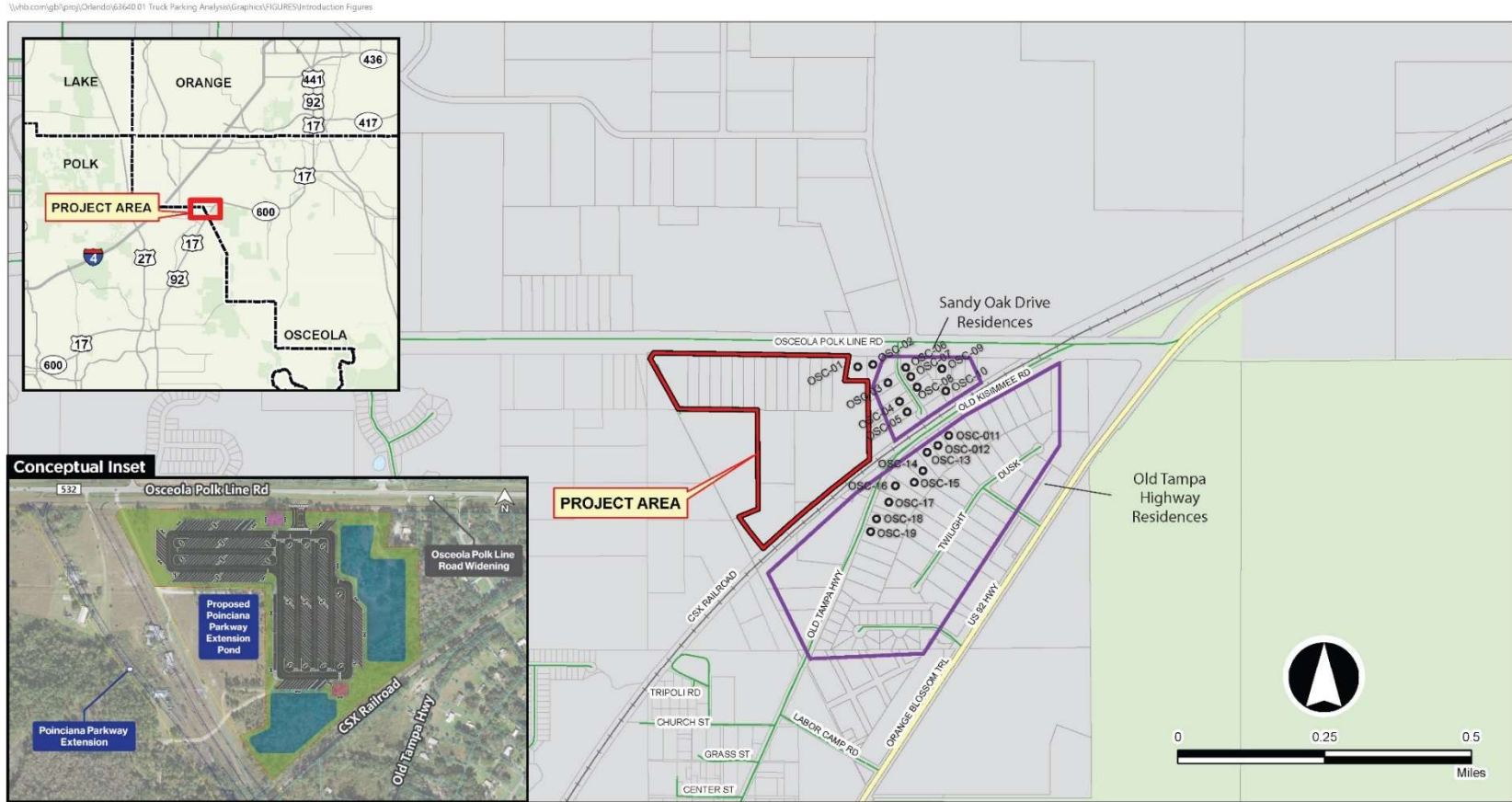
**Volusia County Sites 1B** is located along I-4 approximately 4.5 miles west of the I-95 interchange. The recommended site will supply 253 truck parking spaces and a centralized restroom facility. Eight-foot sidewalks will be provided around the recommended site to allow pedestrians to safely walk from their individual truck parking spot to the restroom facility.

The recommended site is anticipated to require 116.8 acres of ROW, impacting one parcel publicly owned by the City of Daytona Beach. Project commitments include wildlife fencing and wildlife sensitive lighting will be provided around the recommended site due to the proximity of the existing wildlife crossing. Ramps will be provided on I-4 Westbound for direct access to and from Volusia County Site 1B. No local road access will be provided to the site.

The recommended Volusia County Site 1B will include two wet detention stormwater ponds for a combined area of 10.17 acres. Pond 1 is located adjacent to, and east of, the truck parking site and is 3.45 acres. The second pond will involve modification of Pond I, which was originally constructed with the I-4 widening project (FPID: 408464-2). Pond I will be expanded from approximately 1.93 acres to 6.72 acres (4.79-acre increase). Volusia County Site 1B also will include a floodplain compensation area of 2.20 acres.

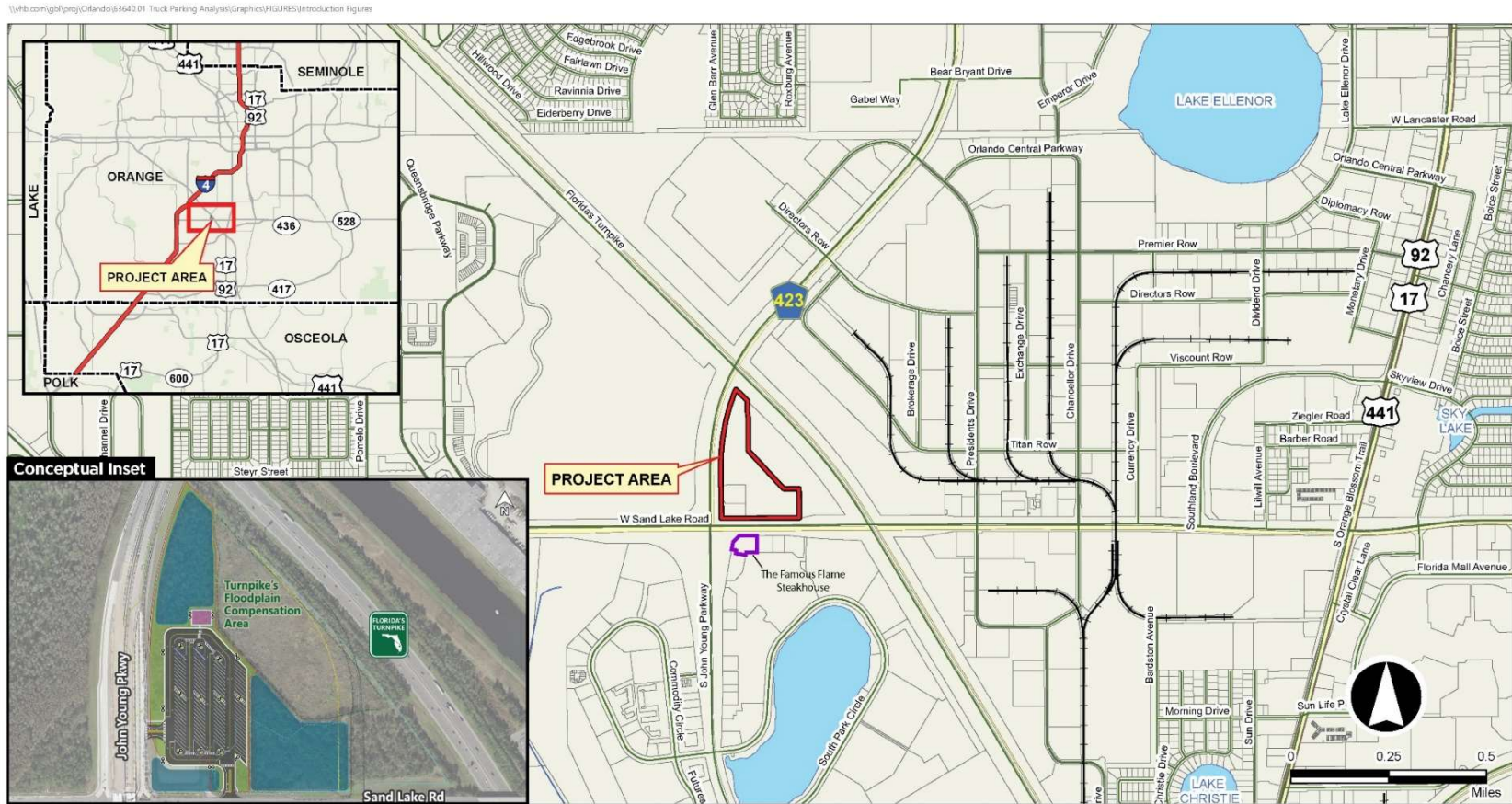
The proposed ROW for the site includes a proposed conservation area and contiguous wildlife corridor outside the limits of construction and surrounding the fenced truck parking area to provide an enhanced natural buffer. The proposed wildlife corridor (36.5 acres) is east of Pond 1 and extends from the existing I-4 wildlife crossing to the western boundary of the site. The proposed conservation area adjacent to the wildlife corridor and surrounding the truck parking site is approximately 43.2 acres. The proposed conservation and wildlife corridor totals approximately 79.7 acres of the 116.8-acre site and will remain as existing (undeveloped) with no site clearing. A conservation easement over the conservation area and wildlife corridor will be coordinated in the Design phase and ultimately be placed in the ROW phase. The site location is displayed in **Figure 5**.

**Figure 1- Osceola County Site 1 Location Map**



**FDOT** **Figure 1**  
**Project Location Map**  
**Osceola County Site 1**  
**CR 532 and Poinciana Parkway Extension**

**Figure 2- Orange County Site 1 Location Map**

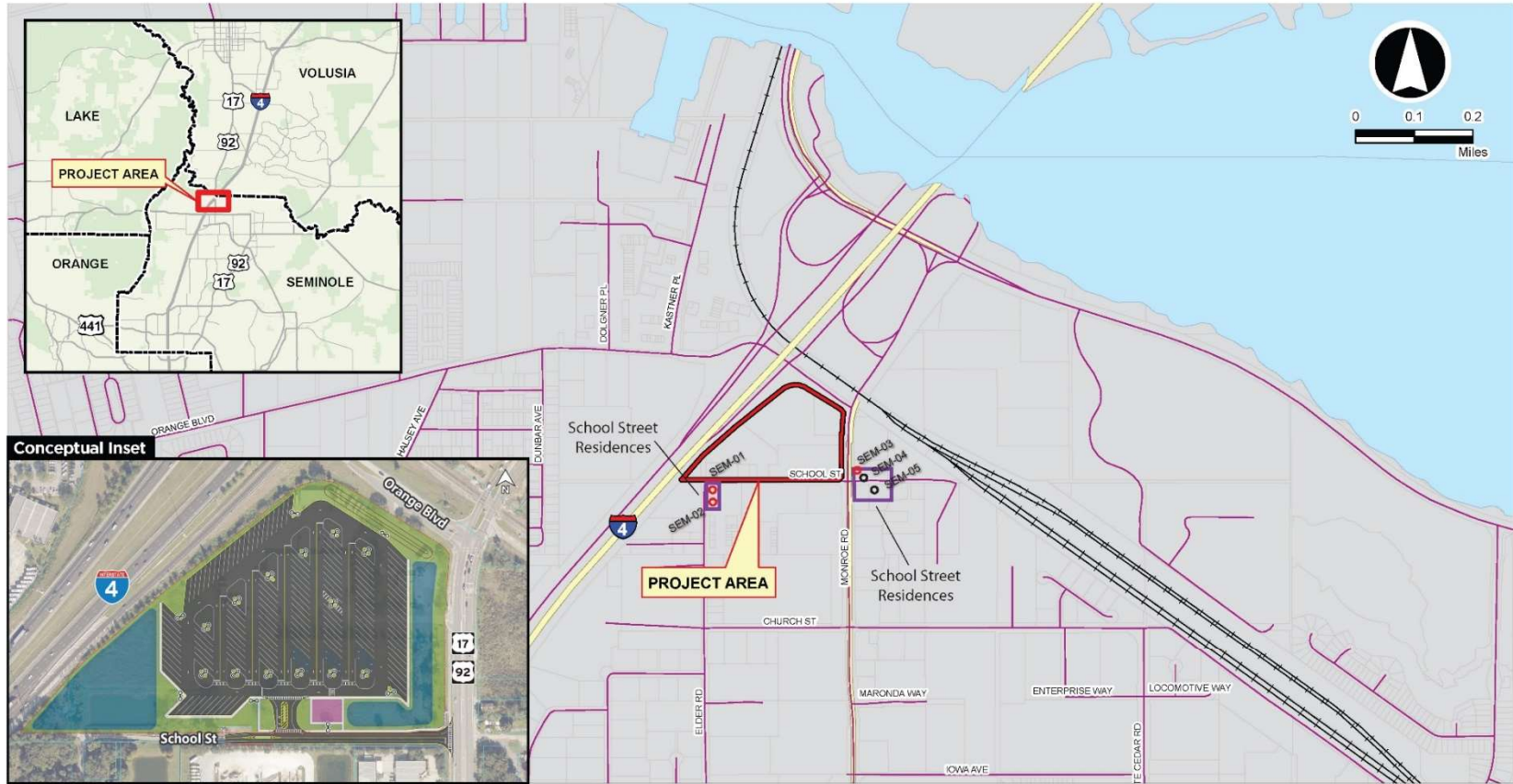


- |                       |              |                                |
|-----------------------|--------------|--------------------------------|
| <b>LEGEND</b>         |              | <b>CONCEPTUAL INSET LEGEND</b> |
| Site Boundary         | Parcels      | Pond                           |
| Streets               | Public Lands | Property Lines                 |
| Railroads             | Waterbodies  | Proposed Right-of-Way          |
| Noise Sensitive Areas | Sidewalk     | Turnpike Proposed Right-of-Way |
|                       | Lighting     | Wetlands                       |

**FDOT** **Figure 2**  
**Project Location Map**  
**Orange County Site 1**  
**Sand Lake Road at John Young Parkway**

**Figure 3- Seminole County Site 1B Location Map**

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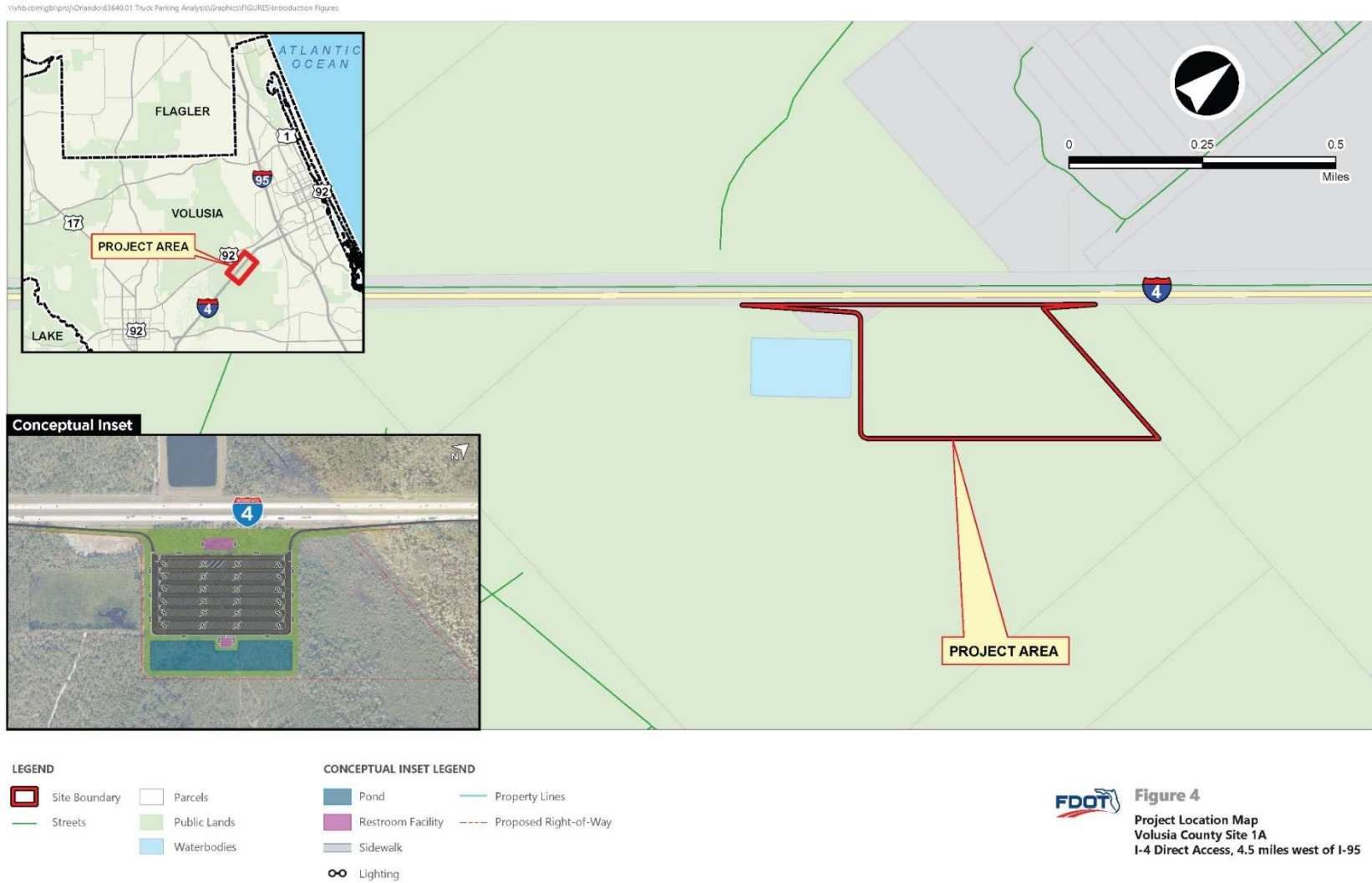


LEGEND		CONCEPTUAL INSET LEGEND	
Site Boundary	Parcels	Pond	Property Lines
Impacted Receiver	Public Lands	Restroom Facility	Proposed Right-of-Way
Non-Impacted Receiver	Waterbodies	Sidewalk	Raised Berm
Streets	Noise Sensitive Areas	Lighting	
Railroads			

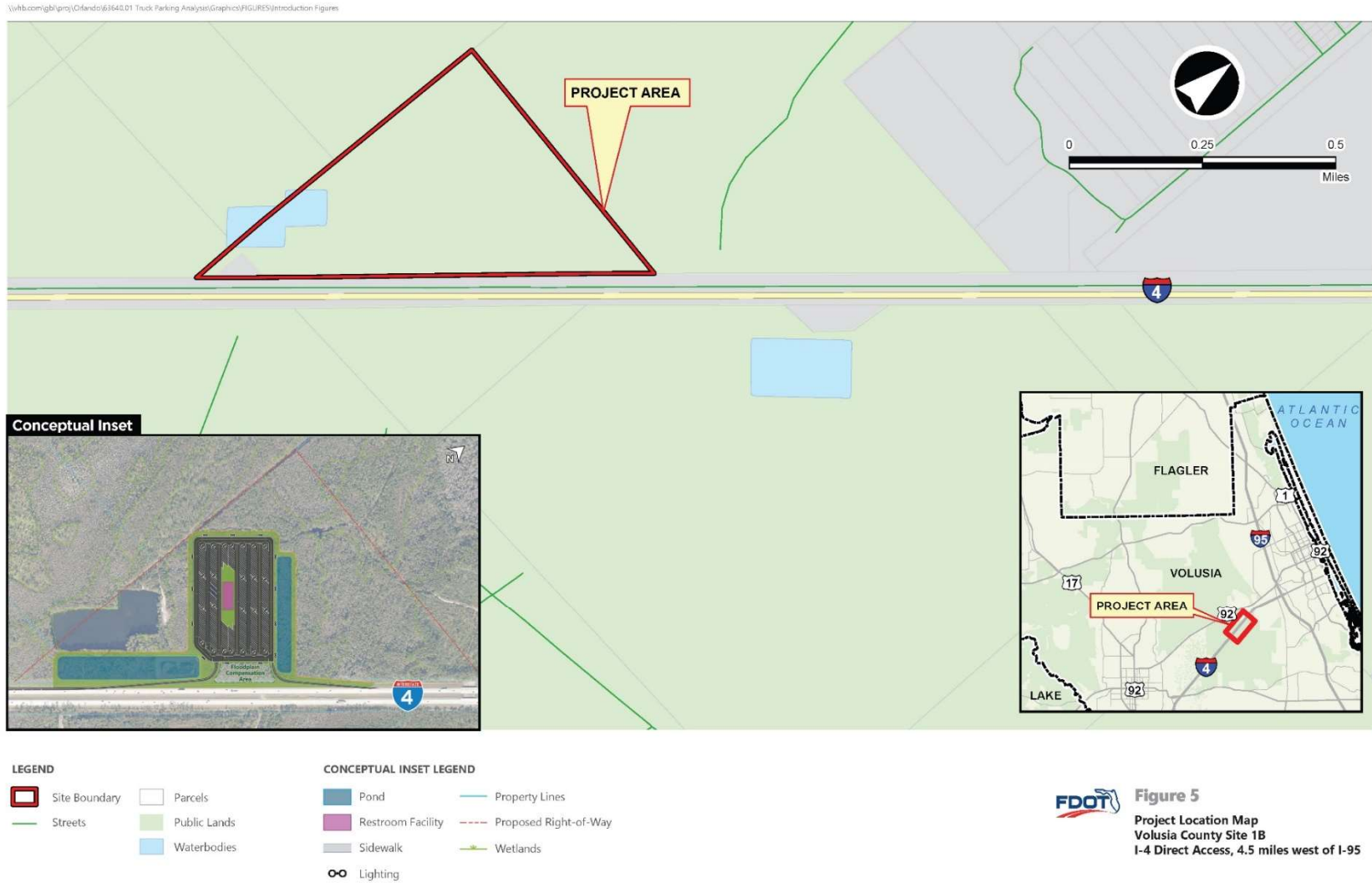
**FDOT** **Figure 3**  
**Project Location Map**  
**Seminole County Site 1B**  
**I-4 at US 17/92**



**Figure 4 - Volusia County Site 1A Location Map**



**Figure 5 - Volusia County Site 1B Location Map**



## Traffic Noise at Potential Truck Park Sites

**Osceola County Site 1** is located approximately 3.87 miles east of the I-4 interchange along the south side of Osceola-Polk Line Road (CR 532). Within a 1,000-feet of this potential truck parking site there are a few scattered NAC B residences along Shady Oak Drive and Old Tampa Highway, and no NAC C, D, or E special use locations are located in this area. The proposed site is east of the planned Poinciana Parkway Extension (PPE), which is programmed for construction in the Fiscal Years 2026 and 2027 and will be a part of the future Build and No-Build condition for this area. In addition, Osceola-Polk Line Road (CR 532) to the north of the site is currently in the design phase of a 4-lane widening project and is programmed for construction in Fiscal Years 2025 and 2026. The methodology detailed in the National Cooperative Highway Research Program (NCHRP) guidance document for stationary sources (*Supplemental Guidance on the Application of FHWA's Traffic Noise Model*) was used to model future noise levels at 19 NAC B residences in the area around the Osceola truck parking site. No noise impacts were predicted at any of the receptors in this area.

**Orange County Site 1** is located along Sand Lake Road approximately 2.90 miles east of I-4. The site is located immediately west of the limited-access facility, Florida's Turnpike (State Road 91). No NAC B residential noise sensitive sites are located within 1,000-feet of this site. One NAC D restaurant (The Famous Flame Steakhouse – Currently closed) is located on the opposite side of Sand Lake Road from the potential truck parking facility. The NCHRP guidance document for stationary sources (*Supplemental Guidance on the Application of FHWA's Traffic Noise Model*) states that in locations where there are existing highways with moving traffic, that these roadways will dominate noise levels and therefore detailed modeling is not needed for stationary sources. In this location the potential truck parking site is surrounded by Florida's Turnpike, John Young Parkway, and Sand Lake Road. The truck parking area is on the opposite side of the road from the noise sensitive site, so the mainline traffic noise on these roadways would be expected to dominate the noise environment in this location and the modeling approach detailed in the NCHRP document would not apply. For this reason, no noise analysis was conducted for this location.

**Seminole County Site 1B** is located adjacent to eastbound I-4 and southeast of the I-4 & Monroe Road (US-17/92) interchange in unincorporated Seminole County, immediately outside the Sanford city limits. The methodology detailed in the NCHRP guidance document for stationary sources (*Supplemental Guidance on the Application of FHWA's Traffic Noise Model*) was used to model future noise levels at four NAC B residences and one NAC E restaurant in the area around the Seminole truck parking site. Impacts were predicted in both the build and no-build condition at three of the residences. Noise levels increased from the No-Build to Build condition, but only by a maximum of 2.1 dB(A).

Noise barriers were evaluated for these residences to abate traffic related noise. Based on this evaluation, a 22-foot-tall ROW noise barrier system could not provide a 5 dB(A) reduction at any receptor, with a maximum insertion loss of 2.8 dB(A). This is because the predominant noise sources for these impacted residences are I-4 and US-17/92, so noise barriers constructed for the truck parking area are not effective at blocking the noise from the roadways. For this reason, noise barriers on the truck parking area site are not a viable option for the residences in this area. See **Table 1** for evaluated barriers.

**Table 1 – Seminole County Site 1B**

Height (feet)	Length (feet)	Location	No. of Impacts	Noise Reduction at Impacted Residences			Number of Benefited Residences				Impacted Res. Not Benefited <sup>3</sup>	Total Estimated Cost <sup>4</sup>	Cost per Benefited Residence
				5-5.9 dB(A)	6.0-6.9 dB(A)	> 7 dB(A)	Impacted <sup>1</sup>	Not Impacted <sup>2</sup>	Total	Average Reduction dB(A)			
22	840	ROW <sup>5</sup>	3	0	0	0	n/a <sup>6</sup>	n/a <sup>6</sup>	n/a <sup>6</sup>	n/a <sup>6</sup>	n/a <sup>6</sup>	n/a <sup>6</sup>	n/a <sup>6</sup>
22	1000	ROW <sup>5</sup>											

<sup>1</sup> Benefited residences with predicted noise levels that approach or exceed the NAC.

<sup>2</sup> Benefited residences with predicted noise levels that do not approach the NAC.

<sup>3</sup> Impacted residences that did not receive a minimum 5 dB(A) reduction from proposed noise barrier.

<sup>4</sup> Unit cost of \$30/ft<sup>2</sup>

<sup>5</sup> ROW – Right of Way noise barrier along the truck parking area ROW.

<sup>6</sup> Barrier was not able to meet Noise Reduction Design Goal, so no further analysis was conducted.

**Volusia County Site 1A** is located along the eastbound side of I-4, approximately 4.5 miles southwest of the I-95 interchange with immediate access to I-4 provided via on- and off-ramps. The I-4 eastbound facility will be located at a previous rest area. No noise sensitive sites with areas of frequent human use are located within 1,000-feet of this potential truck parking site due to the undeveloped nature of the surrounding land, for this reason no noise analysis was conducted for this site. In addition, because this facility is located directly adjacent to I-4, and there is no change in I-4 traffic related to this project proposed, the traffic noise on this roadway would be expected to be similar to existing traffic noise levels and will dominate the noise environment in this location.

**Volusia County Site 1B** is located along the westbound side of I-4, approximately 4.5 miles southwest of the I-95 interchange with immediate access to I-4 provided via on- and off-ramps. No noise sensitive sites with areas of frequent human use are located within 1,000-feet of this potential truck parking site due to the undeveloped nature of the surrounding land, for this reason no noise analysis was conducted for this site. In addition, because this facility is located directly adjacent to I-4, and there is no change in I-4 traffic related to this project proposed, the traffic noise on this roadway would be expected to be similar to existing traffic noise levels and will dominate the noise environment in this location.

## CONCLUSIONS

Based on the noise methodology outlined in the NCHRP document *Supplemental Guidance on the Application of FHWA’s Traffic Noise Model*, stationary noise sources like truck parking areas, can be modeled in TNM when certain criteria are met. The main criteria relating to this project is that the stationary noise source is not located adjacent to a highway with moving traffic, as the mainline roadway would dominate the noise environment. Based on these criteria the Orange County Site 1, Volusia County Site 1A, and Volusia County Site 1B locations did not have any noise sensitive sites identified that qualified for modeling. Noise sensitive sites were identified adjacent to the Osceola County and Seminole County locations. No noise impacts were identified for the Osceola County site, so noise abatement was not considered at that location. Noise impacts were identified at the Seminole County site at three residences in both the No-Build and Build conditions. Noise levels increased from the No-Build to Build condition, but only by a maximum of 2.1 dB(A). Noise barriers were evaluated for these residences, but a 22-foot-tall ROW noise barrier system could not provide a 5 dB(A) reduction at any receptor. For this reason, noise barriers are not a reasonable and feasible option for noise abatement for these residences.