

DESIGN
NOISE TECHNICAL MEMORANDUM
Florida Department of Transportation (FDOT)
District 7

I-275 (SR 93) from North of Howard Frankland Bridge to North of
Lois, SR 60 from Kennedy to North of Spruce/TIA
Hillsborough County, Florida

Work Program Item Segment (WPIS) Numbers (Nos.) 447107-2-52-01, 447107-3-52-01 and 447107-4-52-01

December 2024

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 and FDOT.

NOISE TECHNICAL MEMORANDUM

**I-275 (SR 93) from North of Howard Frankland Bridge to North of Lois, SR 60 from
Kennedy to North of Spruce/TIA**

WPIS Nos.: 447107-2-52-01, 447107-3-52-01 and 447107-4-52-01

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December 2024

Introduction

The Florida Department of Transportation (FDOT) District 7 has prepared this revised Noise Study Technical Memorandum to document the noise evaluation associated with the proposed design changes from north of the Howard Frankland Bridge to north of Lois Avenue, and from State Road 60 (SR 60) between Kennedy Boulevard and north of Spruce Street/Tampa International Airport (TIA). The design segments evaluated in this Noise Study Technical Memorandum (Work Program Item Segment [WPIS] Numbers [Nos.] 447107-2, 447107-3, and 447107-4) are within the limits of the Tampa Interstate Study (TIS) Supplemental Environmental Impact Statement ([SEIS]; WPIS Number 258337-2) and the Northwest Hillsborough Expressway (NWE) Final Environmental Impact Statement ([FEIS]; WPIS No. 255433-1) (Figure 1).

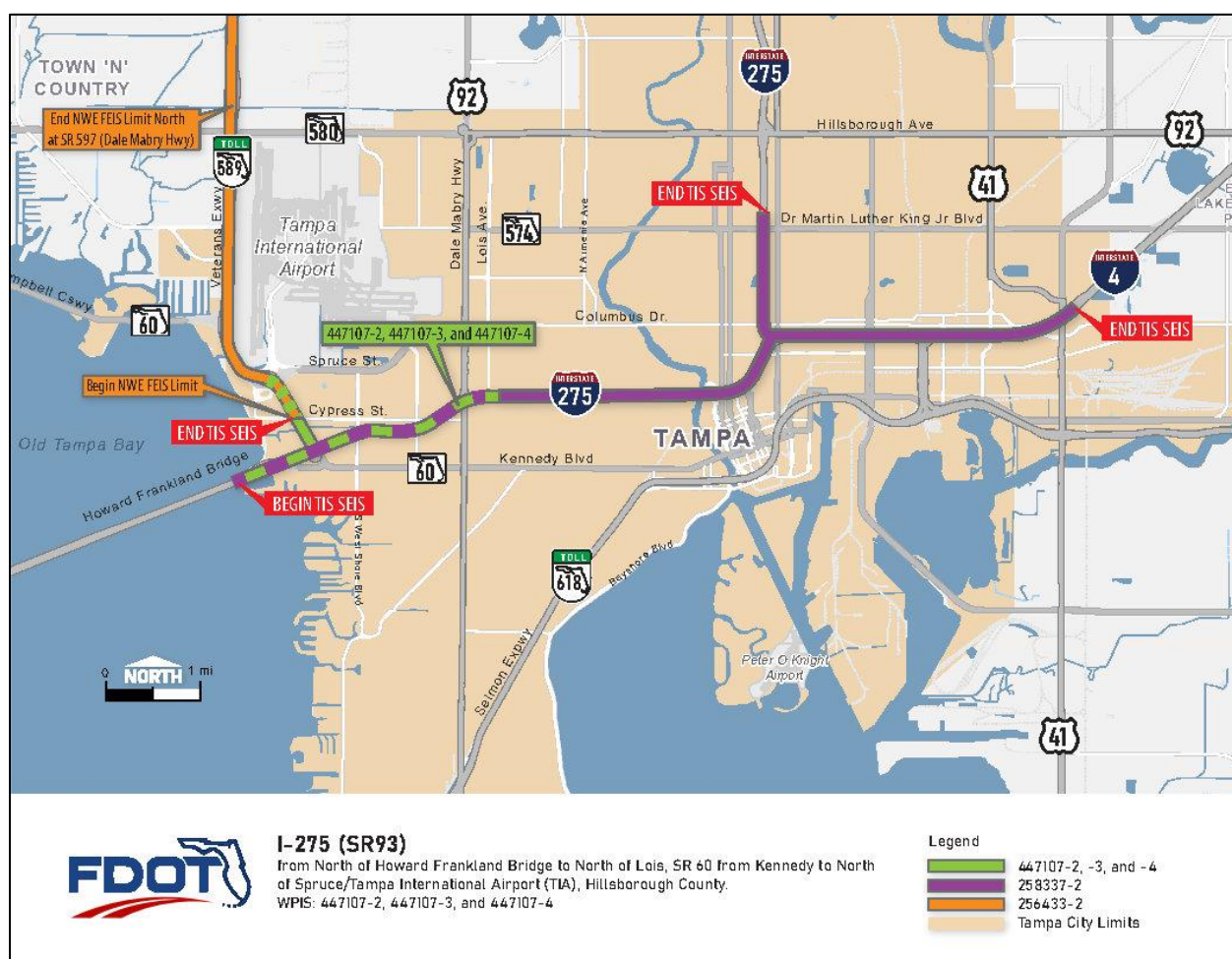


Figure 1 – Project Location Map

Highway traffic noise for the design segments identified was last evaluated and documented in the TIS SEIS Noise Study Report Update (NSRU) (May 2020) and the NWE FEIS NSRU (November 2019). Since the completion of the NSRUs, changes to the design have been proposed. Therefore, the current concept (currently being evaluated in the System Interchange Modification Report [SIMR] re-evaluation) was compared to the concepts approved in the TIS SEIS, the NWE FEIS, and subsequent Re-evaluations. As described below, four design changes have been identified and are described below:

- Reo Street /Kennedy Boulevard Interchange Modification – changes to roadway elevation, ramp alignments, and access
- I-275 at SR 60 – changes to ramp alignments
- Tampa International Airport Access – changes to ramps and access
- Airport Operational Improvements – minor roadway widening

The design changes listed above qualify as a Type 1 project, per Title 23 Part 772 of the Code of Federal Regulations (23 CFR 772). Therefore, highway traffic noise must be re-evaluated. This Noise Technical Memorandum presents the results of re-evaluating highway traffic noise for the project based on the changes described above.

Methodology

The NSRUs (approved in May 2020 and November 2019) were produced in accordance with 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (July 2010) using methodology in FDOT's *Project Development and Environment Manual*, Part 2, Chapter 18 (July 31, 2024), *Traffic Noise Modeling and Analysis Practitioners Handbook* (January 2018), and *A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations* (July 2009).

In order to evaluate potential abatement for the proposed changes to the design, only the noise sensitive sites within the vicinity of the changes were evaluated. Noise sensitive sites within the vicinity of the design changes were identified to be Special Land Uses (SLUs; non-residential land uses listed in 23 CFR 772). Residential areas were identified to be too far away from design changes to be included. Therefore, before Traffic Noise Model (TNM) modeling commenced to identify potential impacts (Step 1 of the SLU methodology), the FDOT's *Methodology to Evaluate Traffic Noise at Special Land Uses* (FDOT 2023) was consulted.

The SLU evaluation methodology provides an optional preliminary screening that may be applied to isolated SLUs which do not meet usage requirements. This preliminary screening process determines if the SLU has at least 45,026 person-hours of use per year (the number of usage-hours of two residential single-family homes) to equate to at least two residences (referred to as an Equivalent Residential Value, or ERV) to be found feasible for noise abatement. If the screening process identifies that the SLU could potentially meet minimum usage requirements, a complete noise barrier evaluation must take place. If the screening process identifies that the SLU could not meet minimum usage requirements, a noise barrier is not evaluated.

SLU Evaluation Results

Preliminary screening was performed for each SLU within the vicinity of the proposed Design Changes for the Westshore, I-275 and SR 60 Interchange.

RS1 – Cypress Bay Office Picnic Table

RS (Receiver southbound) 1 is a picnic table found on an office property and was evaluated as Activity Category C (**Figure 2**). This SLU is located north of the I-275 entrance ramp from SR 60 to I-275 and was previously identified as not impacted with a predicted A-weighted decibel (dB(A)) of 67.0 (TIS SEIS NRSU [May 2020]). Usage information was unavailable for this SLU therefore, a back-in calculation was utilized to identify the minimum usage required to meet feasibility requirements. To be considered reasonable, the picnic table would need to be utilized by at least 172 people for one hour a day, 5 days a week, for 52 weeks a year, as shown in **Table 1**. It is unreasonable to assume the picnic table would meet these usage requirements. Therefore, this SLU does not qualify for further barrier evaluation due to the low usage.

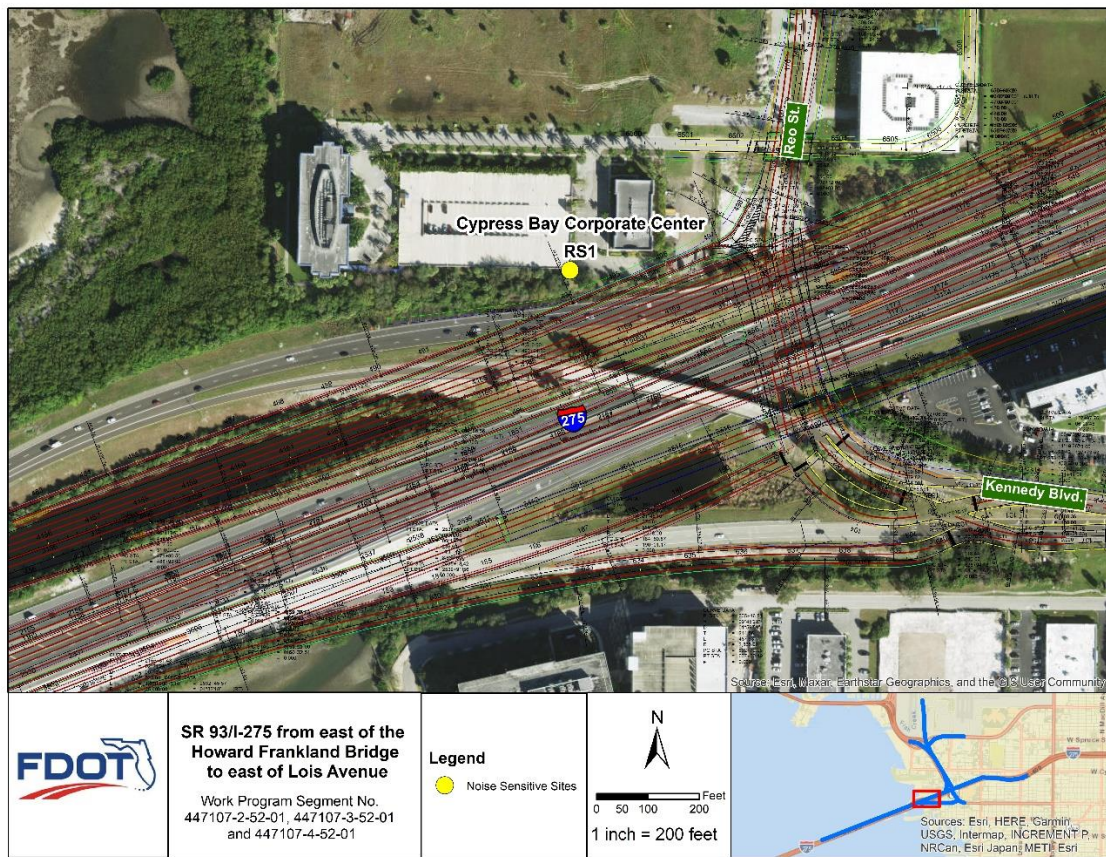


Figure 2 – RS1 – Cypress Bay Office Picnic Table

Table 1 – RS1 – Cypress Bay Office Picnic Table

Average Single-Family Residence in Florida - Person Hours per Year	
Average number of people in a single-family residence in Florida (US CENSUS, 2017-2021 data)	2.57
Hours a single-family residence is available for use (24 hours x 365 days)	8,760
Residential Person-Hours per Year Available for Use	22,513
Isolated SLU Person-Hours per Year	
Average number of users per day at the SLU	172
Approximate daily hourly usage by each person at the SLU	1
Number of Days per week the SLU is operational	5
Number of weeks per year the SLU is operational	52
Person-Hours per Year SLU is available for use	44,720
Equivalent Residence (ER)	1.99
Isolated SLU Eligible for Noise Barrier Evaluation?	NOT ELIGIBLE

RN34 – Lincoln Center Office Benches/Tables and RN35 – Hotel Alba Pool

Two SLUs are found south of I-275, shown in **Figure 3**. After consultation with the FDOT D7 Noise Specialist, the usage and resulting Equivalent Residence values of these two non-isolated SLUs were combined to apply the Preliminary Screening in a manner that supports the intent of the SLU Preliminary Screening Tool.

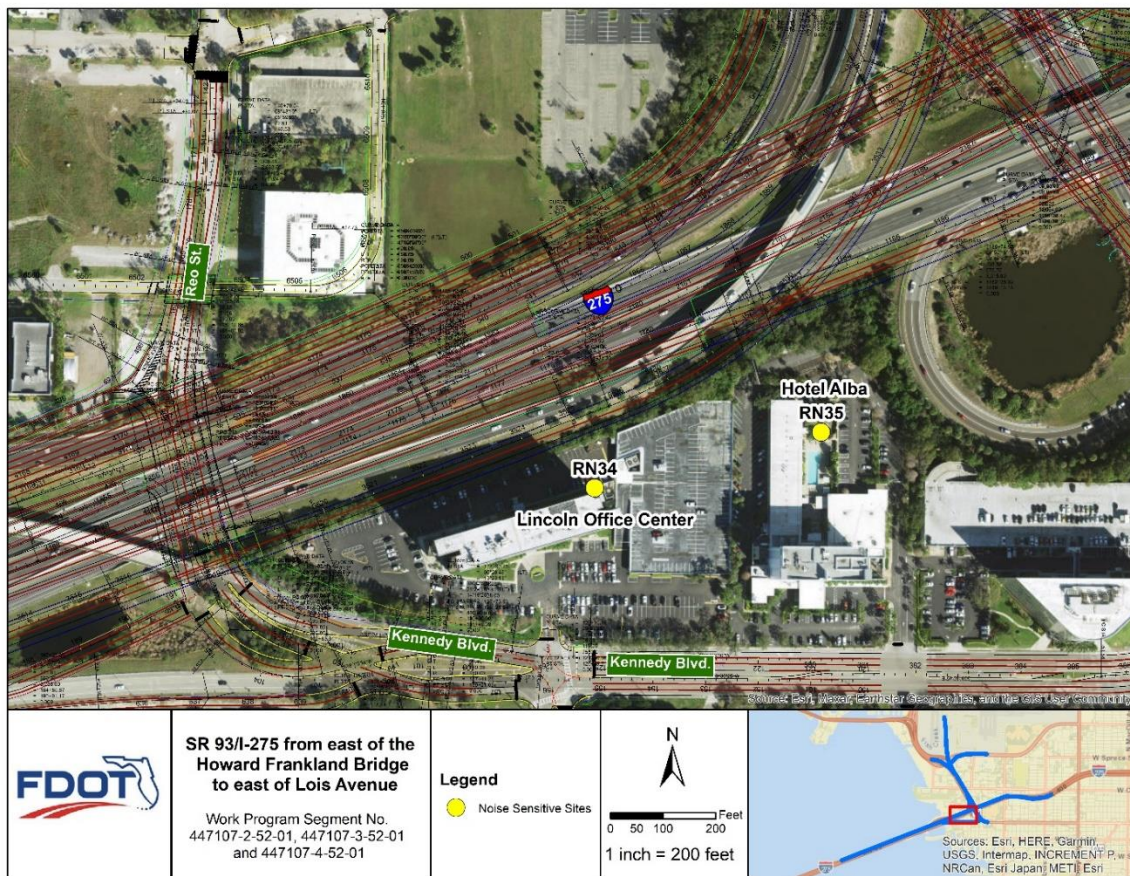


Figure 3 - RN34 – Lincoln Center Office Benches/Tables and RN 35 – Hotel Alba Pool

RN (Receiver northbound) 34 represents picnic tables and benches found on an office property and was evaluated as Activity Category C. This SLU is located south of the I-275 entrance ramp, from SR 60 to I-275 and was previously identified as not-impacted with a predicted dB(A) of 54.6 (TIS SEIS NSRU [May 2020]). Usage information was unavailable for this SLU. Therefore, after consultation with the FDOT District 7 Noise Specialist, conservatively high estimates were assumed. Assuming conservatively high usage of at least 76 people using the benches/tables for one hour per day, five days a week and 52 weeks a year, the benches/tables' Equivalent Residence value is estimated to be 0.88, as shown in **Table 2**.

Table 2 - RN34 – Lincoln Center Office Benches and Tables

Average Single-Family Residence in Florida - Person Hours per Year	
Average number of people in a single-family residence in Florida (US CENSUS, 2017-2021 data)	2.57
Hours a single-family residence is available for use (24 hours x 365 days)	8,760
Residential Person-Hours per Year Available for Use	22,513
Isolated SLU Person-Hours per Year	
Average number of users per day at the SLU	76
Approximate daily hourly usage by each person at the SLU	1
Number of Days per week the SLU is operational	5
Number of weeks per year the SLU is operational	52
Person-Hours per Year SLU is available for use	19,760
Equivalent Residence (ER)	0.88
Isolated SLU Eligible for Noise Barrier Evaluation?	NOT ELIGIBLE

RN35 is a pool found on a hotel property, Hotel Alba, and was evaluated as Activity Category E. This SLU is located south of the I-275 entrance ramp, from SR 60 to I-275 and was previously identified as not-impacted with a predicted dB(A) of 60.5 (TIS SEIS NSRU [May 2020]). Usage information was unavailable for this SLU. Therefore, after consultation with the FDOT District 7 Noise Specialist, conservatively high estimates were assumed. Assuming conservatively high usage of at least 60 people using the pool for one hour per day, seven days a week and 52 weeks a year, the pool's Equivalent Residence value is estimated to be 0.97, as shown in **Table 3**.

Table 3 - RN35 – Hotel Alba Tiki Huts and Pool

Average Single-Family Residence in Florida - Person Hours per Year	
Average number of people in a single-family residence in Florida (US CENSUS, 2017-2021 data)	2.57
Hours a single-family residence is available for use (24 hours x 365 days)	8,760
Residential Person-Hours per Year Available for Use	22,513
Isolated SLU Person-Hours per Year	
Average number of users per day at the SLU	60
Approximate daily hourly usage by each person at the SLU	1
Number of Days per week the SLU is operational	7
Number of weeks per year the SLU is operational	52
Person-Hours per Year SLU is available for use	21,840
Equivalent Residence (ER)	0.97
Isolated SLU Eligible for Noise Barrier Evaluation?	NOT ELIGIBLE

The combined Equivalent Residential value for these two SLUs equates to under two residences (1.85 Equivalent Residences). Therefore, these SLUs (RN 34 and RN 35) do not qualify for further barrier evaluation due to their low usage.

Noise Sensitive Sites Not Affected by Design Changes

The following noise sensitive sites were considered to be outside the noise study area where changes to the design have occurred. Therefore, the results presented previously in the TIS SEIS NSRU (May 2020) and the FEIS NWE NSRU (November 2019) are still valid.

- **TIS SEIS NSRU Segments 1A, 2A, 2B, 3A, 3B and 3C Interstate 275 from the Howard Frankland Bridge to Dr. Martin Luther King Jr. Boulevard and Interstate 4 from Interstate 275 to 50th Street (May 2020)**
 - Mariner North Condos
 - Residences along Carmen Street- Per the 2020 NRSU, an 8 foot visual barrier is planned to be constructed on the south side of I-275 between Westshore Boulevard and Lois Avenue
 - Disc Golf Course at Cypress Point Park
 - MacDonalds Training Center Gazebo and Picnic Tables
 - DEX Imaging Training Center Tables
 - LabCorp Medical Facility
 - Embassy Suites by Hilton Tampa Airport Westshore – Pool
 - Holiday Inn Tampa Westshore – Airport Westshore – Pool
 - Double Tree by Hilton – Pool
 - Residences along West Cypress Street
 - Shore Colony Condominiums
 - Residences between Westshore Boulevard and Lois Avenue
- **NWE FEIS NSRU Design Change Re- evaluation SR 589/SR 60/Memorial Highway (Northwest Hillsborough Expressway) from Cypress Street to North of Independence Drive (November 2019)**
 - LabCorp Medical Facility
 - Century Park Office – Outside Areas
 - Skyway Park and Trail
 - Grand Hyatt Casitas Tennis Court

Conclusion

Although impacts were not identified using TNM, the SLU Preliminary Screening revealed that if these SLUs were found to be impacted, they would not qualify for a noise barrier based upon low usage. Therefore, the results presented in the TIS SEIS NSRU (May 2020) and the FEIS NWE NSRU (November 2019) are still valid. Noise barriers in addition to those recommended in the TIS SEIS NSRU (May 2020) are not recommended for this project.

References

- 23 CFR Part 772, “*Procedures for Abatement of Highway Traffic Noise and Construction Noise*”, Federal Register, Vol. 75, No. 133, Tuesday, July 13, 2010; pages 39834-39839.
- Federal Highway Administration Report FHWA-HEP-10-025, “*Highway Traffic Noise: Analysis and Abatement Guidance*”, June 2010 (revised December 2010); 76 pages.
- Federal Highway Administration Report FHWA-PD-96-009, “*FHWA Traffic Noise Model, Version 1.0 User’s Guide*”, January 1998; 192 pages + supplements.
- Federal Highway Administration, Report FHWA-PD-96-009, “*FHWA Traffic Noise Model, Version 1.0 User’s Guide*”, January 1998; 192 pages + supplements.
- Federal Highway Administration, Report Number FHWA-PD-96-046, “*Measurement of Highway-Related Noise*”, Cynthia S.Y. Lee and Gregg Fleming; May 1996; 206 pages.
- Federal Highway Administration, 2004. Traffic Noise Model (TNM) Version 2.5.
- Florida Department of Transportation, 1989. *TIS Master Plan Report*.
- Florida Department of Transportation, “*A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations*”, July 2009. 64 pages.
- Florida Department of Transportation, “*Design Change Reevaluation: I-275 (SR 93) from the Howard Frankland Bridge/Kennedy Boulevard ramps and just north of Cypress Street on Memorial Highway (SR 60) north to Dr. Martin Luther King Jr. Boulevard and I-4 from I-275 (including interchange) to east of 50th Street (US 41)*”. Signed October 17, 2013.
- Florida Department of Transportation. “*Highway Traffic Noise*”, Part 2, Chapter 18. Project Development and Environment Manual, Florida Department of Transportation, Tallahassee, July 31, 2024.
- Florida Department of Transportation, “*Methodology to Evaluate Highway Traffic Noise at Special Land Uses*”, December 2023.
- Florida Department of Transportation, “*Noise Study Technical Memorandum- Interstate 4 from West of 14th Street to East of 50th Street.*” August 2000, Amended May 2001.
- Florida Department of Transportation, “*Noise Analysis Update Report. Interstate 275 (SR 93) Segment 2A from Himes Avenue to the Hillsborough River.*” October 2004.
- Florida Department of Transportation, “*Tampa Interstate Study: I-275 from the Howard Frankland Bridge/Kennedy Boulevard ramps to the Dale Mabry Highway Interchange on the east and just north of Cypress Street on Memorial Highway (SR 60), Hillsborough County.*” June 1992.
- Florida Department of Transportation, “*Traffic Noise Design Reevaluation: I-275 (SR 93A) Design-Build from Westshore Boulevard to Himes Avenue*”. March 28, 2014.
- Florida Department of Transportation, “*Traffic Noise Study Technical Memorandum: I-4 from 35th Street to East of 50th Street*”. March 3, 2017.