Florida Department of
TRANSPORTATION

Final
Noise Study Report

Florida Department of Transportation
District Five

PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
I-75 (SR 93) at NW 49th Street

Marion County, Florida
Financial Management Number: 435209-1-22-01
ETDM Number: 14242

OCTOBER 2020

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 December 14, 2016, and executed by the Federal Highway Administration and FDOT.

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1 INTRODUCTION

PROJECT DESCRIPTION

The Florida Department of Transportation (FDOT) in conjunction with Marion County is planning to provide a new I-75 interchange at NW 49 Street just west of the City of Ocala, Florida. The proposed interchange is needed to support the economic viability of the Ocala 489, a 489-acre industrial and commercial development, which is intended to serve as an economic engine for job creation in the region.

I-75 (SR 93) is a major north-south interstate highway extending from Miami, Florida on the south to Sault Sainte Marie, Michigan in the north (see **Figure 1-1**). I-75 is the second longest north-south facility in the country (after I-95) traversing six different states. Within the project area, I-75 generally borders the City of Ocala, seat of Marion County in north central Florida. The greater Ocala area has recently experienced one of the highest growth rates in the country for a city its size, and the Marion County Comprehensive Plan outlines a vision to enhance the livability of its residents and promote economic growth in the region. In this vein, the County has designated approximately 3000 acres adjacent to I-75 as a future commerce park. The Ocala 489, located in this area has been established as a "Florida Enterprise Zone" and is composed of a recently constructed FedEx Ground Distribution Hub, Chewy distribution center, an AutoZone distribution center designated as a CSX Select Site, the Florida Crossroads Logistics Center a Red Rock Development, and the remaining undeveloped sites. Development in this area will result in traffic volume increases along I-75 and the entire local roadway network.

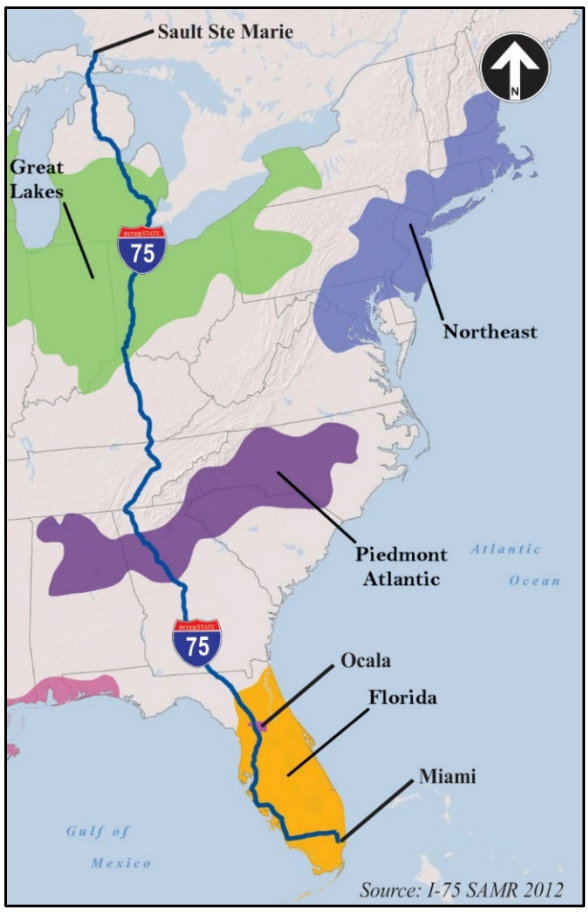
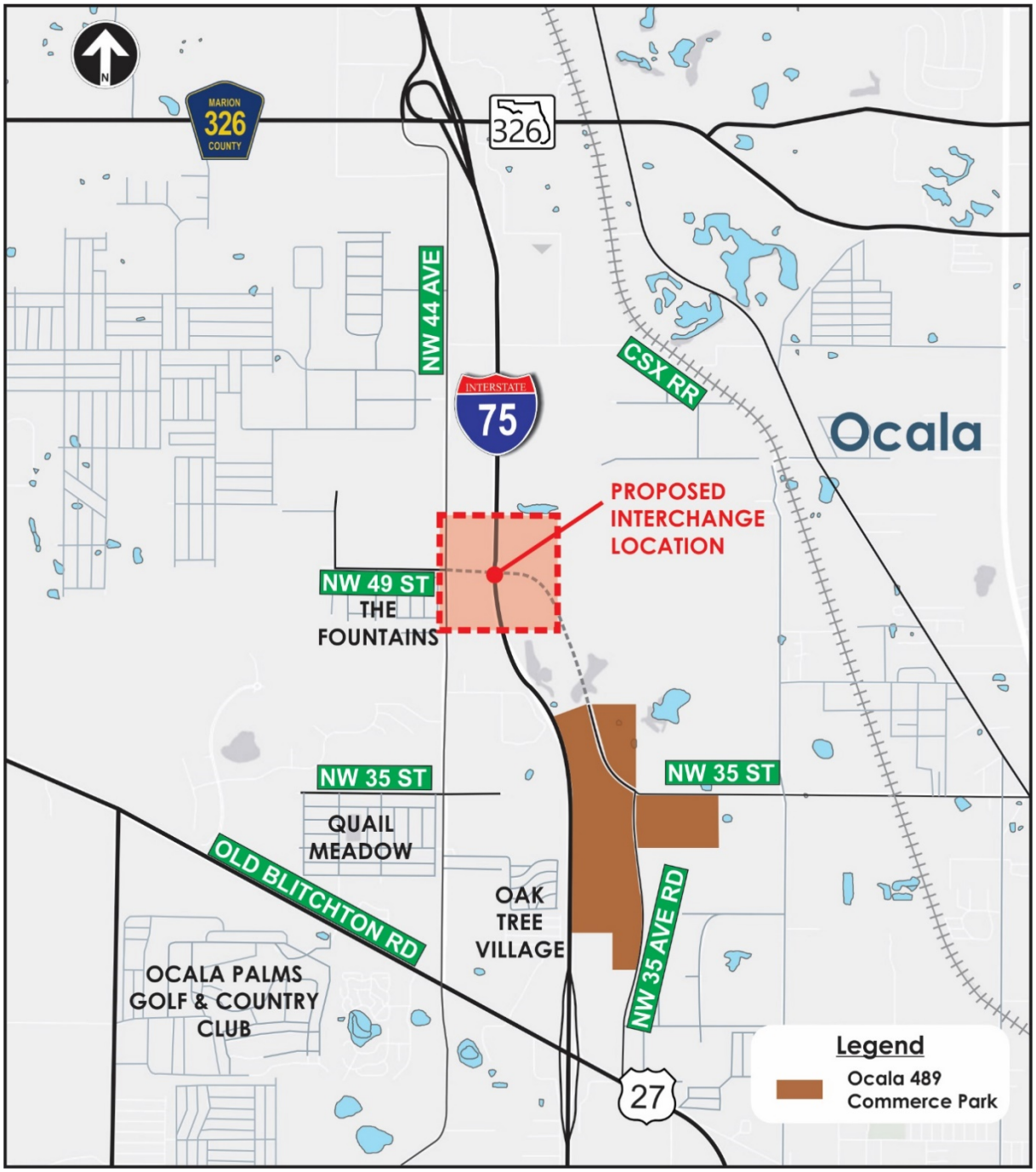


Figure 1-1 Interstate 75 Limits

Figure 1-2 depicts the project vicinity. There are two existing I-75 interchanges within the project vicinity. The I-75/US 27 interchange is located approximately 2 miles south of the proposed interchange at, and the I-75/SR 326 interchange approximately, 2 miles to the north. A recently completed Interchange Justification Report (IJR) concluded that the existing I-75 interchange ramp movements and intersections at US 27 and at SR 326 are expected to operate at failing levels of service. A new I-75 interchange at NW 49 Street (approximately midway between the two existing interchanges) is proposed to relieve congestion on the adjacent interchanges. The

western limit of this project is NW 44 Avenue (west of I-75) and the eastern limit is the future NW 35 Street extension to the northern end of limerock pit, just southeast of the new proposed interchange (Phase 2B). It should be noted that this proposed NW 35 Street extension (Phase 2B) connection will be constructed by the County and is funded for construction in 2021, so it will be completed prior to the interchange being constructed.

Figure 1-2 Location Map



PURPOSE & NEED

Purpose

The purpose of a new I-75 interchange at NW 49th/35th Street is to relieve congestion on adjacent interchanges by providing an alternate access to I-75 for the projected increase in truck volumes resulting from the future commerce district.

Need

The overall study was initiated with a detailed, comprehensive analysis of existing/projected substandard conditions. In general terms, some of the most critical potential needs include:

Economic Viability and Job Creation

The proposed interchange is needed to support the economic viability of the Ocala 489, a 489 acre industrial and commercial development, which is intended to serve as an economic engine for job creation in the region and is envisioned as a strategic central inland hub for freight-related traffic (see **Figure 1-3**). The Ocala 489 has been established as a Florida Enterprise Zone, a designation which provides numerous tax credits to businesses located within the Commerce Park. In addition, this commerce park includes a site, recently developed by AutoZone, that was designated as a CSX Select Site (the first in Florida). Select Sites are properties identified and vetted as capable locations for future manufacturing facilities along the CSX rail network. FedEx Ground, Florida Crossroads Logistics Center, and Chewy also completed new facilities within the Ocala 489. Marion County has already made infrastructure improvements within the Park with the extension of NW 35 Street as a divided four lane facility.

Source: Ocala 489 Commerce Park Website

It should be noted that the Ocala 489 is zoned M-1/M-2 or Light/Heavy Industrial and the businesses that are intended to occupy the commerce park will depend heavily on interstate and regional movement to transport raw materials and finished goods, around the State and beyond. In summary, due to its strategic location and incentives, the Ocala 489 and the commerce district/employment center will provide needed jobs in the area.

Improve Interstate and Regional Mobility

The proposed interchange will provide a more direct and efficient access to I-75 thus facilitating interstate and regional mobility. As previously stated, I-75 is a vital north-south interstate facility connecting six different states. From a regional perspective (see **Figure 1-4**), Marion County is approximately midway between Miami and Atlanta and occupies a strategic location due to its relative proximity to other important metropolitan areas such as Jacksonville, Orlando, and Tampa. This strategic location coupled with the presence of a major interstate facility such as I-75 makes this area a key potential hub for commercial industry. The proposed interchange is thus needed to support the efficient movements of goods.

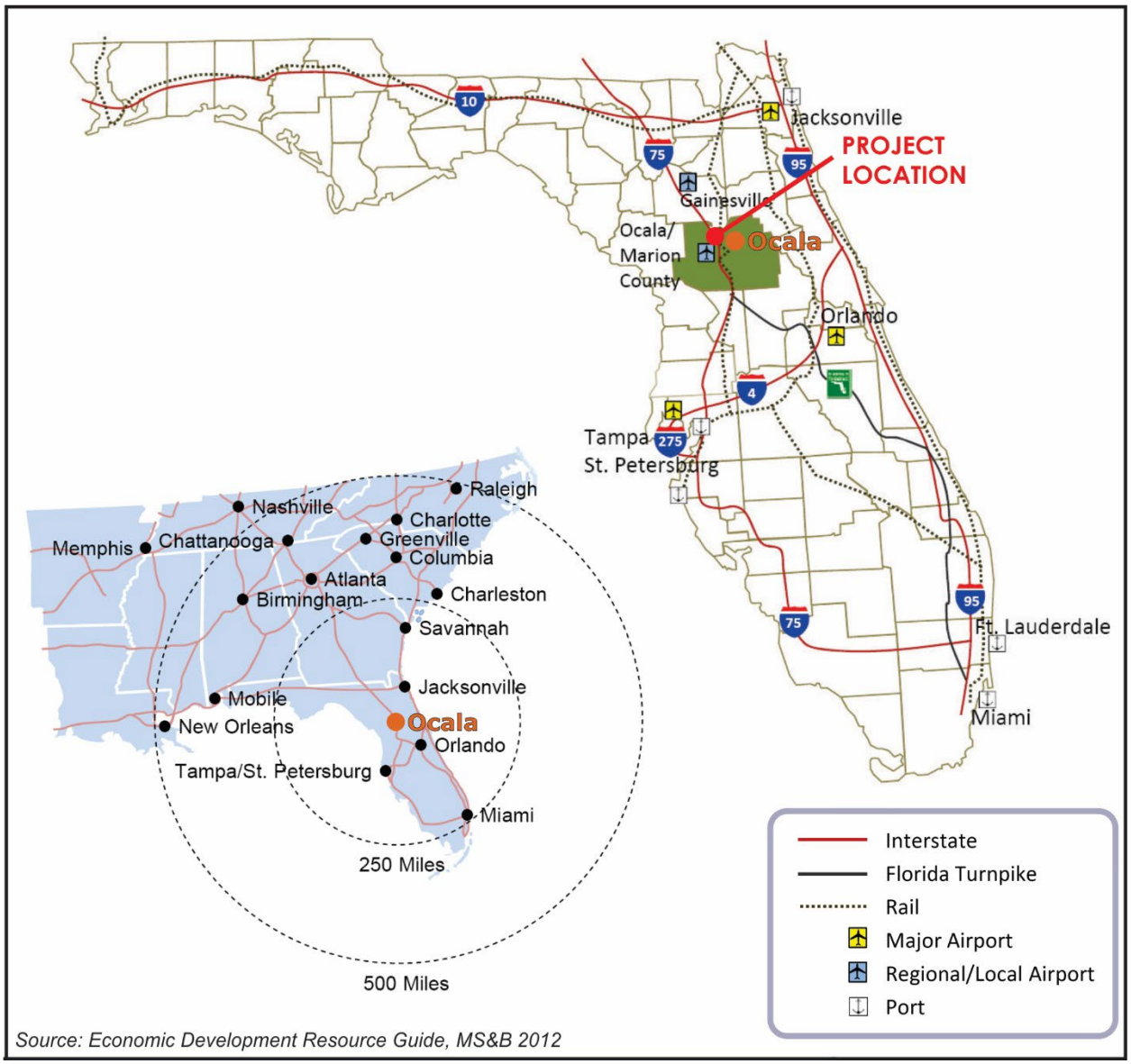


Figure 1-4 Regional Map

Address Locally Supported Long Term Regional Needs

The proposed project is needed to provide important access to I-75 as part of a locally supported long range vision to provide a future east-west corridor parallel to US 27 and SR 326. This east-west corridor begins at NE 36 Avenue, east of I-75 and Downtown Ocala and terminates at NW 70 Avenue, west of the proposed I-75 interchange. In conjunction with this new east-west corridor is a connection to US 27 at NW 35 Avenue Road and at NW 60 Avenue.

The proposed I-75 interchange is currently listed as the number one (1) priority project on the Ocala/Marion Transportation Planning Organization (TPO) FY 2025 Priority Projects List. The County has completed a number of improvements in the area in support of the proposed interchange and the Ocala 489 (see **Figure 1-5**), including extension of NW 35 Avenue Road. Phase 2A of the NW 35 Avenue Road extension was recently completed by the County, Phase 2B is a Marion County project currently in Final Design and programmed for construction in 2021, and Phase 2C (see **Figure 1-5**) is the connection between the proposed interchange and the future NW 35 Avenue Road (Phase 2B) that will be completed as part of the proposed interchange.

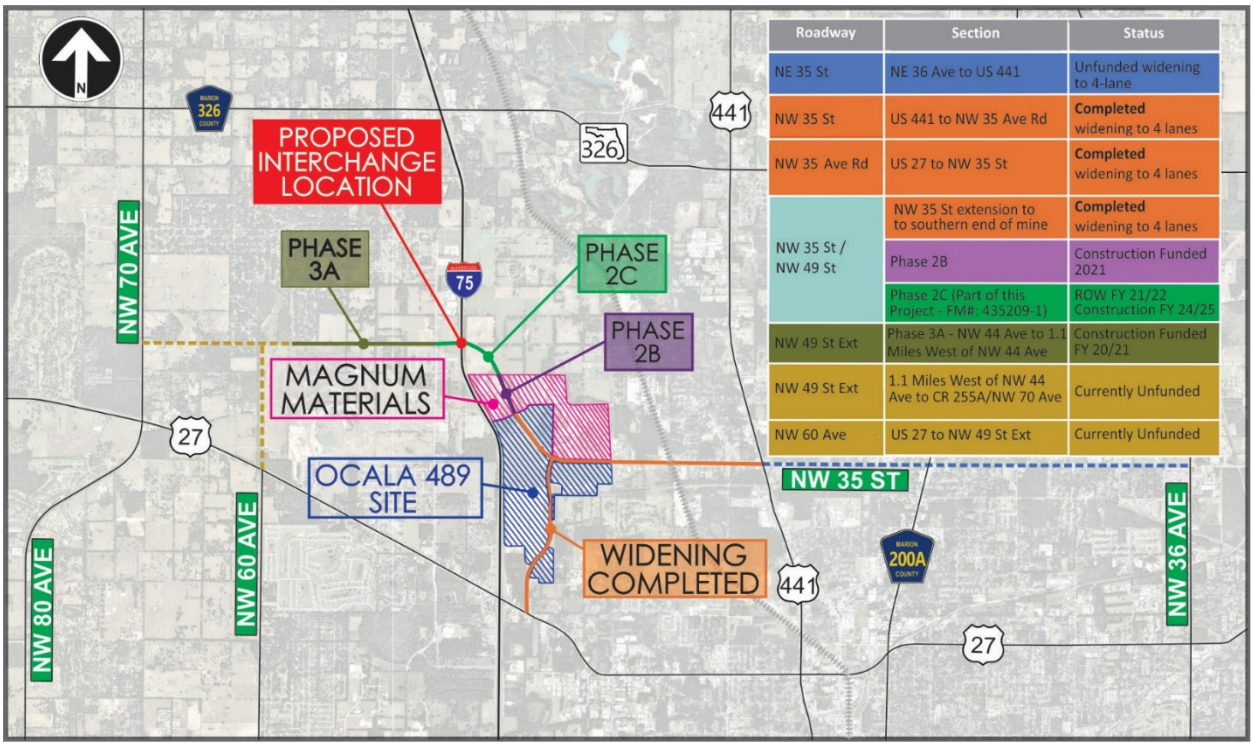


Figure 1-5 Adjacent Projects

Accommodate Future Traffic Growth

As previously stated, one of the primary justifications for the new interchange is to accommodate projected future year traffic volumes. Marion County has experienced a significant and sustained growth in population since 1970. This significant growth rate is expected to continue in the future. According to the currently adopted Central Florida Regional Planning Model (CFRPM

Version 6.1) socio-economic data for 2010 and 2040, the projected population for Marion County is expected to grow from approximately 325,199 to over 490,204 in population by 2040. As a result of this population growth, traffic volumes are increasing and will continue to increase in the future. As shown on **Table 1-1**, the proposed interchange will result in a reduction in the design year (2045) traffic volumes on US 27 and SR 326, the two contiguous I-75 interchange locations, as well as NW 35 Avenue Road, generally resulting in reduced delays and improved levels of service.

It should be noted that the existing SR 326 interchange located north of the proposed interchange would be a rather indirect option for trucks serving the Ocala 489 and therefore most of the truck traffic associated with the Commerce Park would likely utilize the US 27 interchange, severely degrading operations and safety at the interchange throughout the day. The need for the new interchange is based on projected traffic volumes in design year 2045 from build-out of not only the Ocala 489 but also the adjacent commerce district/employment center totaling 5,000 +/- acres. It is projected from the CFRPM 6.1 model that build-out in design year 2045 will add 25,000 daily trips to the roadway network with approximately 12%, or 3,000 vehicles, of which are projected to be trucks. As a result of this projected population growth, traffic volumes are increasing and will continue to increase in the future.

Table 1-1: Projected Traffic Effects of the Proposed Interchange (Year 2045)

LOCATION	% of Traffic Impact Change (AADT)		
	No-Build (2045)	Build (2045)	% Change
US 27 W of I-75	51,100	49,300	-3.52%
US 27 E of I-75	55,300	53,800	-2.71%
I 75 NB Off Ramp at US 27	14,600	12,800	-12.33%
I 75 SB On Ramp at US 27	15,200	13,500	-11.18%
I 75 NB On Ramp at US 27	2,700	3,600	33.33%
I 75 SB Off Ramp at US 27	2,900	4,300	48.28%
NW 35 Ave Rd N of US 27	24,700	21,600	-12.55%
SR 326 W of I-75	12,500	12,200	-2.40%
SR 326 E of I-75	38,200	37,700	-1.31%
NW 49th St East of I-75	14,600	17,500	19.86%
NW 49th St West of I-75	14,600	21,500	47.26%

DESCRIPTION OF PREFERRED ALTERNATIVE

After a comprehensive evaluation process, one alternative was selected as being the most effective option. This alternative is illustrated on **Figures 1-6 and 1-7**.

The preferred alternative, diverging diamond interchange (Alternative 3), consists of a diamond interchange in which the two directions of traffic on the minor road (NW 49 Street) crossover, or diverge, to the opposite side between the signalized crossover intersections at the on/off ramps

(shown on **Figure 1-7**). This eliminates the need for left-turning vehicles to cross the paths of approaching through vehicles, facilitating operational maneuvers and increasing safety. This allows for a simple two-phase operation at the two signalized intersections within the interchange (no left turns), thus improving efficiency. The preferred alternative also includes the extension of NW 49 Street from NW 44 Avenue to Marion County's future NW 35 Street extension (currently in final design). NW 49 Street (shown on **Figure 1-6**) will feature four 12-foot travel lanes with 7-foot bicycle lanes, a 28-foot raised median, and 6-foot sidewalks. The proposed right-of-way for NW 49 Street is 122 feet. NW 49 Street will curve towards the south east of I-75 to connect to Marion County's future NW 35 Street extension (Phase 2B) connection through the Magnum Materials Mine which is funded for construction in 2021 by the County. Four stormwater treatment and attenuation ponds are shown on **Figure 1-7** to meet water management district and FDOT drainage requirements.

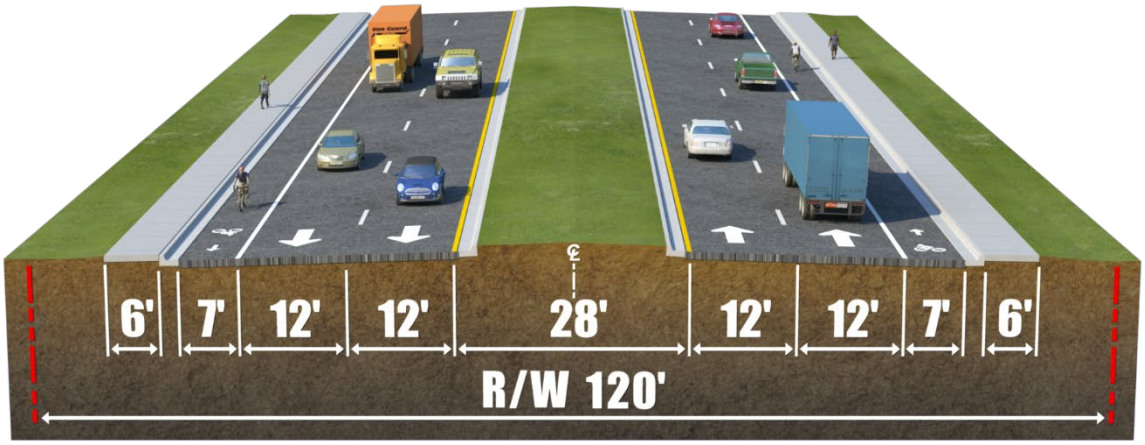


Figure 1-6 NW 49 Street Preferred Typical Section

Figure 1-7 Preferred Alternative

2 METHODOLOGY

This noise analysis was conducted in accordance with *23 CFR Part 772: Procedures for "Abatement of Highway Traffic Noise and Construction Noise, dated July 13, 2010*[1]"; "*Highway Traffic Noise: Analysis and Abatement Guidance, dated December 2011*[2]"; "*Chapter 18 - Highway Traffic Noise of the FDOT Project Development and Environment Manual, dated July 1, 2020*[3]"; and "*FDOT Traffic Noise Modeling and Analysis Practitioners Handbook, dated January 1, 2016*[4]".

This noise analysis utilized detailed design engineering data developed for the Preferred Alternative to determine traffic noise impacts and noise abatement analysis within the limits of the project. The FHWA's Traffic Noise Model (TNM) Version 2.5 (February 2004) was used to predict traffic noise levels and to analyze the effectiveness of noise abatement. This model estimates the noise level at noise sensitive receptor sites from traffic noise sources (i.e., roadways). Model-predicted noise levels are influenced by several factors, such as vehicle speed and distribution of vehicle types. Noise levels are also affected by characteristics of the source to receptor site path, including the effects of intervening barriers, houses, different ground surfaces and topography.

NOISE METRICS

The noise levels presented in this report are expressed in dB(A) which is the scale that closely approximates the range of frequencies a human ear can hear. All noise levels are reported as equivalent levels [Leq(h)], which is the equivalent sound level that contains the same acoustic energy as an actual time-varying sound level over a period of one hour.

NOISE ABATEMENT CRITERIA

Noise sensitive sites are defined as properties where frequent human use occurs and where a lowered noise level would be beneficial. The FDOT uses NAC established by FHWA and most recently revised July 13, 2010. Seven Activity Categories are defined in order to provide differentiation between types of noise sensitive land use. Specific NAC levels have been developed for five of these Activity Categories (See **Table 2-1**). The NAC levels represent the noise level, depending upon activity category, at which noise abatement must be considered. For FDOT projects, noise abatement measures must be considered when the predicted noise levels approach to within 1 dB(A) or exceed the FHWA NAC levels or when a substantial noise increase occurs. A substantial noise increase is defined as a predicted increase of 15 dB(A) or more above the existing noise levels resulting from a transportation improvement project.

Table 2-1 Noise Abatement Criteria (NAC)

[Hourly A-Weighted Sound Level-Decibels (dB(A))]

ACTIVITY CATEGORY	ACTIVITY Leq(h)[1]	EVALUATION LOCATION	DESCRIPTION OF ACTIVITY CATEGORY
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential
C[2]	67	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[2]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	–	–	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	–	–	Undeveloped lands that are not permitted.

(Based on Table 1 of 23 CFR Part 772)

[1] The Leq(h) Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.

[2] Includes undeveloped lands permitted for this activity category.

NOISE SENSITIVE AREA(S)

Land use surrounding the proposed interchange is primarily commercial and industrial with no noise sensitive sites (NAC Activity Category F). A residential neighborhood, The Fountains, comprised of single-family homes is located southwest of the NW 49 Street and NW 44 Avenue intersection. Approximately 23 residences abut the project corridor. Exterior noise sensitive sites at The Fountains includes backyards and patios. Noise sensitive areas along the project limits are illustrated in **Figure 2-1**.

Figure 2-1 Noise Sensitive Areas

NOISE MODEL INPUTS

Model inputs for the project's Existing, No Build, and Preferred Alternative were developed using the CADD files for the project. Roadway, structure and ground elevation inputs were developed from profile-grade lines provided by the project's design team. Ground types, barriers, buildings and other physical features were reviewed and obtained from the project CADD files and Google Earth. All TNM inputs were modeled in accordance with currently accepted methodologies regarding their input into TNM which include, not limited to:

- Receptor placement via state plane coordinate system, confirmation of elevations
- Pavement to include zero-volume lanes to designate shoulders.
- All lanes modeled individually and lane width defined to ensure no gaps between pavement
- Superelevated roadways modeled with varying elevations for individual lanes as needed
- Designation of roadway lane segments on structure as needed
- Barrier walls along roadways modeled as needed
- Existing barriers or masonry walls modeled as needed
- Building rows, if applicable, to be modeled as either separate barriers or a building row with percent coverage. Heights to be determined at middle of roofline based on field or desktop review
- Use of terrain lines as needed to accurately model intervening terrain between roadway segments and receptor.
- Hard site ground zones (water/pavement) to be included. No tree zones anticipated.

Traffic data used in the TNM models for this analysis were taken from the project's *Interchange Justification Report (IJR)* and from the *FDOT's Generalized Level of Service Tables* dated June 2020. According to *Chapter 18 of the PD&E Manual*[3], "Maximum peak-hourly traffic representing Level of Service (LOS) "C", or demand LOS of "A", "B", or "C" will be used (unless analysis shows that other conditions create a "worst-case" level)." A vehicle volume resulting in LOS C operating conditions is considered the maximum volume that allows vehicles to travel at the speed limit and, consequently, produces the worst-case traffic noise environment. However, in order to represent a worst-case scenario for this project, the higher of LOS C or demand was used in TNM. An 11.65% and 26.32% truck factor were used for NW 44 Avenue and I-75 respectively; and obtained from the Florida Traffic Online (FTO) web application. Additional detail regarding the traffic data used in TNM is presented in **Appendix A.**

Model receptors are used in TNM to predict resulting traffic noise levels at nearby noise sensitive sites and to evaluate the predicted effectiveness of noise barriers. These sites were chosen in accordance with *Chapter 18 of the FDOT PD&E Manual*[3]. Factors that were considered include: noise sensitivity, roadway proximity, anticipated impacts from the proposed project, and homogeneity (i.e., the site is representative of other nearby sites). After detailed analysis of the project corridor and of aerial imagery, 17 model receptors representing the approximately 23 residences were selected for analysis. There were no Special Use Sensitive Sites present within the project limits.

The number of existing residences represented by each model receptor varies according to site conditions. For residences, traffic noise levels were predicted for the backyards of the residences.

Model receptors were placed in between the backyards of the first and second row of homes parallel to NW 44 Avenue, in the backyard of the third row of homes parallel to NW 44 Avenue, and in the backyards of homes nearest to NW 49 Street. All receptor sites were modeled five feet above ground. The model receptor locations are presented in **Figures 2-2** to **2-5** and are described in the subsequent section in **Table 3-2**.

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MATCH LINE: FIGURE 2-3

AERIAL IMAGERY BY:
FDOT OFFICE OF SURVEYING AND MAPPING
AERIAL PHOTO LOOK UP SYSTEM (APLUS)
2017 MARION COUNTY

LEGEND

- Modeled Receptors
- Field Receptors
- Improvements

I-75 AT NW 49 STREET
PD&E STUDY
NOISE STUDY REPORT

FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FPID PROJECT NO.
I-75	MARION	435209-1-22-01

NOISE ANALYSIS MAP

FIGURE NO. 2-2

MATCH LINE: FIGURE 2-4

MATCH LINE: FIGURE 2-2

AERIAL IMAGERY BY:
FDOT OFFICE OF SURVEYING AND MAPPING
AERIAL PHOTO LOOK UP SYSTEM (APLUS)
2017 MARION COUNTY

LEGEND

Modeled Receptors
Field Receptors
Improvements

I-75 AT NW 49 STREET
PD&E STUDY
NOISE STUDY REPORT

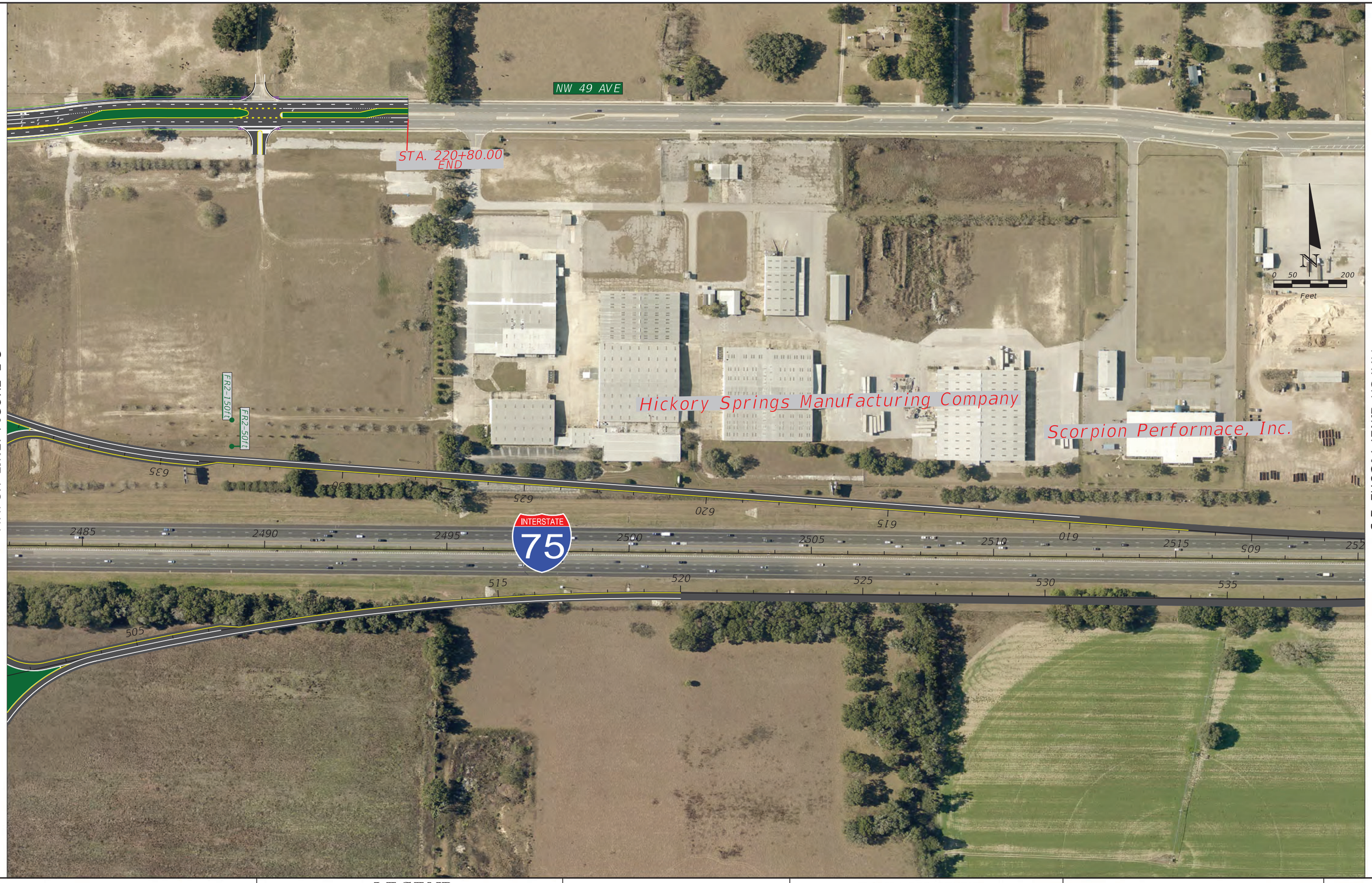
FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FPID PROJECT NO.
I-75	MARION	435209-1-22-01

NOISE ANALYSIS MAP

FIGURE NO. 2-3

MATCH LINE: FIGURE 2-3



MATCH LINE: FIGURE 2-5

AERIAL IMAGERY BY:
FDOT OFFICE OF SURVEYING AND MAPPING
AERIAL PHOTO LOOK UP SYSTEM (APLUS)
2017 MARION COUNTY

LEGEND

- Modeled Receptors
- Field Receptors
- Improvements

I-75 AT NW 49 STREET
PD&E STUDY
NOISE STUDY REPORT

FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FPID PROJECT NO.
I-75	MARION	435209-1-22-01

NOISE ANALYSIS MAP

FIGURE NO. 2-4

MATCH LINE: FIGURE 2-4

AERIAL IMAGERY BY:
FDOT OFFICE OF SURVEYING AND MAPPING
AERIAL PHOTO LOOK UP SYSTEM (APLUS)
2017 MARION COUNTY

LEGEND

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- Field Receptors
- Improvements

I-75 AT NW 49 STREET
PD&E STUDY
NOISE STUDY REPORT

FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FPID PROJECT NO.
I-75	MARION	435209-1-22-01

NOISE ANALYSIS MAP

FIGURE NO. 2-5

3 TRAFFIC NOISE ANALYSIS

The traffic noise analysis includes existing field-monitored noise levels, noise model validation, and prediction of noise levels for design year of the No Build and Preferred Alternative. Field monitoring sites and model receptor locations representing noise-sensitive sites were established by field review, survey of aerial images, and Google Earth.

FIELD MEASUREMENT DATA COLLECTION

All field measurements were conducted following procedures documented in FHWA's *Measurement of Highway-Related Noise*[5] and the *Traffic Noise Modeling and Analysis Practitioner's Handbook*[4]. The results for all of the field measurements are provided in **Table 3-1**. Field monitoring sheets documenting all monitoring events are provided in **Appendix B**.

All measurements were collected using a CEL-246 noise meter. The noise meter was calibrated before and after all measurements using a field calibrator. All measurements were taken at a height of 5 feet above ground level. Traffic data, including vehicle counts, classifications, and speeds, were collected during the sampling periods where necessary by the field team

Table 3-1 Field Measurement Data

FIELD RECEPTOR SITE NUMBER - LOCATION	SAMPLE RUN	DATE/TIME	DISTANCE FROM EDGE OF NEAR TRAVEL LANE (Feet)	MEASURED NOISE LEVEL [dB(A)]	MODELED TRAFFIC NOISE LEVEL [dB(A)]	DIFFERENCE (Measured - Modeled) [dB(A)]
FR-1 – Southwest of NW 44 Ave. and NW 49 St. Intersection, Station 235+00	A	4-10-19/11:00 AM	First Row(225)	50.0	53.0	-3.0
			Third Row(395)	46.1	47.4	-1.3
	B	4-10-19/11:10 AM	First Row(225)	49.6	51.2	-1.6
			Third Row(395)	47.6	45.8	1.8
	C	4-10-19/11:21 AM	First Row(225)	48.0	50.4	-2.4
			Third Row(395)	45.0	47.1	-2.1
FR-2 – West of I-75, Station 2490+00	A	4-10-19/9:24 AM	270	60.3	62.9	-2.6
			370	55.5	58.4	-2.9
	B	4-10-19/9:44 AM	270	59.7	62.4	-2.7
			370	55.0	58.0	-3.0
	C	4-10-19/9:54 AM	270	60.9	63.0	-2.1
			370	56.4	58.6	-2.2

COMPUTER NOISE MODEL VALIDATION

Site conditions and traffic data gathered during the field measurements were used to develop inputs to the FHWA's TNM 2.5 for computer models representative of the field conditions. Additional geometric information necessary for these models was developed from aerial imagery and/or MicroStation files of the existing conditions in the project study area. The TNM results were then compared to the noise level data collected during the field measurements (see **Table 3-1**). The model inputs for the field conditions were deemed to be within an acceptable level of accuracy since the predicted noise levels are within ±3.0 dB(A) of the measured noise levels in accordance with *Chapter 18 of the FDOT PD&E Manual*[3], and the 2016 *FDOT Traffic Noise*

Modeling and Analysis Practitioner's Handbook[4]. Thus, further use of the TNM model on this project is supported.

PREDICTED NOISE LEVEL AND ABATEMENT ANALYSIS

Within the project limits, noise-sensitive land uses that are specified in the NAC include:

- **Activity Category B** (residential areas) – Includes 23 single-family homes in The Fountains residential community.

No Activity Category A lands, which are sites on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential for the area to continue to serve its intended purpose, are found along the project corridor.

No Activity Category C lands, which are exterior areas of public use (e.g. amphitheaters, playgrounds, recreational areas, schools), are found along the project corridor.

No Activity Category D lands, which are interior locations that require a lower noise threshold (e.g. Auditoriums, medical facilities, libraries, recording studios), are found along the project corridor.

No Activity Category E lands, such as outdoor seating areas at restaurants along the proposed roadway corridor, are found along the project corridor.

Seventeen (17) model receptor locations representative of the 23 residential noise-sensitive sites described above were input into the TNM model. These locations are described in **Table 3-2**. The identifiers for each model receptor generally include the first several letters of the community or site name along with sequential numbering for sites where more than one model receptor is located. Each line item in the table is a single receptor which represents one or more noise-sensitive site. These locations are also shown on **Figures 2-2** to **2-5**.

Predicted Noise Levels

Traffic noise levels were predicted along the project corridor for the Existing Conditions and the design year No-Build and Preferred Alternatives, see **Table 3-2**. Existing year predicted noise levels for The Fountains neighborhood range from 54.0 dB(A) to 62.8 dB(A). Design year No Build predicted noise levels for The Fountains neighborhood range from 54.4 dB(A) to 63.2 dB(A). Under the Preferred Alternative, design year traffic noise levels at The Fountains neighborhood are predicted to range from 55.0 to 63.0 dB(A). During the design year under the Preferred Alternative, traffic noise levels for noise-sensitive sites in The Fountains neighborhood are predicted to range from 60.8 to 61.5 dB(A) in the first row; and 55.0 to 55.4 dB(A) in the second row. In addition, under the Preferred Alternative, predicted noise levels for noise sensitive sites in the first row of The Fountains neighborhood south of NW 49 Street is predicted to range from 60.4 to 63.0 dB(A). The highest traffic noise level increase between the Existing condition and the Preferred Alternative design year is 1.0 dB(A).

Noise Impact Analysis

None of the residences are predicted to experience traffic noise levels approaching or exceeding the FHWA NAC for these site's applicable Activity Categories [66.0 dB(A)] during the project's design year. Moreover, no substantial noise increases (increase of 15 dB(A) as defined by FDOT) are predicted to occur within the project study area.

Based on the noise analyses performed to date, there appears to be no impacted areas within the project that require abatement consideration.

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Table 3-2 Noise Receptor Locations and Noise Analysis Results

Representative Model Receptor[1]	Site	Location (Station)	Description (Activity Category)	FDOT Noise Abatement [dB(A)]	Number of Noise Sensative Sites	Distance to Nearest Traffic Lane[1] (Feet)	Predicted Traffic Noise Level [Leq(1h), dB(A)]		
							Existing	No Build	Build
The Fountains									
TF-R1-01	4694 NW 44 Ct	238+80.00	Residential (B)	66	2	315	60.7	60.7	60.8
TF-R1-02	4706 NW 44 Ct	238+00.00	Residential (B)	66	2	315	60.8	60.8	60.9
TF-R1-03	4720 NW 44 Ct	237+00.00	Residential (B)	66	2	315	61.1	61.1	61.2
TF-R1-04	4740 NW 44 Ct	236+50.00	Residential (B)	66	2	315	61.1	61.3	61.4
TF-R1-05	4750 NW 44 Ct	235+70.00	Residential (B)	66	2	315	61.1	61.5	61.5
TF-R1-06	4800 NW 44 Ct	235+00.00	Residential (B)	66	2	315	60.9	61.4	61.3
TF-R3-01	4690 NW 44 Terrace	238+80.00	Residential (B)	66	1	640	54.0	54.4	55.0
TF-R3-02	4710 NW 44 Terrace	238+00.00	Residential (B)	66	1	640	54.6	54.9	55.3
TF-R3-03	4740 NW 44 Terrace	237+00.00	Residential (B)	66	1	640	54.5	54.9	55.3
TF-R3-04	4760 NW 44 Terrace	236+50.00	Residential (B)	66	1	640	54.6	55.0	55.3
TF-R3-05	4780 NW 44 Terrace	235+70.00	Residential (B)	66	1	640	55.0	55.3	55.4
TF-R3-06	4810 NW 44 Terrace	235+00.00	Residential (B)	66	1	640	54.7	55.2	55.3
TF-01	4565 NW 48 Ln	128+20.00	Residential (B)	66	1	70	60.5	60.6	60.4
TF-02	4525 NW 48 Ln	129+70.00	Residential (B)	66	1	65	62.0	62.1	62.0
TF-03	4505 NW 48 Ln	130+50.00	Residential (B)	66	1	65	62.8	63.2	63.0
TF-04	4491 NW 48 Ln	131+50.00	Residential (B)	66	1	60	62.2	62.6	62.4
TF-05	4469 NW 48 Ln	133+40.00	Residential (B)	66	1	65	61.7	63.0	62.6

Notes:
1= Distance to the outside of the nearest travel lane on the I-75 mainline, connector roadway or ramp, distances rounded to nearest 5-foot increment.

4 CONCLUSIONS AND RECOMMENDATIONS

Traffic noise levels were predicted for the noise-sensitive locations along the project corridor for the design year Preferred Alternative. Approximately twenty-three (23) residences in The Fountains neighborhood were identified as being sensitive to traffic noise along I-75 within the limits of this project. No non-residential or special-use noise-sensitive sites were identified along the project corridor. Design year traffic noise levels at nearby residences are predicted to range from 55.0 to 63.0 dB(A). No noise-sensitive sites within the project study area are predicted to experience traffic noise levels equal to or exceeding the NAC.

None of the noise sensitive sites were predicted to experience substantial noise increases (increase of 15 dB(A) as defined by FDOT), or exceed the FHWA's Noise Abatement criteria (66 dB(A) for residential locations); therefore, noise abatement is not required for The Fountains neighborhood.

Based on the noise analyses performed to date, there appears to be no impacted areas within the project that require abatement consideration.

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5 PUBLIC INVOLVEMENT

To aid in promoting land use compatibility, a copy of the NSR, which provides information that can be used to protect future land development from becoming incompatible with anticipated traffic noise levels, is available to local agencies. In addition, generalized future noise impact contours for the properties in the immediate vicinity of the project have been developed for Noise Abatement Activity Categories B/C and E (i.e., residential/other sensitive land uses and sensitive commercial, respectively). These contours represent the approximate distance from the edge of the nearest proposed travel lane of I-75 to the limits of the area predicted to approach [i.e., within 1 dB(A)] or exceed the NAC during the design year. These contours do not consider any shielding of noise provided by structures or elevation changes between the receiver and the proposed travel lanes. Within the project corridor, the distances between the proposed edge of the outside travel lane and the contour at various locations are presented in **Table 5-1**.

Table 5-1 Design Year Noise Impact Contour Distances

I-75 Between US 27 and SR 326		Approximate Distance from proposed nearest I-75 Lane to Noise Contour Line (feet)	
From	To	71 dB(A) Activity Category E 51 dB(A) Activity Category D	66 dB(A) Activity Category B/C
US 27	NW 49 Street	200'	400'
NW 49 Street	SR 326	150'	350'

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6 CONSTRUCTION NOISE AND VIBRATION

Based on the existing land use within the limits of this project, construction of the proposed roadway improvements is not anticipated to have any noise or vibration impact. The closest sites that may obtain vibration impacts are manufacturing companies, such as the Hickory Springs Manufacturing Company, which can utilize equipment that is sensitive to construction vibration. 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*[8] will minimize or eliminate most of the potential construction noise and vibration impacts. However, should unanticipated noise or vibration issues arise during the construction process, the Project Manager, in concert with the District Noise Specialist and the Contractor, will investigate additional methods of controlling these impacts.

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7 REFERENCES

1. 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.
2. Federal Highway Administration Report FHWA-HEP-10-025, "*Highway Traffic Noise: Analysis and Abatement Guidance*", June 2010 (revised December, 2010); 76 pages.
3. Florida Department of Transportation, "*Project Development and Environment Manual*, Part 2, *Chapter 18, Noise*", July 1, 2020.
4. *Traffic Noise Modeling and Analysis Practitioner's Handbook; FDOT Environmental Management Office; January 2016*
5. 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.
6. Florida Department of Transportation, "*Design Manual, Part 2, Chapter 264, Noise Walls and Perimeter Walls*", January 1, 2018.
7. Florida Department of Transportation, "A Method To Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations," July 22. 2009.
8. Florida Department of Transportation, "*Standard Specifications for Road and Bridge Construction*." 2010; 996 pages.
9. Florida Statute 335.17, "*State highway construction; means of noise abatement*." 1989; 1 page.
10. Florida Department of Transportation Policy, "*Noise Abatement*". Topic 000-360-005-f; Effective September 20, 2007; 1 page.
11. Federal Highway Administration Report FHWA-HEP-06-015, "*FHWA Highway Construction Noise Handbook: Final Report*," August 2006; 185 pages

APPENDIX A

Traffic Data

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	SR 93/I-75
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	I-75 SB Ramps
Section Number:	36210000
Station To/From:	From STA 2443+00 to STA 2522+00

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	SB Off	**SB On**			
LOS C Peak Hour Directional Volume:	-	-	MT=		% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	-	-	HT=		% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	-	-	B=		% of Design Hour Vol.
Posted Speed:	-	-	MC=		% of Design Hour Vol.
			T24=		% of 24 Hour Vol.
			Tpeak=		% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	SB Off	**SB On**			
LOS C Peak Hour Directional Volume:	-	-	MT=		% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	-	-	HT=		% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	-	-	B=		% of Design Hour Vol.
Posted Speed:	-	-	MC=		% of Design Hour Vol.
			T24=		% of 24 Hour Vol.
			Tpeak=		% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	SB Off	**SB On**			
LOS C Peak Hour Directional Volume:	-	-	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	351	883	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	415	746	B=	0.94%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.22%	% of Design Hour Vol.
			T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	SR 93/I-75
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	I-75 NB Ramps
Section Number:	36210000
Station To/From:	From STA 2443+00 to STA 2522+00

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	NB Off	**NB On**			
LOS C Peak Hour Directional Volume:	-	-	MT=		% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	-	-	HT=		% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	-	-	B=		% of Design Hour Vol.
Posted Speed:	-	-	MC=		% of Design Hour Vol.
			T24=		% of 24 Hour Vol.
			Tpeak=		% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB Off	**NB On**			
LOS C Peak Hour Directional Volume:	-	-	MT=		% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	-	-	HT=		% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	-	-	B=		% of Design Hour Vol.
Posted Speed:	-	-	MC=		% of Design Hour Vol.
			T24=		% of 24 Hour Vol.
			Tpeak=		% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB Off	**NB On**			
LOS C Peak Hour Directional Volume:	-	-	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	746	415	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	883	351	B=	0.94%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.22%	% of Design Hour Vol.
			T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	SR 93/I-75
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	South of SB On-Ramp and NB Off-Ramp
Section Number:	36210000
Station To/From:	From STA 2370 to STA 2443+00

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	2073	1467	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	2149	1856	B=	0.47%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	5240	4415	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	4413	5234	B=	0.47%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	5793	5039	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	5032	5781	B=	0.94%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	SR 93/I-75
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	Between NW 49 St Ramps
Section Number:	36210000
Station To/From:	From STA 2443+00 to STA 2537+00

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	2073	1467	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	2149	1856	B=	0.47%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	5240	4415	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	4413	5234	B=	0.47%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	5047	4156	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	4149	5035	B=	0.94%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	SR 93/I-75
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	North of NW 49 St NB On Ramp and SB Off Ramp
Section Number:	36210000
Station To/From:	From STA 2537+00 to STA 2548+00

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	2073	1467	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	2149	1856	B=	0.47%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	5240	4415	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	4413	5234	B=	0.47%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**	T24=	26.32%	% of 24 Hour Vol.
			Tpeak=	13.16%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	4650	4650	MT=	1.43%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	5462	4507	HT=	11.26%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	4500	5450	B=	0.94%	% of Design Hour Vol.
Posted Speed:	70	70	MC=	0.22%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	NW 49 Street
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	West of NW 44 Ave
Section Number:	
Station To/From:	From STA 123+00 to STA 137+26

Existing Facility:

Year: 2017

	Direction 1	Direction2			
			T24=	11.65%	% of 24 Hour Vol.
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	333	333	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	5	1	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	10	10	B=	0.38%	% of Design Hour Vol.
Posted Speed:	30	30	MC=	0.36%	% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
			T24=	11.65%	% of 24 Hour Vol.
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	333	333	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	22	24	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	25	34	B=	0.38%	% of Design Hour Vol.
Posted Speed:	30	30	MC=	0.36%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
			T24=	11.65%	% of 24 Hour Vol.
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	333	333	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	25	24	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	31	33	B=	0.76%	% of Design Hour Vol.
Posted Speed:	30	30	MC=	0.36%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	NW 49 Street
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	East of NW 44 Ave to West Ramps
Section Number:	
Station To/From:	From STA 137.26 To STA 145+71

Existing Facility:

Year:	2017				
	Direction 1	Direction2	T24=		% of 24 Hour Vol.
	EB	**WB**	Tpeak=		% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	-	-	MT=		% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	-	-	HT=		% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	-	-	B=		% of Design Hour Vol.
Posted Speed:	-	-	MC=		% of Design Hour Vol.

No Build Alternative (Design Year):

Year:	2045				
	Direction 1	Direction2	T24=	11.65%	% of 24 Hour Vol.
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	720	544	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	497	602	B=	0.76%	% of Design Hour Vol.
Posted Speed:	30	30	MC=	0.36%	% of Design Hour Vol.

Build Alternative (Design Year):

Year:	2045				
	Direction 1	Direction2	T24=	11.65%	% of 24 Hour Vol.
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	980	955	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	955	980	B=	0.76%	% of Design Hour Vol.
Posted Speed:	40	40	MC=	0.36%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	NW 49 Street
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	East of West Ramps to East Ramps
Section Number:	
Station To/From:	From STA 145+71 to STA 151+70

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	EB	**WB**	Tpeak=		% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	-	-	MT=		% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	-	-	HT=		% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	-	-	B=		% of Design Hour Vol.
Posted Speed:	-	-	MC=		% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	720	544	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	497	602	B=	0.76%	% of Design Hour Vol.
Posted Speed:	30	30	MC=	0.36%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	619	1126	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	705	1061	B=	0.76%	% of Design Hour Vol.
Posted Speed:	40	40	MC=	0.36%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	NW 49 Street
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	East of East Ramps
Section Number:	
Station To/From:	From STA 151+70 to STA 178+83

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	EB	**WB**	Tpeak=		% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	-	-	MT=		% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	-	-	HT=		% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	-	-	B=		% of Design Hour Vol.
Posted Speed:	-	-	MC=		% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	720	544	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	497	602	B=	0.76%	% of Design Hour Vol.
Posted Speed:	30	30	MC=	0.36%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	EB	**WB**	Tpeak=	5.83%	% of Design Hour Vol.
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	700	876	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	876	700	B=	0.76%	% of Design Hour Vol.
Posted Speed:	40	40	MC=	0.36%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	NW 44 Avenue
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	South of NW 49 St
Section Number:	
Station To/From:	From STA 196+00 to STA 207+00

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	NB	**SB**			
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	145	317	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	300	249	B=	0.38%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.36%	% of Design Hour Vol.
			T24=	11.65%	% of 24 Hour Vol.
			Tpeak=	5.83%	% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**			
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	521	684	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	577	608	B=	0.38%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.36%	% of Design Hour Vol.
			T24=	11.65%	% of 24 Hour Vol.
			Tpeak=	5.83%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**			
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	491	821	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	722	674	B=	0.76%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.36%	% of Design Hour Vol.
			T24=	11.65%	% of 24 Hour Vol.
			Tpeak=	5.83%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

Federal Aid Number(s):	
FPID Number(s):	435209-1-22-01
State/Federal Route No.:	NW 44 Avenue
Road Name:	NA
Project Description:	Project Development and Environment Study
Segment Description:	North of NW 49 St
Section Number:	
Station To/From:	From STA 207+00 to STA 219+00

Existing Facility:

Year: 2017

	Direction 1	Direction2			
	NB	**SB**			
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	148	317	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	293	249	B=	0.38%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.36%	% of Design Hour Vol.
			T24=	11.65%	% of 24 Hour Vol.
			Tpeak=	5.83%	% of Design Hour Vol.

No Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**			
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	489	830	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	744	568	B=	0.38%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.36%	% of Design Hour Vol.
			T24=	11.65%	% of 24 Hour Vol.
			Tpeak=	5.83%	% of Design Hour Vol.

Build Alternative (Design Year):

Year: 2045

	Direction 1	Direction2			
	NB	**SB**			
LOS C Peak Hour Directional Volume:	1720	1720	MT=	2.56%	% of Design Hour Vol.
Demand Peak Hour Volume (AM Peak):	613	967	HT=	2.51%	% of Design Hour Vol.
Demand Peak Hour Volume (PM Peak):	892	821	B=	0.76%	% of Design Hour Vol.
Posted Speed:	45	45	MC=	0.36%	% of Design Hour Vol.
			T24=	11.65%	% of 24 Hour Vol.
			Tpeak=	5.83%	% of Design Hour Vol.

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Stefan Escanes, PE  Date: 9/11/2020

Print Name Signature

APPENDIX B

Field Monitoring Worksheets

Site/Run #

Noise Measurement Data Sheet

Date: 4/10/2019 **Measurement Taken by:** SE

Project: I-75

Site ID: FR1 Run 1/2/3/

Weather Conditions	Clear	✓	Partly Cloudy	Cloudy	Other
Temperature	Start: 85.6		End: (°F)		
Wind Direction	Start:	SE	End: SE		
Wind Speed (Start):	Min: 0.2		Max: 3.7	Average: 0.9	(mph)
Wind Speed (End):	Min:	0.2	Max: 4.3	Average: 0.7	(mph)
Humidity	Start: 44.6		End: (%)		

Equipment Data

		Row 1	**Row 3**
Sound Level Meter:	CEL-246	Serial Number 1588500	3173221

Date of Last Traceable Calibration: 6/29/2018

Calibration:	Start:	✓	End: ✓	Difference:	0.0
Battery:	Start:	Full	End: Full		
Weighting Scale:	A		Response:		
Calibrator:	CEL-120		Serial Number:	2044846	

Results: Leq: (50') 50/49.6/48 (100') 46.1/47.6/45
in dB(A)

Major Noise Sources: NW 44 Avenue

Background Noise Sources:

Other Notes/Observations: Occasional landscaping in the distance

Observed Traffic Data

Observed Traffic Data Site #: FR1 Run #: 1-3

Vehicle Types	FR1-1		FR1-2		FR1-3	
	Volume	Speed	Volume	Speed	Volume	Speed
Auto	NB: 20 SB: 26	NB: 49 SB: 41	NB: 21 SB: 22	NB: 51 SB: 51	NB: 19 SB: 16	NB: 46 SB: 45
Medium Truck	NB: 1 SB: 0	NB: 43 SB: 48	NB: 2 SB: 1	NB: 40 SB: 40	NB: 0 SB: 2	NB: 0 SB: 44
Heavy Truck	NB: 2 SB: 3	NB: 44 SB: 42	NB: 2 SB: 0	NB: 44 SB: 0	NB: 1 SB: 4	NB: 47 SB: 38
Bus	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0
Motorcycle	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0

Site Sketch

Site/Run #

Noise Measurement Data Sheet

Date: 4/10/2019 **Measurement Taken by:** SE

Project: I-75

Site ID: FR2 Run 1/2/3

Weather Conditions	Clear	✓	Partly Cloudy	✓	Cloudy	Other
Temperature	Start: 78.5		End: 83.9		(°F)	
Wind Direction	Start:	NW	End:	NW		
Wind Speed (Start):	Min: 0.4		Max: 2.8		Average: 1.1	(mph)
Wind Speed (End):	Min: 0.0		Max: 3.6		Average: 0.8	(mph)
Humidity	Start: 62.4		End: 54.5		(%)	

Equipment Data

			50'		**150'**
Sound Level Meter:	CEL-246	Serial Number	1588500		3173221
Date of Last Traceable Calibration:		6/29/2018			
Calibration:	Start:	✓	End:	✓	Difference: 0.0
Battery:	Start:	Full	End:	Full	
Weighting Scale:	A	Response:	Fast		
Calibrator:	CEL-120	Serial Number:		2044846	

Results: Leq: (50') 60.3/59.7/60.9 (150') 55.5/55.0/56.4
in dB(A)

Major Noise Sources: I-75

Bacground Noise Sources:

Other Notes/Observations:

Observed Traffic Data

Observed Traffic Data Site #: FR2 Run #: 1-3

Vehicle Types	FR2-1		FR2-2		FR2-3	
	Volume	Speed	Volume	Speed	Volume	Speed
Auto	NB: 293 SB: 142	NB: 69 SB: 73	NB: 276 SB: 173	NB: 68 SB: 75	NB: 284 SB: 193	NB: 68 SB: 74
Medium Truck	NB: 17 SB: 6	NB: 67 SB: 62	NB: 10 SB: 13	NB: 63 SB: 65	NB: 16 SB: 11	NB: 64 SB: 63
Heavy Truck	NB:92 SB: 68	NB: 62 SB: 64	NB: 81 SB: 73	NB: 64 SB: 63	NB: 83 SB: 73	NB: 63 SB: 64
Bus	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0
Motorcycle	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0	NB: 0 SB: 0

Site Sketch