Project Development & Environment Study

Selmon Expressway (SR 618) Downtown Viaduct Improvements
From Florida Avenue to South 22nd Street

Final
Noise Study Report

THEA Project Number: 52.20.02
FDOT WPI Segment Number: 416361 4
Hillsborough County

Prepared for

TAMPA-HILLSBOROUGH EXPRESSWAY AUTHORITY

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Prepared by:
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American

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June 2010

EXECUTIVE SUMMARY

The Tampa Hillsborough County Expressway Authority (THEA) conducted a Project Development and Environment (PD&E) Study to identify and analyze various alternative design concepts to meet the future traffic needs on the Selmon Expressway (SR 618) from Florida Avenue to South 22nd Street in Hillsborough County (**Figure 1-1**). The total project length is approximately 1.7 miles and is located within the Tampa city limits. Proposed improvements include the widening of the existing structures to the inside to provide a divided 6-lane roadway. The build alternative and any related stormwater improvements will be situated within the existing right-of-way (ROW). The design year for this project is 2035. A separate project within the limits of this study is the proposed re-decking of an approximately one mile segment of the existing viaduct structures, to be constructed by the Florida Department of Transportation (FDOT). The proposed re-decking will extend from Florida Avenue to North 12th Street.

This PD&E Study was conducted by THEA in cooperation with the FDOT District Seven. The objective of this study was to reach a decision on the type, location and conceptual design for the necessary improvements for the Selmon Expressway to safely and efficiently accommodate future travel demand. This Study documents the need for the improvements as well as the procedures utilized to develop and evaluate various improvements including elements such as proposed typical sections and preliminary horizontal alignments. The social, physical, and natural environmental effects and costs of these improvements have been identified. The alternatives were evaluated and compared based on a variety of parameters utilizing a matrix format. This process identified the alternative that will best balance the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs). In addition, full consideration was given to a “No-Build” alternative.

The objectives of this *Noise Study Report (NSR)* are to identify noise-sensitive sites adjacent to the project corridor, to evaluate the significance of existing and future traffic noise levels at the sites with the improvements, and to evaluate the need for and effectiveness of noise abatement measures. Additional objectives include the evaluation of construction noise impacts and the identification of noise level “contours” adjacent to the corridor.

The analysis was performed following FDOT procedures that comply with Title 23 Code of Federal Regulations (CFR), Part 772 (*Procedures for Abatement of Highway Traffic Noise and Construction Noise*). The prediction of future traffic noise levels with the proposed roadway improvements was performed using the FHWA’s Traffic Noise Model (TNM Version 2.5). The TNM propagates sound energy, in one-third octave bands, between highways and nearby receivers, taking into account the intervening ground’s acoustical characteristics and topography, and rows of buildings.

Fifty-two receivers (52) were modeled representing 272 noise sensitive sites along the project corridor. Two hundred and seventy (270) sites, represented by 45 receivers within TNM, are associated with the Seaport Channelside apartment community. Two additional sites represent the Rampello K-8 Magnet School (interior noise levels) and playground (exterior noise levels). The Rampello K-8 Magnet School playground was represented by one receiver within TNM, while the Rampello K-8 Magnet School was represented by six receivers at varying distances from the Selmon Expressway. The results of the analysis indicate that existing (2008) exterior noise levels are predicted to range from 51.1 to 68.0 dBA with levels predicted to approach, meet, or exceed the NAC at 28 sites (six receivers in TNM). The no-build (2035) exterior traffic noise levels are predicted to range from 54.1 to 70.7 dBA with levels predicted to approach, meet, or exceed the NAC at 120 sites (22 receivers in TNM). In the future (2035), with the proposed improvements to the Selmon Expressway, exterior traffic noise levels are predicted to range from 54.8 to 71.5 dBA, with levels predicted to approach, meet, or exceed the NAC at 136 sites (26 receivers in TNM). For the Rampello K-8 Magnet School, interior noise levels were all predicted to be below the NAC for the existing, no-build and build scenarios.

When compared to the existing condition, interior and exterior traffic noise levels are predicted to increase 2.3 to 3.8 dBA with the improvements to the Selmon Expressway.

As such, none of the sites are predicted to experience a substantial increase (15.0 dBA or more) in traffic noise as a result of the project.

Noise abatement measures were evaluated for the noise sensitive areas predicted to be affected by the proposed improvements to the expressway. The measures were traffic management, alignment modifications, property acquisition, land use controls, and noise barriers. Although feasible, traffic management, alignment modifications, property acquisitions, and land use controls were determined to be unreasonable methods to reduce the predicted traffic noise impacts for the affected sites.

Based on the results of the analysis, the construction of noise barriers for the sites predicted to be affected by the project along the Selmon Expressway is not a feasible method of reducing predicted traffic noise impacts. Barriers could not be designed to effectively reduce noise levels by at least 5.0 dBA.

In order to reduce the possibility of additional noise sensitive sites being located within an area with traffic noise of this level, a noise contour was developed for the future improved roadway facility. This noise contour delineates the unobstructed distance from the improved roadway's edge of pavement where the FHWA's NAC is predicted to be approached (within 1.0 dBA of the NAC). Based on the results of the analysis, a level of 66.0 dBA would extend approximately 450 feet from the closest travel lane.

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*Via CD

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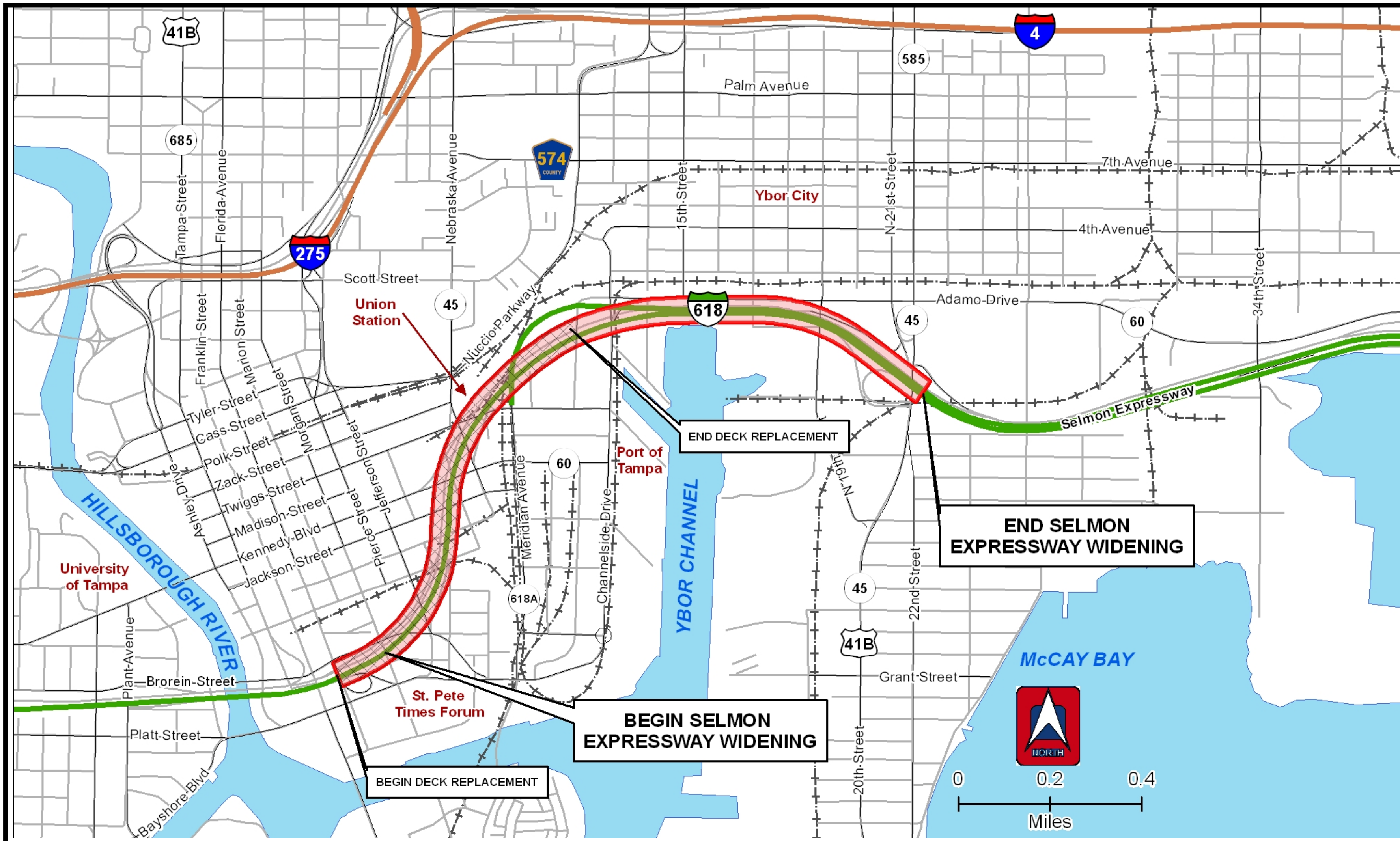
Section 1.0 - INTRODUCTION

1.1 Project Description

The Tampa Hillsborough County Expressway Authority (THEA) conducted a Project Development and Environment (PD&E) Study to evaluate possible capacity improvements along approximately 1.7 miles of the Selmon Expressway (SR 618), currently a four-lane, continuous elevated structure through downtown Tampa. The study limits for this project are from Florida Avenue to South 22nd Street in Hillsborough County, Florida. The design year for the improvements is 2035. A project location map is shown in **Figure 1-1**.

Evaluated alternative capacity and related stormwater improvements included: 1) widening the existing structures to the inside to provide a divided six-lane roadway and 2) constructing a westbound, one-lane ramp from the nearby expressway Reversible Express Lanes (REL) structure that will tie to the downtown viaduct. The westbound (WB), one-lane ramp alternative included a one–lane widening of the eastbound (EB) viaduct structure to the outside for a total of three EB lanes. A separate project within the limits of this study is the proposed re-decking of an approximately one mile segment of the existing viaduct structures, to be constructed by the Florida Department of Transportation (FDOT). The proposed re-decking will extend from Florida Avenue to North 12th Street.

This PD&E Study was prepared and funded by THEA in cooperation with the FDOT District Seven and is in the FDOT Work Program as Work Program Item (WPI) Segment No.: 416361-4.



Selmon Expressway (SR 618)
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Figure 1-1: Project Location Map

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The western terminus of the project is Florida Avenue; this terminus was selected because it incorporates the deck replacement limits, and enables the four high volume, downtown exit and entrance ramps of the expressway to be contained within the project limits. These four ramps receive and apply approximately one-third (12,000 of the 37,000 daily trips) of the total am and pm peak hour traffic along the Selmon Expressway entering downtown from the east (refer to the *Design Traffic Technical Memorandum*, November 2009). Downtown ramps that are located west of the project limits experience relatively low traffic volumes.

The majority of downtown traffic on the Selmon Expressway enters and leaves from the east. This volume is expected to increase by approximately 10 percent with the opening of the I-4 Connector (refer to *DTTM* for future traffic volumes).

The eastern project terminus meets the four-lane to six-lane transition that will be constructed as part of the I-4 Connector. This will allow for a continuous six-lane section for the expressway in this area, and is thus the logical terminus both geometrically and for traffic.

The sections, township and ranges where the project is located are summarized in **Table 1-1**. Based on long-range planning, projected population and employment growth, and projected traffic volumes, the Hillsborough County Metropolitan Planning Organization (MPO) has included this project in their Cost Feasible Long-Range Transportation Plan (LRTP) that was adopted on December 9, 2009. This project will also be included in the transportation element of the Hillsborough County Comprehensive Plan for consistency.

Table 1-1 Project Sections, Township, Ranges

Hillsborough County		
Sections	**Township**	**Ranges**
24	29 S	18 E
17, 18, 19	29 S	19 E

In addition, full consideration was given to a "No-Build" alternative. Study objectives included the following: determine proposed typical sections, develop preliminary horizontal and vertical geometry for the bridges and roadway approaches, while minimizing impacts to the environment and ensuring project compliance with all applicable federal and state laws. Improvement alternatives were identified which will improve safety and meet future transportation demand.

Based on comments received during the preliminary planning for this project through FDOT's Efficient Transportation Decision Making (ETDM) Process (Programming Screen #11840), a *State Environment Impact Report (SEIR)* is the level of environmental documentation established.

1.2 Purpose of Report

The objectives of the *Noise Study Report (NSR)* are:

- To identify noise-sensitive sites adjacent to the project corridor;
- To evaluate future traffic noise level changes at noise sensitive sites due to proposed improvements; and
- To evaluate the need for and effectiveness of noise abatement measures.

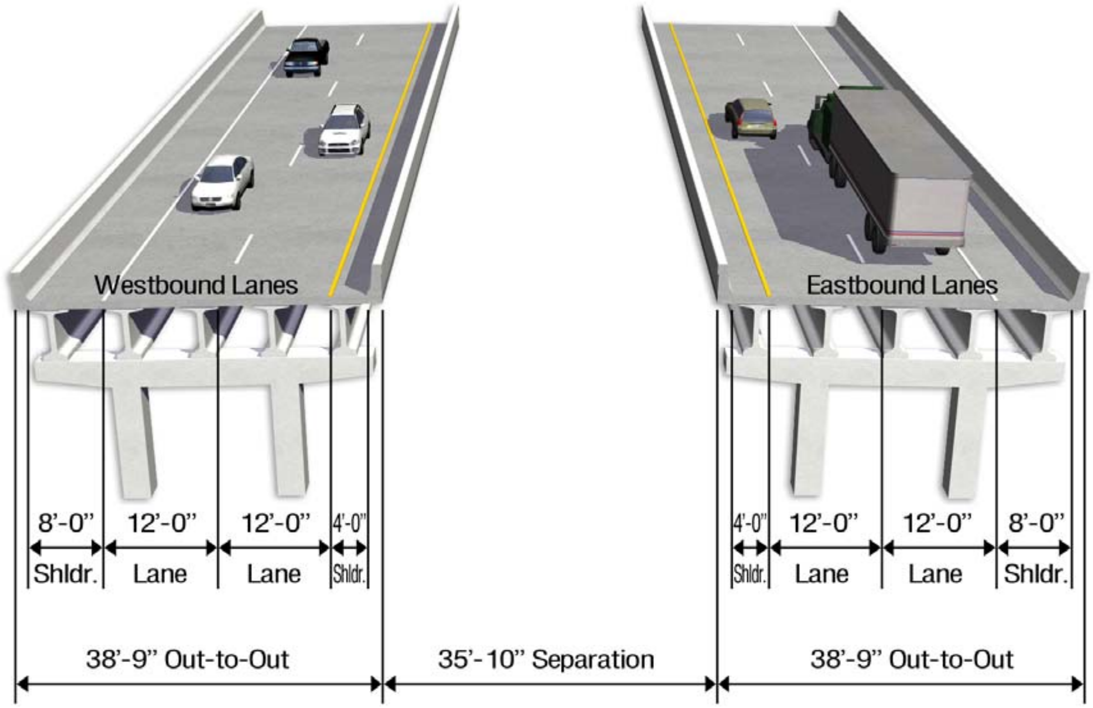
Additional objectives include the evaluation of construction noise and vibration impacts and the identification of noise "contours" were developed to estimate the distance from the roadway that traffic noise levels are predicted to approach, meet or exceed the FHWA's National Abatement Criteria (NAC).

1.3 Existing Facility and Proposed Improvements

The Selmon Expressway is primarily an east/west facility, which in its entirety, extends from a western terminus at Gandy Boulevard (US 92/SR 600) to an eastern terminus at Brandon Parkway in Hillsborough County. The Selmon Expressway corridor is functionally classified as Urban Arterial – Freeways and Expressways. It is part of the

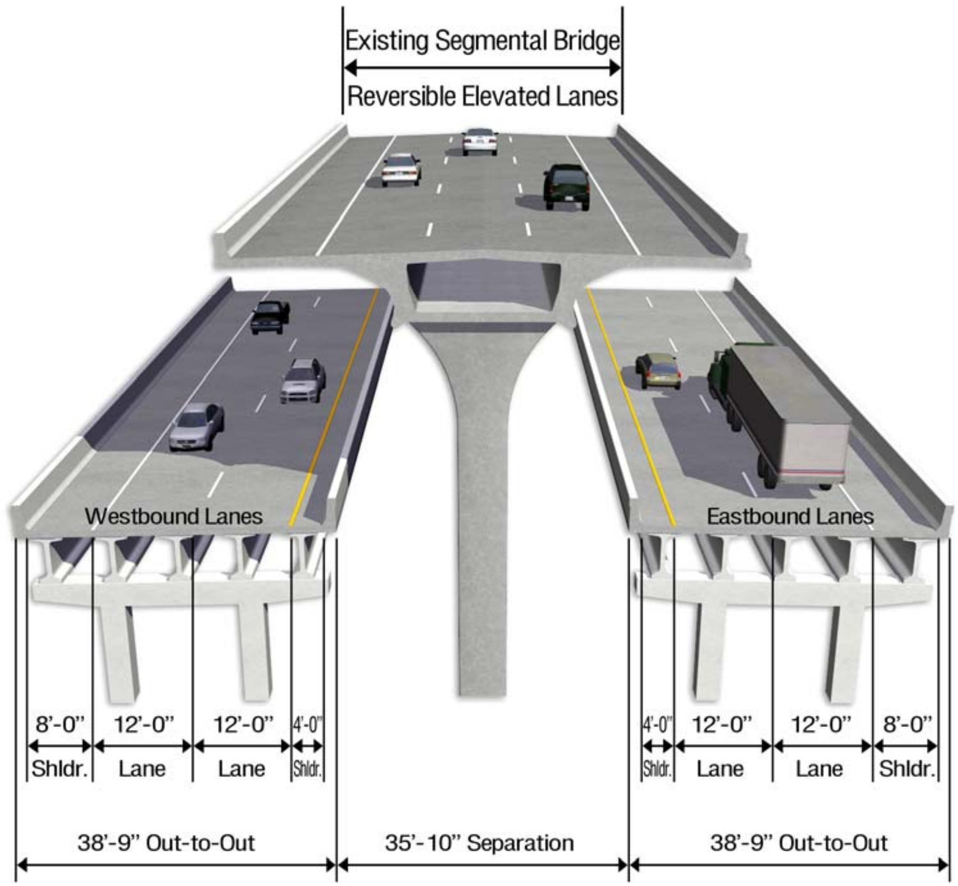
Florida Intrastate Highway System (FIHS), which is comprised of interconnected limited and controlled access roadways including interstate highways, Florida's Turnpike, selected urban expressways and major arterial highways. The FIHS is the highway component of the Strategic Intermodal System (SIS), which is a statewide network of highways, railways, waterways and transportation hubs that handle the bulk of Florida's passenger and freight traffic.

The existing typical section of the Selmon Expressway from Florida Avenue to west of Channelside Drive is currently a set of twin viaduct bridges carrying two elevated lanes in each direction (**Figure 1-2a**). Within the study limits, a separate bridge carrying three RELs from east of Channelside Drive to South 22nd Street is situated north of, or straddled within the viaduct structures, at the east end of the study area (**Figure 1-2b**). The Recommended Alternative includes an additional travel lane in each direction of the viaduct generally to the inside of the existing lanes (**Figures 1-3a-d**).



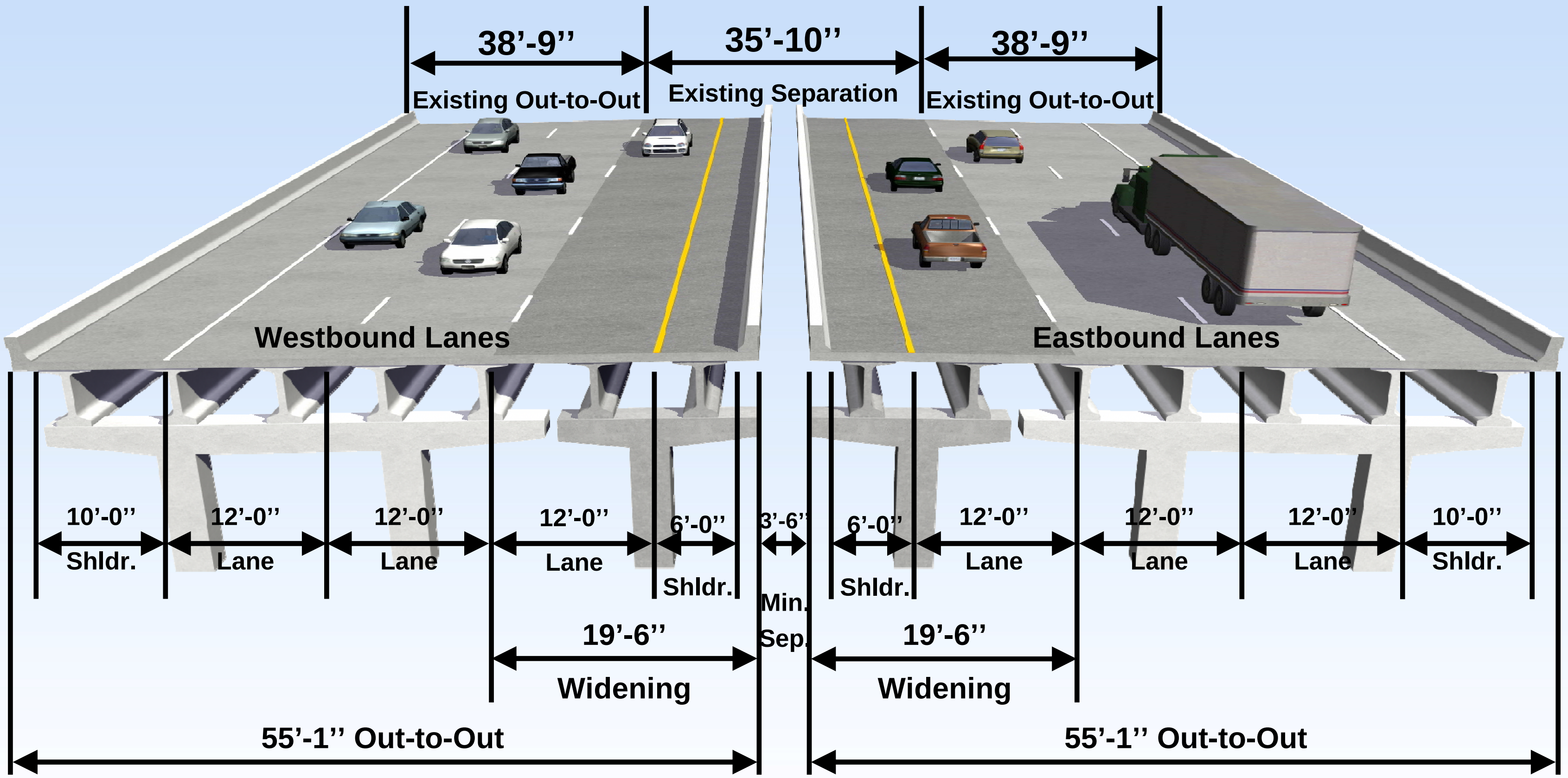
Typical Section I
From Florida Avenue to West of Channelside Drive

Figure 1-2a: Existing Typical Sections



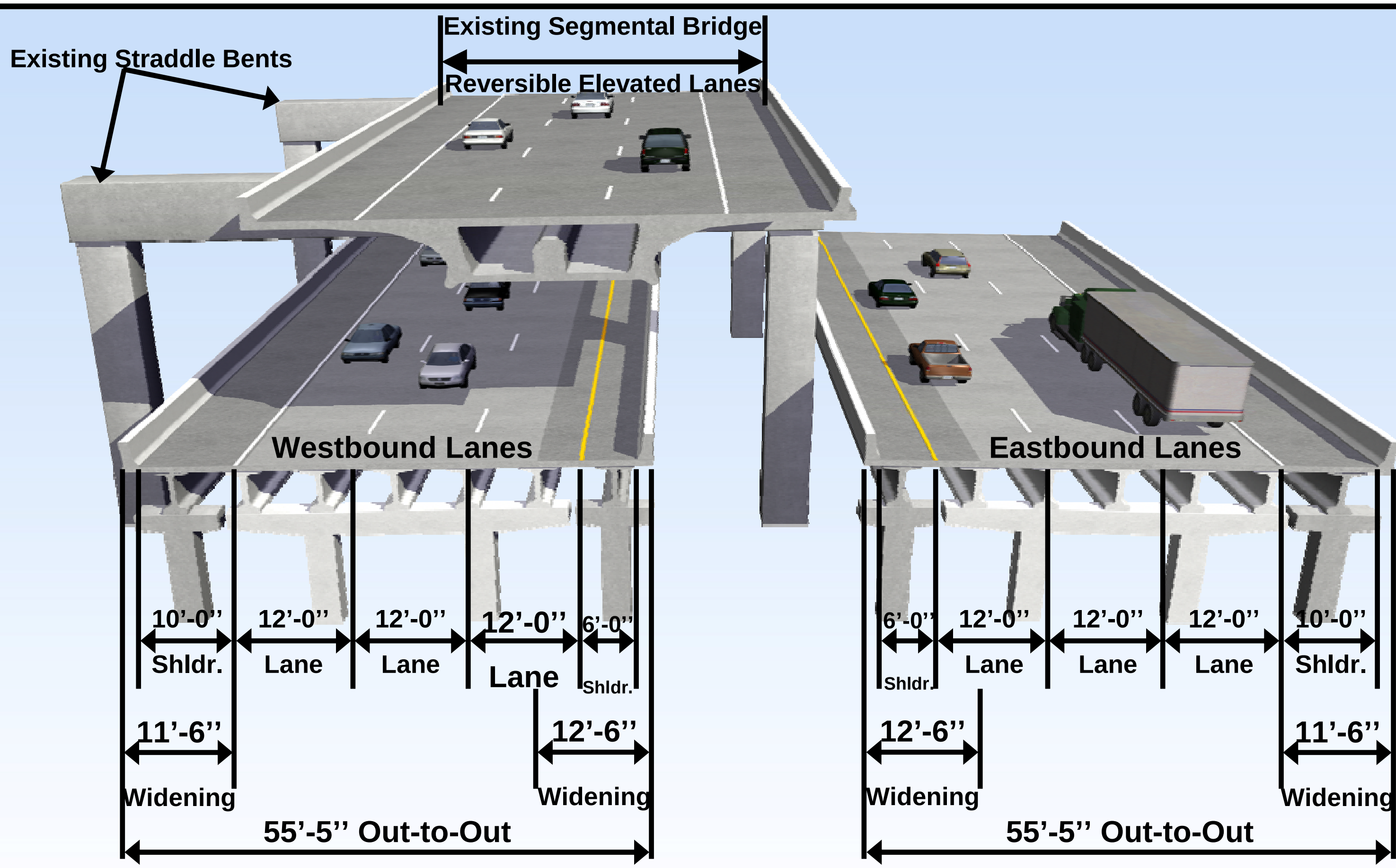
Typical Section II
From East of Channelside Drive to South 22nd Street

Selmon Expressway (SR 618) Downtown Viaduct Improvements PD&E Study ***from Florida Ave to South 22nd St*** Hillsborough County	**Figure 1-2b: Existing Typical Sections**	TAMPA-HILLSBOROUGH EXPRESSWAY AUTHORITY



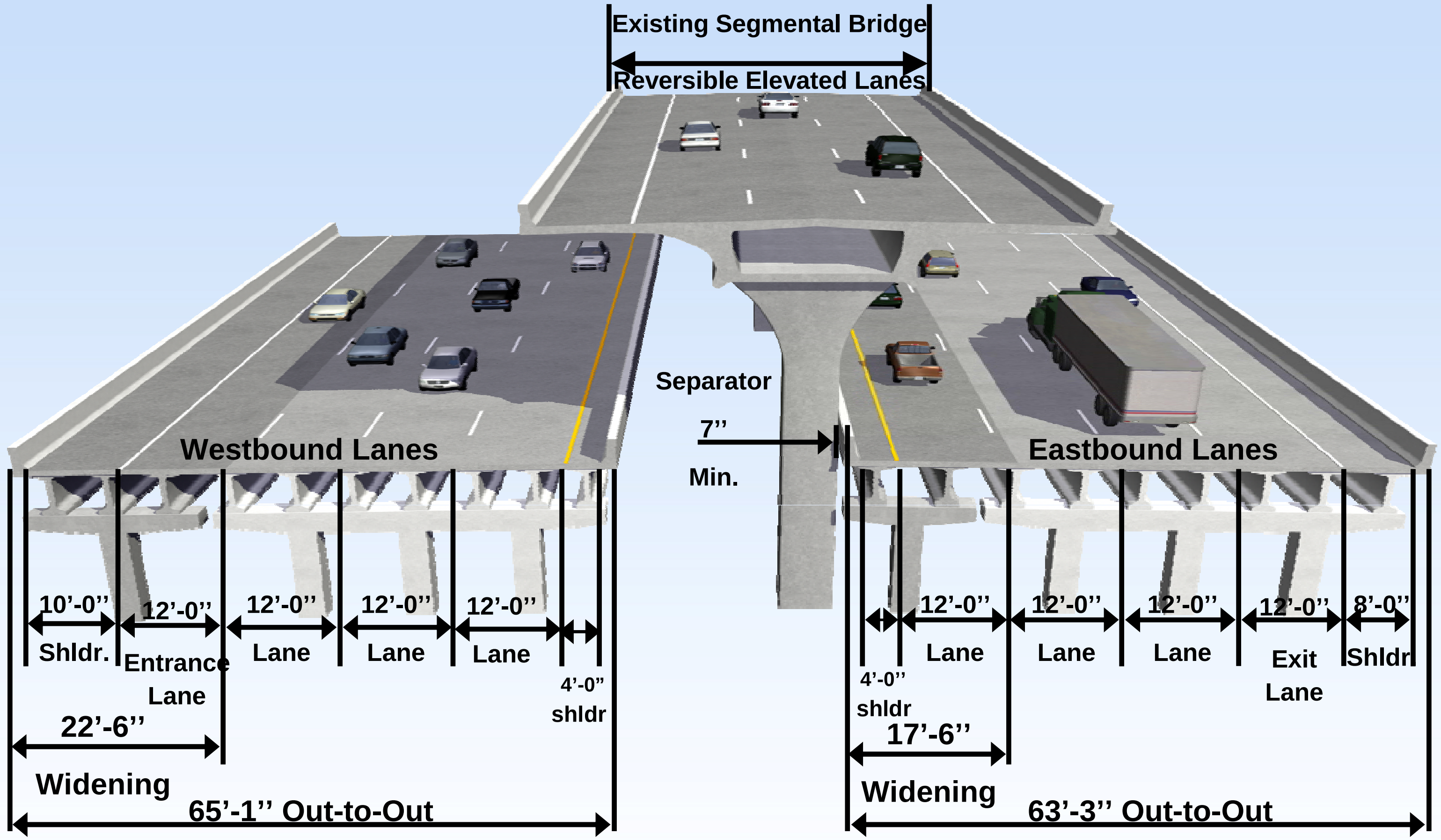
Typical Section I
Inside Bridge Widening
From East of Morgan Street to 12th Street

Selmon Expressway (SR 618) **Downtown Viaduct** **Improvements PD&E Study** ***from Florida Ave to South 22nd St*** Hillsborough County	**Figure 1-3a: Recommended Typical Section I**	TAMPA-HILLSBOROUGH EXPRESSWAY AUTHORITY



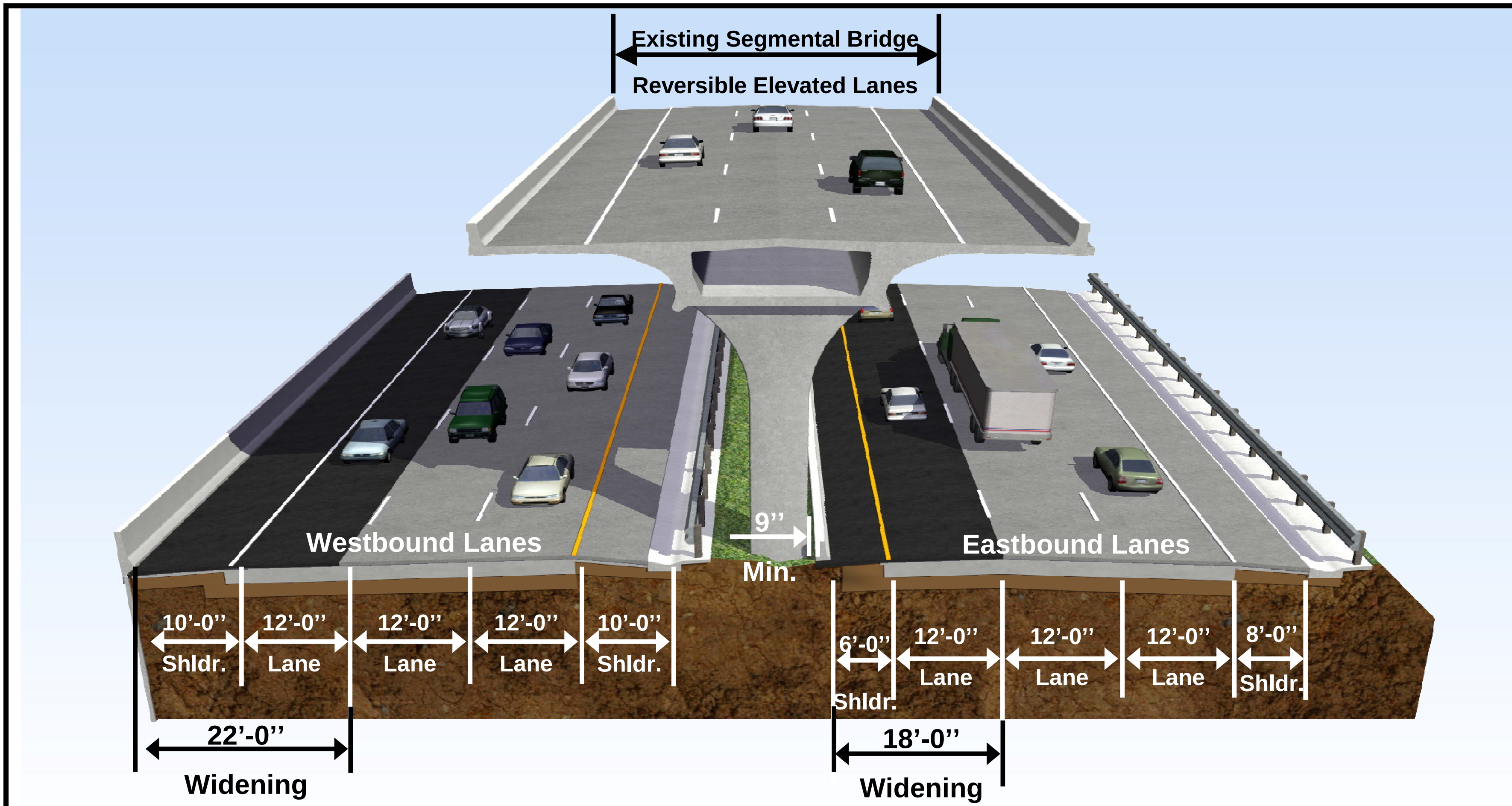
Typical Section II
Inside and Outside Bridge Widening through REL Straddle Bents
From 12th Street to West of 17th Street

Selmon Expressway (SR 618) **Downtown Viaduct** **Improvements PD&E Study** ***from Florida Ave to South 22nd St*** Hillsborough County	**Figure 1-3b: Recommended Typical Section II**	TAMPA-HILLSBOROUGH EXPRESSWAY AUTHORITY



Typical Section III
Inside and Outside Bridge Widening
From West of 17th Street to 19th Street

Selmon Expressway (SR 618) Downtown Viaduct Improvements PD&E Study *from Florida Ave to South 22nd St* Hillsborough County	**Figure 1-3c: Recommended Typical Section III**	



Typical Section IV Roadway Widening
From 19th Street to South 22nd Street

Selmon Expressway (SR 618) **Downtown Viaduct** **Improvements PD&E Study** ***from Florida Ave to South 22nd St*** Hillsborough County	**Figure 1-3d: Recommended Typical Section IV**	TAMPA-HILLSBOROUGH EXPRESSWAY AUTHORITY

1.4 Purpose and Need of Proposed Improvements

The Selmon Expressway will need capacity improvements to maintain the required level of service (LOS) based on projected traffic volumes, particularly as a result of the FDOT's nearby I-4 Connector Project. The purpose of this PD&E Study was to develop and evaluate build alternatives that will accomplish this need, by expanding this divided four-lane facility into the equivalent of a divided six-lane facility.

The Selmon Expressway experienced higher than anticipated traffic growth after the REL Project was opened to traffic in August 2006. The original Tampa Interstate Study (TIS) and LRTP planning for the capacity improvement on the Selmon Expressway within the downtown area did not anticipate construction of the I-4 Connector until approximately 2025. However, the FDOT will be constructing the I-4 Connector Project (WPI Segment No.: 258415-1) starting in year 2010. Based on the *Design Traffic Technical Memo (DTTM)* the I-4 Connector will contribute approximately 10 percent of the total volume to the study area of the Selmon Expressway. Thus, additional capacity on the downtown portion of the Selmon Expressway is being evaluated sooner than originally planned.

The Selmon Expressway is an evacuation route designated by the Hillsborough County Emergency Management Office (HCEMO). The HCEMO submitted an emergency plan to FDOT's Central Office for the Selmon Expressway to operate in a contraflow condition, providing four-lanes for evacuation purposes from Gandy Boulevard eastward to 50th Street when necessary.

Since the Selmon Expressway is mainly a commuter facility, the traffic is expected to grow correspondingly with the increase in population and employment of the Tampa area. The population of Hillsborough County, according to the 2000 Census, was 998,948. This reflected an average annual increase of 16,489 persons, or about 2 percent per year, since the 1990 Census. The Hillsborough County MPO's 2025 LRTP is based on a future population estimate of 1,532,000. Based on the 2000 Census, employment was 672,400 and is projected to be 1,120,000 in 2025. This represents an increase in employment of approximately 67 percent. These socioeconomic projections are used in the Tampa Bay Regional Planning Model (TBRPM) to estimate travel demand in the future.

Current (2008) Directional Design Hourly Volumes (DDHV) on the Selmon Expressway range from 1,490 vehicles per hour (VPH) to 2,380 VPH. Projected DDHV on the Selmon Expressway with the implementation of the I-4 Connector range from 2,250 VPH to 3,580 VPH in 2015; from 3,270 VPH to 5,260 VPH in 2025; and from 4,290 VPH to 6,980 VPH in 2035. These volumes result in a LOS E of the Selmon Expressway at the WB off ramp to Kennedy Boulevard in 2025 PM peak period and LOS F in 2035 PM peak period with the No-Build alternative. The Selmon Expressway at the WB off ramp to Morgan Street is LOS D and LOS E for 2025 and 2035 PM peak period, respectively.

A critical crash rate analysis and a safety ratio were analyzed for this project from 2004 to 2009. The critical crash rate is a function of roadway segment length, traffic volume, and the average crash rate for the category of highway being tested. The critical crash rate was obtained from the Statewide Average Crash Rates for Urban Segments (toll roads) received from the FDOT. The critical and actual crash rates are measured in number of crashes per million vehicle miles traveled. The safety ratio is the ratio between the actual and critical crash rates for a given segment for a given year. It identifies safety issues or high crash segments along roads. A safety ratio greater than 1.0 indicates that the segment is experiencing more crashes than would be expected for this type of a segment in other parts of the state. From the crash analysis, the safety ratio for the study segment of SR 618 is 1.446, 2.133, 1.326 and 1.021 during the years 2005 to 2008 respectively. For the year 2004 it is 0.756, and year 2009 it is 0.518 (only for 4 months). The construction of the Selmon Expressway REL took place from 2003 to 2007 with two realigned sections of the EB lanes opened in spring 2005. The construction and phased opening of the Selmon Expressway REL may have contributed to some of the crashes during that period. The Selmon Expressway within the study segment did exhibit a greater than average crash rate during the years 2005 to 2008.

Currently there are six express bus routes that utilize the expressway for the Hillsborough Area Regional Transit (HART), and one for the Pinellas Suncoast Transit Authority (PSTA). Areas served by these routes include Pinellas County, downtown Tampa, Brandon, Dover, Fishhawk, Riverview, MacDill Air Force Base, Southshore, South Brandon and Eastern Hillsborough County.

The Selmon Expressway is connected to the Port of Tampa and Cruise Terminal via South 22nd Street. As previously mentioned, the expressway also has direct ramp connections to I-75, US 41, and US 301 that benefit freight movements.

Bicycle and pedestrian facilities cannot be accommodated on the expressway due to high vehicle speeds and limited access, though at-grade trails are planned by the City of Tampa along the less urbanized area adjacent to the expressway. Along the limits of this project the expressway is elevated and standard sidewalks and other amenities are provided by others along the urban streets below.

Section 2.0 – LAND USE

2.1 Existing Land Use

The study corridor, located in the City of Tampa is primarily commercial and industrial with some residential areas. The industrial areas are located mainly near the Port of Tampa on the eastern end of the project. The Southwest Florida Water Management District (SWFWMD) land use mapping (2004), together with aerial photographs and wetland data from the National Wetland Inventory (NWI), were utilized to determine current land use and habitat types within the corridor. These land uses and habitat types were subsequently ground-truthed for verification during field visits. **Figure 2-1** shows the existing land uses within the project study corridor and their corresponding Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT 1999) classifications. Due to the large areas of commercial development, industrial sites and residential development, there is little natural landscape found along the project corridor.

According to the 2004 existing FLUCFCS land use data, the land use codes found along the corridor include: Transportation (810); Industrial (150); Commercial and Services (140); Institutional (170); and Open Land (190).

2.2 Future Land Use

According to the City of Tampa Future Land Use data, minimal changes to the existing land use are anticipated along the project corridor (**Figure 2-2**). The corridor will predominately remain transportation, urban business district, and light and heavy industrial. It appears that some new residential areas will be developed within the urban business district.

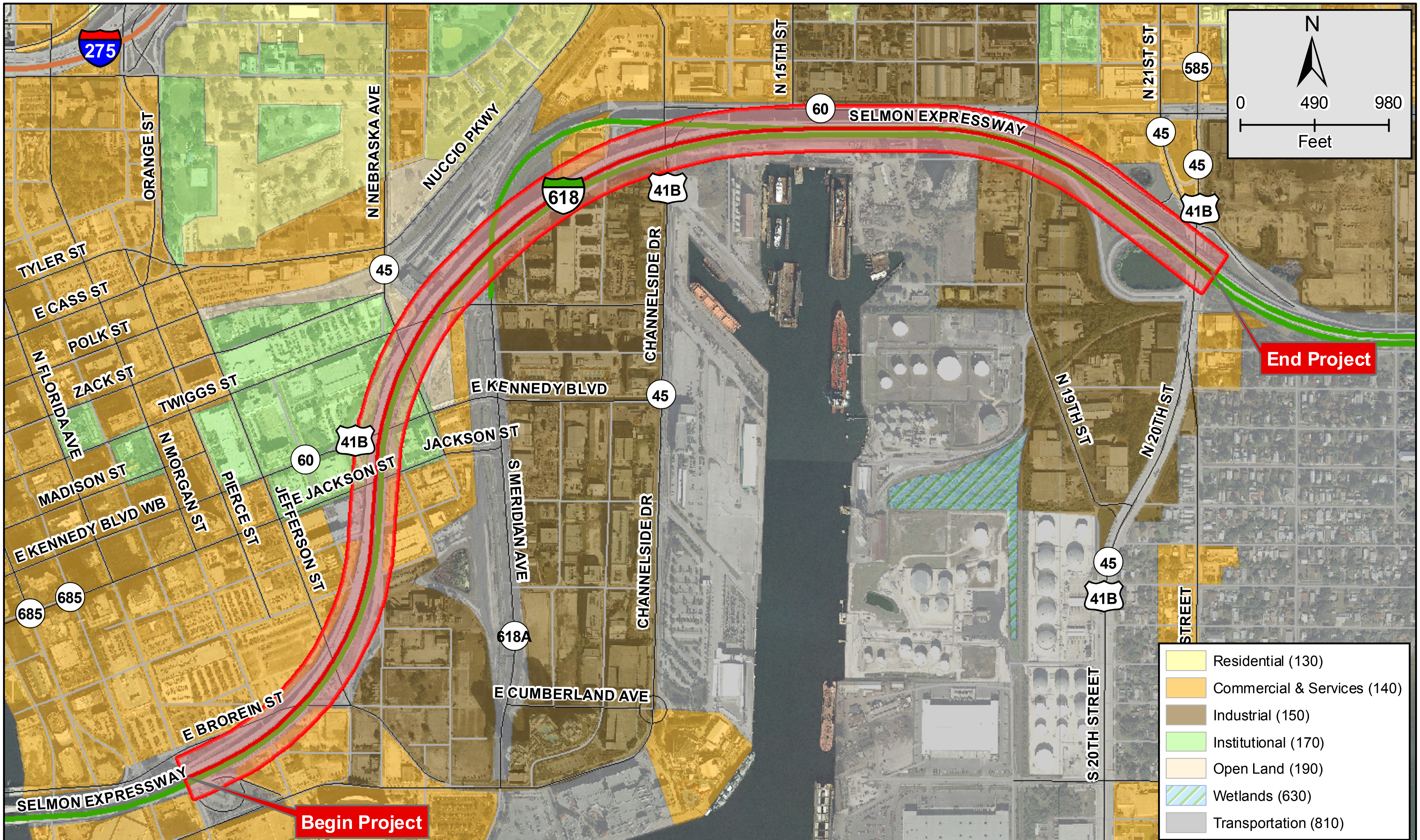


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Figure 2-1: FLUCFCS Existing Land Use Map

Source: FGDL, Hillsborough County

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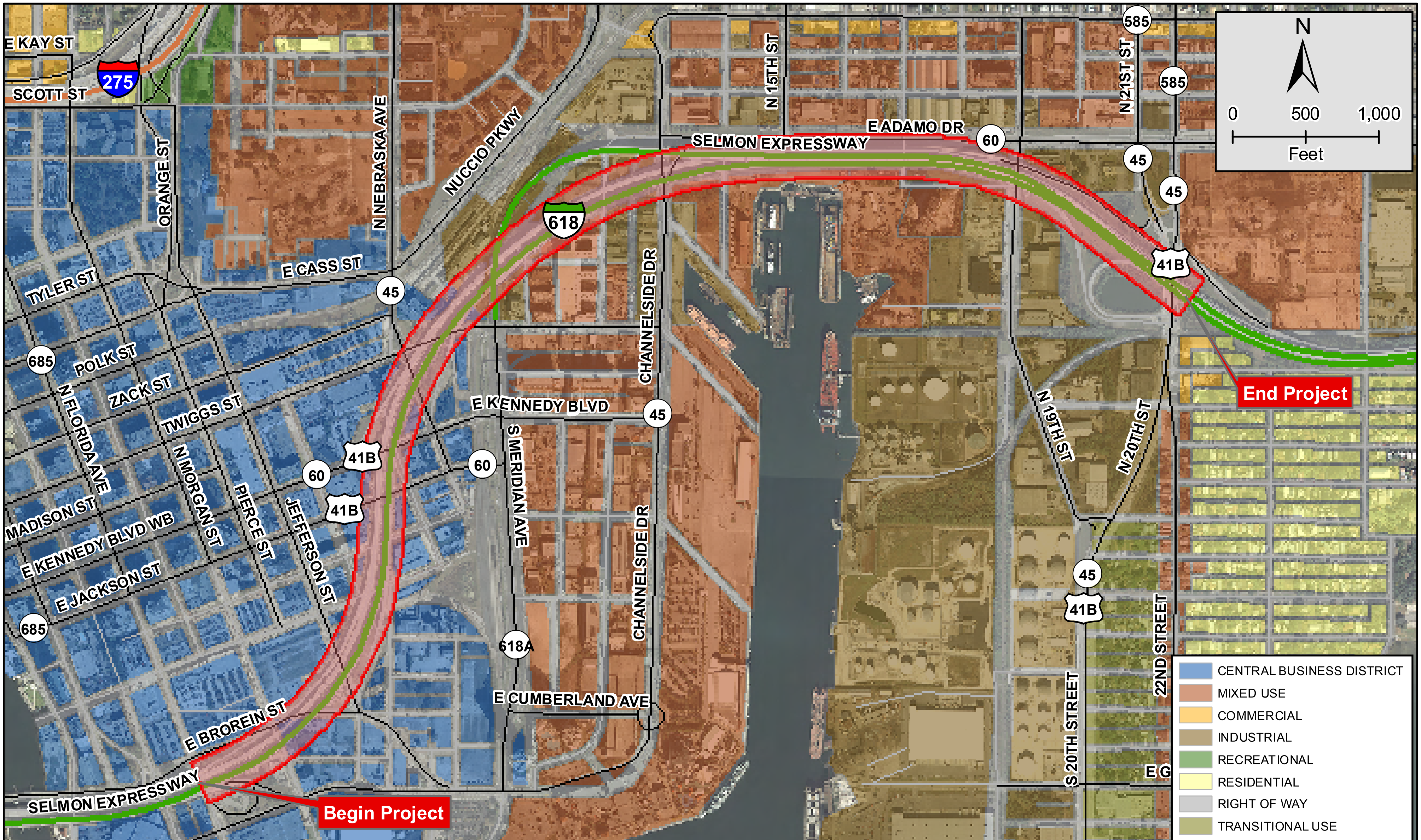

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Figure 2-2: Future Land Use Map

Source: FGDL, The Planning Commission (Tampa)

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Section 3.0 – TRAFFIC NOISE ANALYSIS

3.1 Methodology

The Selmon Expressway noise analysis was performed following FDOT procedures (*Project Development and Environment Manual*: Part II, Chapter 17: April 18, 2007). The FDOT procedures comply with Title 23 CFR Part 772 (*Procedures for Abatement of Highway Traffic Noise and Construction Noise*).

The prediction of future traffic noise levels with the roadway improvements was performed using the FHWA's computer model for highway traffic noise prediction and analysis – the Traffic Noise Model (TNM – Version 2.5). The TNM propagates sound energy, in one-third octave bands, between highways and nearby receivers taking into account the intervening ground's acoustical characteristics and topography, and intervening structures (i.e., buildings).

The noise levels presented in this report are expressed in decibels (dB) on the A-weighted scale (dBA). This scale most closely approximates the response characteristics of the human ear to low level sound. All sound and traffic noise levels are reported as equivalent level (LA_{eq1h}), values which theoretically contain the same amount of acoustic energy as an actual time-varying A-weighted sound level over a period of one-hour.

The existing (2008) and forecast future year build/no-build (2035) traffic data used in the TNM to predict noise levels for the Selmon Expressway project are presented in **Appendix A**. All traffic data came from the project's *Design Traffic Technical Memorandum, October 2009*, prepared by HNTB Corporation.

3.2 Model Assumptions

The following are details and assumptions used to develop the noise model for the Selmon Expressway PD&E Study:

- Speed limits in the model were assumed at the posted speed limits as obtained from the *Design Traffic Technical Memorandum* prepared by HNTB Corporation and are as follows:
    - Selmon Expressway Viaduct – 55 mph
    - Reversible Elevated Lanes – 65 mph
    - Selmon Expressway on/off ramps – 25 mph
    - Nebraska Avenue – 35 mph
    - E. Cass Street/Nuccio Parkway – 30 mph
    - Twiggs Street, Jackson Street and Jefferson Street – 30 mph
    - Meridian Avenue – 40 mph
- The Rampello K-8 Magnet School was modeled as Activity Category "E" with the abatement criterion set at 51.0 dBA (except for the playground area). A conservative approach of a 20.0 dBA reduction (based on a light frame building type with closed windows) of the exterior noise levels was used in the analysis.
- All receiver heights were set at 5 feet for all first floor units. All subsequent floors for multi-family units were set at 10 foot increments, i.e. 2nd floor units at 15 feet, 3rd floor units at 25 feet, etc.
- The existing ground elevation was assumed at zero feet with all roadway structures elevations entered based on the relative elevation differences and not actual elevations.
- Due to the urban setting for this project, the default ground type was set to "pavement".
- Standard jersey barriers were included in the model on the inside and outside lanes of the Selmon Expressway and REL's.
- The percentage of heavy trucks versus medium trucks was not available. For purposes of this study, the splits were assumed to be 50% medium trucks and 50% heavy trucks.

3.3 Noise-Sensitive Sites

Noise-sensitive sites are defined as properties where frequent human use occurs and where a lowered noise level would be of benefit. To evaluate traffic noise, the FHWA established NAC. As shown in **Table 3-1**, the criteria vary according to a property's activity category.

Table 3-1 FHWA Noise Abatement Criteria

Activity Category	Abatement Level (in L_{Aeq})	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	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, RV parks, day care centers, hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D		Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, auditoriums.

When predicted noise levels "approach" or exceed the NAC or, when predicted noise levels increase substantially, the FHWA requires that noise abatement measures be considered. The FDOT defines the word "approach" to mean within 1.0 dBA of the NAC and considers that a substantial increase will occur if traffic noise levels are predicted to increase by 15.0 or more dBA as a direct result of a transportation improvement project. Increases of 15.0 dBA or more are not likely adjacent to the project corridor as increases of this magnitude typically occur at sites where no roadway existed previously.

Fifty-two (52) receivers were modeled representing 272 noise sensitive sites along the project corridor. Two hundred and seventy (270) sites, represented by 45 receivers within TNM, are associated with the Seaport Channelside apartment community. Two additional sites represent the Rampello K-8 Magnet School (interior noise levels) and playground (exterior noise levels). The Rampello K-8 Magnet School playground was represented by one receiver within TNM, while the Rampello K-8 Magnet School was represented by six receivers at varying distances from the Selmon Expressway. For the Seaport Channelside apartment community, units which contained balconies were modeled as areas of frequent human use within TNM. The location of each of the noise-sensitive sites is shown on **Figure 3-1**. The 270 residential sites along with the Rampello K-8 Magnet School playground were considered Activity Category "B" as shown in **Table 3-1**. As such, exterior noise levels were evaluated for these sites, and noise abatement measures were considered if the predicted exterior traffic noise level was 66.0 dBA or more, or if levels were predicted to increase by 15.0 dBA or more as a result of the proposed improvements. The Rampello K-8 Magnet School was considered Activity Category "E" as shown in **Table 3-1**. As such, interior noise levels were evaluated for this site, and noise abatement measures were considered if the predicted interior traffic noise level was 51.0 dBA or more, or if levels were predicted to increase by 15.0 dBA or more as a result of the proposed improvements.

In addition to these noise sensitive sites identified, three receivers were placed at the Union Station Historic Site to determine potential impacts to identify potential impacts to this resource (*PD&E Manual*: Part II, Chapter 12: January 12, 1999 and 36 CFR, Part 800). These receptors were considered noise sensitive sites as Activity Category C. The location of these receivers can be seen in **Figure 3-1**.

Various factors affect the "transmittal" of sound from a source to a receiver. These factors include vegetation, intervening structures, elevation of the source and/or the receiver, surrounding topography and the type of ground surface between the source and the receiver. The attenuation (reduction) of sound levels due to intervening structures occurs when a receiver's view (line-of-sight) is obstructed or partially obstructed by dense objects (e.g. rows of buildings or other barriers). The attenuation provided by a row of buildings (houses) depends on the actual density and length of the row occupied by the buildings.

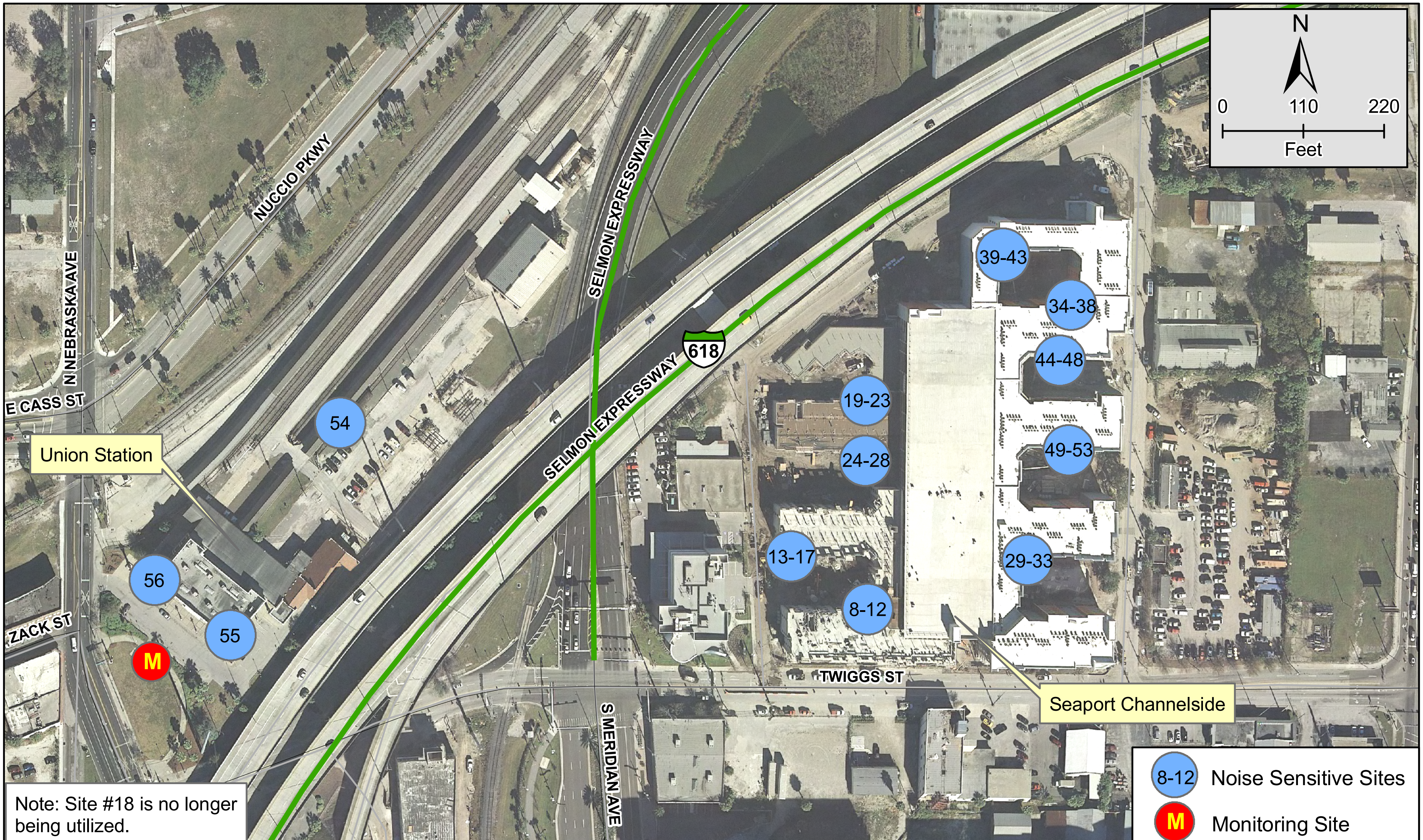

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Figure 3-1: Noise Sensitive Sites
Sheet 1 of 2

Source: FGDL, ACE

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Figure 3-1: Noise Sensitive Sites
Sheet 2 of 2

Source: FGDL, ACE

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3.4 Measured Noise Levels

As previously stated, future noise levels with the proposed improvements were modeled using the TNM. To ensure that these predictions were as accurate as possible, the computer model was validated using measured noise levels at locations adjacent to the project corridor. Traffic and meteorological data, including traffic volumes, traffic mix vehicle speeds, background noise and atmospheric conditions were recorded during each measurement period.

The field measurements for the Selmon Expressway were conducted in accordance with the FHWA's Measurement of Highway Related Noise. Each field measurement was obtained using a Casella CEL-593 Type 1 Sound Level Meter. The meter was calibrated before and after each monitoring period with a Casella CEL-284 Type 1 Sound Level Calibrator.

The measured field data were used as input for the TNM to determine if, given the topography and actual site conditions of the area, the computer model could "re-create" the measured noise levels with the existing roadway. Following FDOT guidelines, a noise prediction model is considered valid for the use of predicting traffic noise levels if the measured and predicted noise levels are within a tolerance standard of 3 dBA. Initial field measurements were taken on September 2, 2009 near the Selmon Expressway Downtown Viaduct at one location. The location at which the measurements were taken can be seen in **Figure 3-1**. The sound level meter was placed approximately 160 feet from the edge of the westbound lanes of the Selmon Expressway at a height of 5 feet above ground. Three sets of 10-minute measurements were taken for both eastbound and westbound traffic. Data collected in the field can be found in **Appendix B**.

Table 3-2 presents the field measurements and the computer validation results for the Selmon Expressway. As shown, the ability of the model to accurately predict noise levels for the project was confirmed. Notably, the computer-modeled levels are all higher than the measured values. Documentation in support of the validation is provided in **Appendix C** of this report.

Table 3-2 Validation Data

Location	Measurement Period	Modeled	Measured	Difference
M-1 Union Station	11:46 am - 11:56 am	64.1	61.8	2.3
M-1 Union Station	12:04 pm – 12:14 pm	64.5	61.9	2.6
M-1 Union Station	12:18 pm – 12:28 pm	63.8	61.5	2.3
Measurements were obtained on September 2, 2009.				

3.5 Results of the Noise Analysis

Table 3-3 presents the calculated existing (2008) and future year (2035) traffic noise levels for noise-sensitive sites adjacent to the Selmon Expressway. Documentation in support of the analysis is provided in **Appendix C**.

As shown in **Table 3-3**, the results of the analysis indicate that existing (2008) exterior noise levels are predicted to range from 51.1 to 68.0 dBA with levels predicted to approach, meet, or exceed the NAC at 28 sites (six receivers in TNM). The no-build (2035) exterior traffic noise levels are predicted to range from 54.1 to 70.7 dBA with levels predicted to approach, meet, or exceed the NAC at 120 sites (22 receivers in TNM). In the future (2035), with the proposed improvements to the Selmon Expressway, exterior traffic noise levels are predicted to range from 54.8 to 71.5 dBA, with levels predicted to approach, meet, or exceed the NAC at 136 sites (26 receivers in TNM). For the Rampello K-8 Magnet School, interior noise levels were all predicted to be below the NAC for the existing, no-build and build scenarios.

The existing noise levels at the Union Station Historic Site range from 66.7 to 67.2 dBA and are predicted to increase during the build scenario and range from 70.2 to 70.5 dBA.

Table 3-3 Predicted Traffic Noise Levels

Site ID #	Site Name	Land Use*	# of Units	LAeq1h (dBA) Existing (2008)**	No Build (2035)**	Build (2035)	Difference between Build and Existing	Difference between Build and No Build	Approaches Meets, or Exceeds NAC?
1	School 1	SC	1	45.5	47.9	49.0	3.5	1.1	No
2	School 1 @ 25ft	SC		47.2	49.5	50.9	3.7	1.4	No
3	School 2	SC		44.9	47.4	48.4	3.5	1.0	No
4	School 3	SC		44.3	46.9	47.9	3.6	1.0	No
5	School 4	SC		43.9	46.7	47.7	3.8	1.0	No
6	School 5	SC		45.1	48.3	48.9	3.8	0.6	No
7	School Playground	SC	1	65.5	68.4	69.0	3.5	0.6	Yes
8	Seaport 1 Level 1	AP	8	66.1	69.1	69.4	3.3	0.3	Yes
9	Seaport 1 Level 2	AP	8	65.8	68.7	69.1	3.3	0.4	Yes
10	Seaport 1 Level 3	AP	8	65.8	68.6	69.1	3.3	0.5	Yes
11	Seaport 1 Level 4	AP	8	65.8	68.6	69.1	3.3	0.5	Yes
12	Seaport 1 Level 5	AP	8	65.9	68.7	69.3	3.4	0.6	Yes
13	Seaport 2 Level 1	AP	4	67.9	70.7	71.0	3.1	0.3	Yes
14	Seaport 2 Level 2	AP	4	67.5	70.2	70.6	3.1	0.4	Yes
15	Seaport 2 Level 3	AP	4	67.6	70.4	70.9	3.3	0.5	Yes
16	Seaport 2 Level 4	AP	4	67.8	70.5	71.0	3.2	0.5	Yes
17	Seaport 2 Level 5	AP	4	68.0	70.7	71.5	3.5	0.8	Yes
18	Seaport 3 Level 1-5 NOTE: This receiver is no longer being utilized								
19	Seaport 4 Level 1	AP	7	65.0	67.8	68.2	3.2	0.4	Yes
20	Seaport 4 Level 2	AP	7	64.5	67.3	67.8	3.3	0.5	Yes
21	Seaport 4 Level 3	AP	7	64.9	67.6	68.3	3.4	0.7	Yes
22	Seaport 4 Level 4	AP	7	65.1	67.7	68.5	3.4	0.8	Yes
23	Seaport 4 Level 5	AP	7	65.7	68.3	69.2	3.5	0.9	Yes
24	Seaport 5 Level 1	AP	4	65.8	68.6	68.9	3.1	0.3	Yes
25	Seaport 5 Level 2	AP	4	65.4	68.2	68.6	3.2	0.4	Yes
26	Seaport 5 Level 3	AP	4	65.5	68.2	68.8	3.3	0.6	Yes
27	Seaport 5 Level 4	AP	4	65.6	68.3	69.0	3.4	0.7	Yes
28	Seaport 5 Level 5	AP	4	65.9	68.6	69.4	3.5	0.8	Yes
29	Seaport 6 Level 1	AP	4	63.3	66.1	66.6	3.3	0.5	Yes
30	Seaport 6 Level 2	AP	4	63.2	65.9	66.5	3.3	0.6	Yes
31	Seaport 6 Level 3	AP	4	63.0	65.8	66.4	3.4	0.6	Yes
32	Seaport 6 Level 4	AP	4	63.0	65.8	66.4	3.4	0.6	Yes
33	Seaport 6 Level 5	AP	4	63.0	65.7	66.4	3.4	0.7	Yes
34	Seaport 7 Level 1	AP	7	60.8	63.3	64.0	3.2	0.7	No
35	Seaport 7 Level 2	AP	7	60.8	63.2	64.0	3.2	0.8	No
36	Seaport 7 Level 3	AP	7	60.7	63.1	64.1	3.4	1.0	No
37	Seaport 7 Level 4	AP	7	60.8	63.2	64.2	3.4	1.0	No
38	Seaport 7 Level 5	AP	7	61.2	63.5	64.7	3.5	1.2	No
39	Seaport 8 Level 1	AP	4	51.1	54.1	54.8	3.7	0.7	No
40	Seaport 8 Level 2	AP	4	51.9	54.6	55.5	3.6	0.9	No
41	Seaport 8 Level 3	AP	4	51.5	54.2	55.1	3.6	0.9	No
42	Seaport 8 Level 4	AP	4	53.4	55.8	57.0	3.6	1.2	No

*AP= Apartment Community, SC= School

**The Existing and No-Build Conditions do not include future improvements to the Selmon Expressway.

(shaded) Predicted Interior Noise Levels

Table 3-3 Predicted Traffic Noise Levels (Continued)

Site ID #	Site Name	Land Use*	# of Units	LAeq1h (dBA) Existing (2008)**	No Build (2035)**	Build (2035)	Difference between Build and Existing	Difference between Build and No Build	Approaches Meets, or Exceeds NAC?
43	Seaport 8 Level 5	AP	4	56.9	59.0	60.4	3.5	1.4	No
44	Seaport 9 Level 1	AP	9	61.6	64.1	64.8	3.2	0.7	No
45	Seaport 9 Level 2	AP	9	61.5	64.0	64.8	3.3	0.8	No
46	Seaport 9 Level 3	AP	9	61.4	63.9	64.7	3.3	0.8	No
47	Seaport 9 Level 4	AP	9	61.4	63.9	64.8	3.4	0.9	No
48	Seaport 9 Level 5	AP	9	61.6	64.1	65.2	3.6	1.1	No
49	Seaport 10 Level 1	AP	7	62.3	64.9	65.6	3.3	0.7	No
50	Seaport 10 Level 2	AP	7	62.3	64.9	65.6	3.3	0.7	No
51	Seaport 10 Level 3	AP	7	62.1	64.7	65.4	3.3	0.7	No
52	Seaport 10 Level 4	AP	7	62.0	64.6	65.4	3.4	0.8	No
53	Seaport 10 Level 5	AP	7	62.1	64.7	65.5	3.4	0.8	No
54	Union Station	TD	1	67.2	69.8	70.3	3.1	0.5	No
55	Union Station	TD	1	67.1	69.9	70.5	3.4	0.6	No
56	Union Station	TD	1	66.7	69.7	70.2	3.5	0.5	No

*AP= Apartment Community, TD= Train Depot

**The Existing and No-Build Conditions do not include future improvements to the Selmon Expressway.

Predicted Interior Noise Levels

When compared to the existing condition, interior and exterior traffic noise levels are predicted to increase 2.3 to 3.8 dBA with the improvements to the Selmon Expressway. As such, none of the sites are predicted to experience a substantial increase (15.0 dBA or more) in traffic noise as a result of the project. Noise abatement measures were evaluated for the 136 noise-sensitive sites predicted to be affected by the proposed improvements to the Selmon Expressway. The results of the evaluation are presented in Section 4.0 of this report.

Section 4.0 – EVALUATION OF ABATEMENT ALTERNATIVES

The FDOT considers abatement alternatives when predicted traffic noise levels approach, meet, or exceed the NAC. The measures considered for the Selmon Expressway were traffic management, alternative roadway alignment, land use controls, property acquisition, and noise barriers. The following discusses the feasibility (engineering considerations) and reasonableness (amount of noise reduction provided, number of noise-sensitive sites benefited, absolute noise levels, cost, etc.) of the measures.

4.1 Traffic Management Measures

The improvements to the Selmon Expressway are meant to help alleviate future traffic congestion and aid in regional connectivity. Traffic management measures that limit motor vehicle speeds and reduce volumes can be effective noise mitigation measures. However, these measures can also negate a project's ability to accommodate forecast traffic volumes.

For example, if the posted speed limit on the Selmon Expressway were reduced, the capacity of the roadway to handle the forecast traffic demand would also be reduced. Therefore, reducing traffic speeds and/or traffic volumes is inconsistent with the goal of improving the ability of the roadway to handle the forecast volumes. As such, although feasible, traffic management measures are not considered a reasonable noise mitigation measure for the project.

4.2 Alignment Modification

The proposed alignment seeks to minimize the need for additional right-of-way (ROW) within the project corridor. A shift in the roadway alignment would result in the need for additional ROW. As such, an alternative roadway alignment is not considered a reasonable noise mitigation measure for the project.

4.3 Property Acquisition

The acquisition of property to provide noise buffers is not feasible due to the high cost and/or the unavailability of vacant land in proximity to noise-sensitive sites.

4.4 Land Use Controls

Land use controls can be used to minimize traffic noise in future developments or areas where redevelopment occurs. Land uses such as residences, motels, schools, churches, recreation areas and parks are considered incompatible with highway noise levels above 66.0 dBA. In order to reduce the possibility of additional sites being located within an area with traffic noise of this level, noise level contours were developed for the future improved roadway facility. These noise contours delineate the unobstructed distance from the improved roadways edge of pavement where the FHWA's NAC is predicted to be approached (within 1.0 dBA of the NAC) for Category B land uses. Local planning officials can use the noise contour information to avoid development of noise sensitive land uses.

The extent of the 66.0 dBA noise level contour on the Selmon Expressway is approximately 450 feet from the roadway's edge of pavement.

4.5 Noise Barrier Analysis

Noise barriers reduce noise levels by blocking the sound path between the source and the receiver. In order to effectively reduce traffic noise, a noise barrier must be relatively long, continuous (without intermittent openings), and sufficiently tall to provide a reduction in noise levels. Following FDOT procedures found within the *PD&E Manual*, the minimum requirements for a noise barrier to be considered both feasible and economically reasonable are:

- The barrier must provide at least a 5.0 dBA reduction at the noise sensitive sites with the greatest reductions with a design goal of 10.0 dBA or more is desired.
- The barrier should not cost more than $42,000 per benefited receiver (a benefited receiver is a site that receives at least a 5.0 dBA reduction in noise from the barrier), unless a higher level of expenditure can be justified by other circumstances. The current estimated cost to construct a noise barrier (materials and labor) is $30.00 per square foot.

Other factors considered when evaluating noise barriers as a potential noise abatement measure address both the feasibility of the barriers (given site-specific details, can a barrier actually be constructed) and the reasonableness of the barriers.

Feasibility factors that relate to noise barriers include driver/pedestrian sight distance (safety), ingress and egress requirements to and from affected properties, ROW requirements including access rights and easements for construction and/or maintenance, impacts on existing/planned utilities, and drainage.

Reasonableness factors include:

- The relationship of the predicted future noise levels to the NAC (do the predicted levels approach, meet, or far surpass the NAC);
- Land use stability (are the noise-sensitive land uses likely to remain for an indefinite period of time);
- Antiquity (the amount of development that has occurred before and after the initial construction of a roadway);
- The desires of the affected property owners to have a noise barrier adjacent to their property; and
- Aesthetics.

As previously stated, in year 2035, with the proposed improvements to the Selmon Expressway, noise levels are predicted to approach, meet, or exceed the NAC at 136 noise-sensitive sites along the project corridor. TNM accounts for the shielding effect of a noise barrier, the diffraction of sound over a noise barrier, and the effects of the ground between a barrier and a receiver (i.e. sound absorption). The net effect of the barrier shielding is referred to as "insertion loss". In other words, insertion loss is the difference in sound level before and after the installation of the barrier.

The following presents the results of a noise barrier analysis performed to determine if noise barriers would provide the minimum required insertion loss (or more) at a cost within the guidelines for those sites predicted to be affected by traffic noise with proposed improvements. Documentation in support of the noise barrier analysis is provided in **Appendix C**.

<u>Rampello K-8 Magnet School Playground</u> – Under the Build scenario, one receiver representing the playground for the Rampello K-8 Magnet School was found to be impacted. A structure mounted barrier that would be positioned along the edge of the Selmon Expressway was modeled. The height of the barrier analyzed was a maximum of 8 feet above the proposed roadway structure. Although this barrier is a reasonable means of noise abatement, this particular barrier option was not able to provide the required 5.0 dBA minimum reduction in noise. Results of this analysis indicated that this barrier would only be able provide a maximum 0.9 dBA reduction and is therefore not recommended for further consideration.

<u>Seaport Channelside Apartment Community</u> – Under the Build scenario, five receivers representing 135 individual sites were impacted at the Seaport Channelside apartment community. A structure mounted barrier that would be positioned along the edge of the Selmon Expressway was modeled. The height of the barrier analyzed was a maximum of 8 feet above the proposed roadway. Although this barrier is a reasonable means of noise abatement, this particular barrier option was not able to provide the required 5.0 dBA minimum reduction in noise at the impacted receivers. Results of this analysis indicated

that this barrier would only be able provide a maximum 1.3 dBA reduction and is therefore not recommended for further consideration.

4.6 Commitments

The THEA will perform an update to this *NSR* during the final design phase for this project. The *NSR* will be undertaken to confirm the recommendation for no barriers.

Section 5.0 – CONSTRUCTION NOISE & VIBRATION

During the construction phase of the proposed project, short-term noise may be generated by stationary and mobile construction equipment. Construction of roadway improvements will have a temporary impact on noise-sensitive sites adjacent to the project corridor. Construction noise will be controlled by the contractor's adherence to the most recent edition of the FDOT's *Standard Specifications for Road and Bridge Construction*.

Using FDOT's listing of vibration sensitive sites, multi-family residential communities, schools and historic structures were identified as potentially sensitive to vibration caused during construction. If during final design it is determined that provisions to control vibration are necessary, the project's construction provisions can include the necessary provisions as needed.

Section 6.0 – NOISE CONTOURS

As previously stated, land uses such as residences, motels, schools, churches, recreation areas and parks are considered incompatible with highway noise levels above 66 dBA. In order to reduce the possibility of additional noise sensitive sites being located within an area with traffic noise of this level, a noise contour was developed for the future improved roadway facility. This noise contour delineates the unobstructed distance from the improved roadway's edge of pavement where the FHWA's NAC is predicted to be approached (within 1.0 dBA of the NAC). Based on the results of the analysis, a level of 66.0 dBA would extend approximately 450 feet from the closest travel lane. Local officials should not approve construction of any new noise sensitive sites (e.g., residences, parks, churches, etc.) within this area unless noise abatement is considered as part of the planned structures.

Section 7.0 – REFERENCES

Federal Highway Administration, Traffic Noise Model, Version 2.5, February 2004.

Federal Highway Administration, Title 23 CFR, Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise, Amended March 24, 2009.

Florida Department of Transportation, Project Development and Environment Manual, Chapter 17 (Noise), April 18, 2007.

Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, 2010 Version.

Federal Highway Administration, Measurement of Highway-Related Noise: Final Report, May 1996.

HNTB Corporation, Design Traffic Technical Memorandum, October 2009.

APPENDIX A

Noise Model Traffic Data

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Nebraska from Nuccio to Kennedy

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	7,000	18,750	18,750
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	55.29%	55.29%	55.29%
T Factor (%)	1.67%	1.67%	1.67%
DHV	639	1,712	1,712
NB Total	353	946	946
SB Total	286	765	765
NB Cars	347	931	931
SB Cars	281	753	753
NB Trucks	6	16	16
SB Trucks	5	13	13

Calculated Per Lane Volumes (2 Lanes)			
	Existing (2008)	No-Build (2035)	Build (2035)
NB Cars	174	465	465
SB Cars	140	376	376
NB Trucks	3	8	8
SB Trucks	2	6	6

* Truck splits are assumed at 50/50 medium vs. heavy.

Nuccio from Jefferson to Nebraska

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	6,600	16,875	16,875
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	55.29%	55.29%	55.29%
T Factor (%)	1.67%	1.67%	1.67%
DHV	603	1,541	1,541
EB Total	333	852	852
WB Total	269	689	689
EB Cars	328	838	838
WB Cars	265	677	677
EB Trucks	6	14	14
WB Trucks	4	12	12

Calculated Per Lane Volumes (2 Lanes)			
	Existing (2008)	No-Build (2035)	Build (2035)
EB Cars	164	419	419
WB Cars	132	339	339
EB Trucks	3	7	7
WB Trucks	2	6	6

* Truck splits are assumed at 50/50 medium vs. heavy.

Twiggs from Jefferson to Nebraska

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	11,300	16,875	16,875
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	55.29%	55.29%	55.29%
T Factor (%)	1.67%	1.67%	1.67%
DHV	1,032	1,541	1,541
EB Total	570	852	852
WB Total	461	689	689
EB Cars	561	838	838
WB Cars	454	677	677
EB Trucks	10	14	14
WB Trucks	8	12	12

Calculated Per Lane Volumes (2 Lanes)			
	Existing (2008)	No-Build (2035)	Build (2035)
EB Cars	280	419	419
WB Cars	227	339	339
EB Trucks	5	7	7
WB Trucks	4	6	6

* Truck splits are assumed at 50/50 medium vs. heavy.

Twiggs from Nebraska to Channelside

Calculated PM DHV				Calculated Per Lane Volumes (2 Lanes)		
	Existing (2008)	No-Build (2035)	Build (2035)	Existing (2008)	No-Build (2035)	Build (2035)
ADT	7,700	16,875	16,875			
K Factor (%)	9.13%	9.13%	9.13%			
D Factor (%)	55.29%	55.29%	55.29%			
T Factor (%)	1.67%	1.67%	1.67%			
DHV	703	1,541	1,541			
EB Total	389	852	852			
WB Total	314	689	689			
EB Cars	382	838	838	191	419	419
WB Cars	309	677	677	155	339	339
EB Trucks	6	14	14	3	7	7
WB Trucks	5	12	12	3	6	6

* Truck splits are assumed at 50/50 medium vs. heavy.

Jackson from Morgan to Nebraska - One Way EB ONLY

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	9,400	23,400	23,400
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	100.00%	100.00%	100.00%
T Factor (%)	0.92%	0.92%	0.92%
DHV	858	2,136	2,136
EB Total	858	2,136	2,136
WB Total	0	0	0
EB Cars	850	2,117	2,117
WB Cars	0	0	0
EB Trucks	8	20	20
WB Trucks	0	0	0

Calculated Per Lane Volumes (3 Lanes)			
	Existing (2008)	No-Build (2035)	Build (2035)
EB Cars	283	706	706
WB Cars	0	0	0
EB Trucks	3	7	7
WB Trucks	0	0	0

* Truck splits are assumed at 50/50 medium vs. heavy.

Jefferson from Twiggs to Whiting

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	7,100	16,875	16,875
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	55.29%	55.29%	55.29%
T Factor (%)	1.67%	1.67%	1.67%
DHV	648	1,541	1,541
NB Total	358	852	852
SB Total	290	689	689
NB Cars	352	838	838
SB Cars	285	677	677
NB Trucks	6	14	14
SB Trucks	5	12	12

Calculated Per Lane Volumes (2 Lanes)			
	Existing (2008)	No-Build (2035)	Build (2035)
NB Cars	176	419	419
SB Cars	142	339	339
NB Trucks	3	7	7
SB Trucks	2	6	6

* Truck splits are assumed at 50/50 medium vs. heavy.

Meridian from Twiggs to Whiting

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	9,400	39,000	38,000
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	55.29%	55.29%	55.29%
T Factor (%)	0.26%	0.26%	0.26%
DHV	858	3,561	3,469
NB Total	475	1,969	1,918
SB Total	384	1,592	1,551
NB Cars	473	1,964	1,913
SB Cars	383	1,588	1,547
NB Trucks	1	5	5
SB Trucks	1	4	4

	Calculated Per Lane Volumes (3 Lanes)		
	Existing (2008)	No-Build (2035)	Build (2035)
NB Cars	158	655	638
SB Cars	128	529	516
NB Trucks	0	2	2
SB Trucks	0	1	1

* Truck splits are assumed at 50/50 medium vs. heavy.

Selmon Expressway from SR 45 to Kennedy

	Calculated PM DHV					
	Existing (2008)	No-Build (2035)	Build (2035)			
ADT	46,000	59,800	90,500			
K Factor (%)	9.13%	9.13%	9.13%			
D Factor (%)	55.29%	55.29%	55.29%			
T Factor (%)	4.05%	4.05%	4.05%			
DHV	4,200	5,460	8,263			
NB Total	2,322	3,019	4,568	Calculated Per Lane Volumes (3 Lanes Build)		
SB Total	1,878	2,441	3,694	Existing (2008)	No-Build (2035)	Build (2035)
NB Cars	2,228	2,896	4,383	1114	1448	1461
SB Cars	1,802	2,342	3,545	901	1171	1182
NB Trucks	94	122	185	47	61	62
SB Trucks	76	99	150	38	49	50

* Truck splits are assumed at 50/50 medium vs. heavy.

Selmon Expressway from Kennedy to Florida

	Calculated PM DHV			Calculated Per Lane Volumes (2 Lanes)(3 Lanes Build)			
	Existing (2008)	No-Build (2035)	Build (2035)	Existing (2008)	No-Build (2035)	2 Ln Build (2035)	3 Ln Build (2035)
ADT	37,000	59,800	90,500				
K Factor (%)	9.13%	9.13%	9.13%				
D Factor (%)	55.29%	55.29%	55.29%				
T Factor (%)	4.05%	4.05%	4.05%				
DHV	3,378	5,460	8,263				
NB Total	1,868	3,019	4,568				
SB Total	1,510	2,441	3,694				
NB Cars	1,792	2,896	4,383	896	1448	2192	1461
SB Cars	1,449	2,342	3,545	725	1171	1772	1182
NB Trucks	76	122	185	38	61	93	62
SB Trucks	61	99	150	31	49	75	50

* Truck splits are assumed at 50/50 medium vs. heavy.

Reversible Express Lanes

	Calculated PM DHV			Calculated Per Lane Volumes (3 Lanes)		
	Existing (2008)	No-Build (2035)	Build (2035)	Existing (2008)	No-Build (2035)	Build (2035)
ADT	15,000	29,700	29,600			
K Factor (%)	15.00%	15.00%	15.00%			
D Factor (%)	100.00%	100.00%	100.00%			
T Factor (%)	0.00%	0.00%	0.00%			
DHV	2,250	4,455	4,440			
NB Total	2,250	4,455	4,440			
SB Total	0	0	0			
NB Cars	2,250	4,455	4,440	750	1485	1480
SB Cars	0	0	0	0	0	0
NB Trucks	0	0	0	0	0	0
SB Trucks	0	0	0	0	0	0

* Trucks are not allowed on the REL lanes.

Expressway Ramps - Kennedy WB Off Ramp

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	5,500	9,000	9,000
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	100.00%	100.00%	100.00%
T Factor (%)	5.15%	5.15%	5.15%
DHV	502	822	822
WB Total	502	822	822
EB Total	0	0	0
WB Cars	476	779	779
EB Cars	0	0	0
WB Trucks	26	42	42
EB Trucks	0	0	0

* Truck splits are assumed at 50/50 medium vs. heavy.

Expressway Ramps - Nebraska EB On Ramp

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	2,800	9,000	9,000
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	100.00%	100.00%	100.00%
T Factor (%)	5.15%	5.15%	5.15%
DHV	256	822	822
EB Total	256	822	822
WB Total	0	0	0
EB Cars	242	779	779
WB Cars	0	0	0
EB Trucks	13	42	42
WB Trucks	0	0	0

* Truck splits are assumed at 50/50 medium vs. heavy.

Expressway Ramps - Morgan WB Off Ramp

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	3,600	9,000	9,000
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	100.00%	100.00%	100.00%
T Factor (%)	5.15%	5.15%	5.15%
DHV	329	822	822
WB Total	329	822	822
EB Total	0	0	0
WB Cars	312	779	779
EB Cars	0	0	0
WB Trucks	17	42	42
EB Trucks	0	0	0

* Truck splits are assumed at 50/50 medium vs. heavy.

Expressway Ramps - Jefferson EB On Ramp

Calculated PM DHV			
	Existing (2008)	No-Build (2035)	Build (2035)
ADT	3,200	9,000	9,000
K Factor (%)	9.13%	9.13%	9.13%
D Factor (%)	100.00%	100.00%	100.00%
T Factor (%)	5.15%	5.15%	5.15%
DHV	292	822	822
EB Total	292	822	822
WB Total	0	0	0
EB Cars	277	779	779
WB Cars	0	0	0
EB Trucks	15	42	42
WB Trucks	0	0	0

* Truck splits are assumed at 50/50 medium vs. heavy.

TRAFFIC DATA FOR NOISE STUDIES

DATE: 9/12/09
PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American
Work Program Item Segment No(s):
Federal Aid Number(s):
Project Description: Viaduct Widening PD&E Study
Segment Description: Nebraska – Nuccio to Kennedy
(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 18,750	ADT : LOS(C) 18,750	ADT : LOS(C) 18,750
Demand 7,000	Demand 27,600	Demand 26,200
Posted Speed: 35 mph 63 kmh	Posted Speed: 35 mph 63 kmh	Posted Speed: 35 mph 63 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.
T= 1.67 % Design hr.	T= 1.67 % Design hr.	T= 1.67 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Nuccio – Jefferson to Nebraska

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 16,875	ADT : LOS(C) 16,875	ADT : LOS(C) 16,875
Demand 6,600	Demand 32,800	Demand 32,400
Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.
T= 1.67 % Design hr.	T= 1.67 % Design hr.	T= 1.67 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ________________________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Twiggs – Jefferson to Nebraska

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 16,875	ADT : LOS(C) 16,875	ADT : LOS(C) 16,875
Demand 11,300	Demand 27,600	Demand 28,300
Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.
T= 1.67 % Design hr.	T= 1.67 % Design hr.	T= 1.67 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ______________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Twiggs – Nebraska to Channelside

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 16,875	ADT : LOS(C) 16,875	ADT : LOS(C) 16,875
Demand 7.700	Demand 27,600	Demand 28,300
Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.
T= 1.67 % Design hr.	T= 1.67 % Design hr.	T= 1.67 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Jackson – Morgan to Nebraska

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 23,400	ADT : LOS(C) 23,400	ADT : LOS(C) 23,400
Demand 9,400	Demand 31,700	Demand 33,400
Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100 %	D= 100 %	D= 100 %
T= 1,83 % for 24 hrs.	T= 1,83 % for 24 hrs.	T= 1,83 % for 24 hrs.
T= .92 % Design hr.	T= .92 % Design hr.	T= .92 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Jefferson – Twiggs to Whiting

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 16,875	ADT : LOS(C) 16,875	ADT : LOS(C) 16,875
Demand 7,100	Demand 24,100	Demand 24,900
Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh	Posted Speed: 30 mph 54 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.	T= 3.34 % for 24 hrs.
T= 1.67 % Design hr.	T= 1.67 % Design hr.	T= 1.67 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ______________________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Meridian – Twiggs to Whiting

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 39,000	ADT : LOS(C) 39,000	ADT : LOS(C) 39,000
Demand 9,400	Demand 39,900	Demand 38,000
Posted Speed: 40 mph 72 kmh	Posted Speed: 40 mph 72 kmh	Posted Speed: 40 mph 72 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 0.51 % for 24 hrs.	T= 0.51 % for 24 hrs.	T= 0.51 % for 24 hrs.
T= .26 % Design hr.	T= .26 % Design hr.	T= .26 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09
PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American
Work Program Item Segment No(s):
Federal Aid Number(s):
Project Description: Viaduct Widening PD&E Study
Segment Description: Expressway – SR 45 to Kennedy
(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 59,800	ADT : LOS(C) 59,800	ADT : LOS(C) 90,500
Demand 46,000	Demand 122,300	Demand 136,000
Posted Speed: 55 mph 89 kmh	Posted Speed: 55 mph 89 kmh	Posted Speed: 55 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 8.10 % for 24 hrs.	T= 8.10 % for 24 hrs.	T= 8.10 % for 24 hrs.
T= 4.05 % Design hr.	T= 4.05 % Design hr.	T= 4.05 % Design hr.
50 % Heavy Trucks 50 % Medium Trucks	50 % Heavy Trucks 50 % Medium Trucks	50 % Heavy Trucks 50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09
PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American
Work Program Item Segment No(s):
Federal Aid Number(s):
Project Description: Viaduct Widening PD&E Study
Segment Description: Expressway – Kennedy to Florida
(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 59,800	ADT : LOS(C) 59,800	ADT : LOS(C) 90,500
Demand 37,000	Demand 93,500	Demand 104,900
Posted Speed: 55 mph 89 kmh	Posted Speed: 55 mph 89 kmh	Posted Speed: 55 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 55.29 %	D= 55.29 %	D= 55.29 %
T= 8.10 % for 24 hrs.	T= 8.10 % for 24 hrs.	T= 8.10 % for 24 hrs.
T= 6.6 % Design hr.	T= 6.6 % Design hr.	T= 6.6 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – SR 45 WB On

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 2,500	Demand 13,100	Demand 16,500
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 13.20 % for 24 hrs.	T= 13.20 % for 24 hrs.	T= 13.20 % for 24 hrs.
T= 6.6 % Design hr.	T= 6.6 % Design hr.	T= 6.6 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – SR 45 EB Off

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 2,300	Demand 13,100	Demand 16,500
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 16.30 % for 24 hrs.	T= 16.30 % for 24 hrs.	T= 16.30 % for 24 hrs.
T= 8.15 % Design hr.	T= 8.15 % Design hr.	T= 8.15 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – Kennedy WB Off

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 5,500	Demand 14,400	Demand 15,550
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.
T= 5.15 % Design hr.	T= 5.15 % Design hr.	T= 5.15 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ______________________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – Nebraska EB On

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	**No-Build (design year)**	**Build (design year)**
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 2,800	Demand 14,400	Demand 15,550
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.
T= 5.15 % Design hr.	T= 5.15 % Design hr.	T= 5.15 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – Morgan WB Off

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 3,600	Demand 17,000	Demand 16,800
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.
T= 5.15 % Design hr.	T= 5.15 % Design hr.	T= 5.15 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – Jefferson EB On

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 3,200	Demand 17,000	Demand 16,800
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.
T= 5.15 % Design hr.	T= 5.15 % Design hr.	T= 5.15 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – Florida EB Off

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 3,000	Demand 12,250	Demand 11,100
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.
T= 5.15 % Design hr.	T= 5.15 % Design hr.	T= 5.15 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ____________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Ramps – Morgan WB On

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 9,000	ADT : LOS(C) 9,000	ADT : LOS(C) 9,000
Demand 1,500	Demand 12,250	Demand 11,100
Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh	Posted Speed: 25 mph 89 kmh
K= 9.13 %	K= 9.13 %	K= 9.13 %
D= 100.00 %	D= 100.00 %	D= 100.00 %
T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.	T= 10.30 % for 24 hrs.
T= 5.15 % Design hr.	T= 5.15 % Design hr.	T= 5.15 % Design hr.
50 % Heavy Trucks	50 % Heavy Trucks	50 % Heavy Trucks
50 % Medium Trucks	50 % Medium Trucks	50 % Medium Trucks

Traffic Data Source: ______________________________

DATE: 9/12/09

PREPARED BY: Luis Diaz, PE, HNTB Corporation & Corey Carter, American

Work Program Item Segment No(s):

Federal Aid Number(s):

Project Description: Viaduct Widening PD&E Study

Segment Description: Expressway Reversible Lanes

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: ADT is the LOS (C) volume referenced in the FDOT LOS tables or Demand, whichever is less.

Existing Facility	No-Build (design year)	Build (design year)
Year : 2008	Year : 2035	Year : 2035
ADT : LOS(C) 54,300	ADT : LOS(C) 54,300	ADT : LOS(C) 54,300
Demand 15,000	Demand 29,700	Demand 29,600
Posted Speed: 65 mph 117 kmh	Posted Speed: 65 mph 117 kmh	Posted Speed: 65 mph 117 kmh
K_{pm}= 15 %	K_{pm}= 15 %	K_{pm}= 15 %
D= 100 %	D= 100 %	D= 100 %
T= n/a % for 24 hrs.	T= n/a % for 24 hrs.	T= n/a % for 24 hrs.
T= n/a % Design hr.	T= n/a % Design hr.	T= n/a % Design hr.
n/a % Heavy Trucks	n/a % Heavy Trucks	n/a % Heavy Trucks
n/a % Medium Trucks	n/a % Medium Trucks	n/a % Medium Trucks

Traffic Data Source: ______________________________

APPENDIX B

Noise Model Validation Field Data

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Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	1

Date	Measurement taken by	Calibration Begin	Calibration End	Time Begin	Time End
9/2/09	CC/CS	114.0	114.0	11:46	11:56

Weather Data

Temperature	Cloud/Sun Cover	Precipitation/ Humidity	Wind Speed/Direction
82°	Mostly Cloudy	89%	NE @ 5.8 mph

Traffic Classifications – NB SB WB EB

Cars	Motorcycles	Buses	Med. Trucks	Heavy Trucks
165	1	0	1	16

Traffic Classifications – NB SB WB EB

Cars	Motorcycles	Buses	Med. Trucks	Heavy Trucks
111	0	0	15	19

Other Comments: ____

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Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	1

Speed Counts – NB SB WB EB

Cars	Cars	Cars	H. Trucks	M. Trucks	M. Trucks	Buses
50			51	57		
61			41			
58			43			
57			46			
54			48			
53						
60						
52						
60						**Motorcycle**
						52

Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	1

Speed Counts – NB SB WB EB

Cars	Cars	Cars	H. Trucks	M. Trucks	M. Trucks	Buses
51			52	54		
50			52	52		
51			50	50		
53			54			
57						
58						
51						
61						
57						**Motorcycle**
56						

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- Run Summary -

Logging times:

			Duration
	mm/dd/yyyy	hh:mm:ss	hh:mm:ss.ss
Start of run	09/02/2009	11:46:05	
End of run	09/02/2009	11:56:05	
Duration of run			00:10:00.00
Total pause time			00:00:00.00
Overload occurred	No		
Total overload time			00:00:00.00
Under-range occurred	No		
Low battery occurred	No		

User calibration information:

Calibrated before run on	09/02/2009	11:41:42	at	114.0	dB
Calibrated after run on	09/02/2009	11:59:43	at	114.0	dB
Input	Microphone				

Setup information:

Setup name	Factory Setup
Model number	CEL-450 Version 1.06
Serial number	074210
Run Mode	Broadband SLM
Frequency weighting for RMS	A
Frequency weighting for Peak	Z
Time weighting	Fast
Measurement range	0 - 140 dB
Exchange rate (Q)	3
Period time	n.a.
Exposure duration	00:00:00
Threshold	70 dB

Time history profiles:

Profiles:	Off
Profile sample interval	n.a.
Profile function 1	n.a.
Profile function 2	n.a.
Profile function 3	n.a.
Profile function 4	n.a.

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- Cumulative period results -

Number of records	0
Start of run	09/02/2009 11:46:05
Duration of run	00:10:00.00
Overload occurred	No
Under-range occurred	No
Low battery occurred	No
Pause was used	No

Function	Level (dB)
LAFmx	74.0
LAFmn	54.1
LAeq	61.8
LZpk	94.4
LAE	89.5
LEP,d	45.0
LTm3	63.3
LTm5	63.7
HML	12.0

Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	2

Date	Measurement taken by	Calibration Begin	Calibration End	Time Begin	Time End
9/2/09	CC/CS	114.0	114.0	12:04	12:14

Weather Data

Temperature	Cloud/Sun Cover	Precipitation/ Humidity	Wind Speed/Direction
84°	Scattered Clouds	84%	NE @ 3.5 mph

Traffic Classifications – NB SB WB EB

Cars	Motorcycles	Buses	Med. Trucks	Heavy Trucks
151	1	0	3	19

Traffic Classifications – NB SB WB EB

Cars	Motorcycles	Buses	Med. Trucks	Heavy Trucks
151	0	0	5	16

Other Comments: ____

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Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	2

Speed Counts – NB SB WB EB

Cars	Cars	Cars	H. Trucks	M. Trucks	M. Trucks	Buses
55			62	56		
53			55			
51			37			
66			55			
56			53			
63			47			
47			51			
52			46			
56			55			**Motorcycle**
56			50			53
55						
57						

Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	2

Speed Counts – NB SB WB EB

Cars	Cars	Cars	H. Trucks	M. Trucks	M. Trucks	Buses
65			54	54		
53			54			
59			42			
69			51			
56			61			
62			52			
54			61			
55			54			
46						**Motorcycle**
61						
59						

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- Run Summary -

Logging times:			Duration		
	mm/dd/yyyy	hh:mm:ss	hh:mm:ss.ss		
Start of run	09/02/2009	12:04:25			
End of run	09/02/2009	12:14:25			
Duration of run			00:10:00.00		
Total pause time			00:00:00.00		
Overload occurred	No				
Total overload time			00:00:00.00		
Under-range occurred	No				
Low battery occurred	No				
User calibration information:					
Calibrated before run on	09/02/2009	11:59:43	at	114.0	dB
Calibrated after run on	09/02/2009	12:17:13	at	114.0	dB
Input	Microphone				
Setup information:					
Setup name	Factory Setup				
Model number	CEL-450 Version 1.06				
Serial number	074210				
Run Mode	Broadband SLM				
Frequency weighting for RMS	A				
Frequency weighting for Peak	Z				
Time weighting	Fast				
Measurement range	0 - 140 dB				
Exchange rate (Q)	3				
Period time	n.a.				
Exposure duration	00:00:00				
Threshold	70 dB				
Time history profiles:					
Profiles:	Off				
Profile sample interval	n.a.				
Profile function 1	n.a.				
Profile function 2	n.a.				
Profile function 3	n.a.				
Profile function 4	n.a.				

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- Cumulative period results -

Number of records	0
Start of run	09/02/2009 12:04:25
Duration of run	00:10:00.00
Overload occurred	No
Under-range occurred	No
Low battery occurred	No
Pause was used	No

Function	Level (dB)
LAFmx	74.9
LAFmn	55.1
LAeq	61.9
LZpk	98.8
LAE	89.6
LEP,d	45.1
LTm3	63.8
LTm5	64.5
HML	12.5

Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	3

Date	Measurement taken by	Calibration Begin	Calibration End	Time Begin	Time End
9/2/09	CC/CS	114.0	114.0	12:18	12:28

Weather Data

Temperature	Cloud/Sun Cover	Precipitation/ Humidity	Wind Speed/Direction
84°	Scattered Clouds	84%	NE @ 3.5 mph

Traffic Classifications – NB SB WB EB

Cars	Motorcycles	Buses	Med. Trucks	Heavy Trucks
182	0	0	7	14

Traffic Classifications – NB SB WB EB

Cars	Motorcycles	Buses	Med. Trucks	Heavy Trucks
124	0	0	4	11

Other Comments: ____

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Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	3

Speed Counts – NB SB WB EB

Cars	Cars	Cars	H. Trucks	M. Trucks	M. Trucks	Buses
57			49	49		
56			53	56		
46			53	53		
52			50			
48			54			
63			55			
55			45			
51			44			
56			57			**Motorcycle**
53			51			
58			46			
57						
62						
58						

Location (Address and Country)/Site Identification	Station Number	Survey No.
Union Station	1	3

Speed Counts – NB SB WB EB

Cars	Cars	Cars	H. Trucks	M. Trucks	M. Trucks	Buses
62			53	54		
61			59			
56			53			
61			55			
64			55			
63			53			
55			52			
65						
66						**Motorcycle**
54						
59						

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f:\project\5099618\filecabinet\e. environmental\e.8 noise impacts\validation\run3\validationrun1003.dta

- Run Summary -

Logging times:			Duration		
	mm/dd/yyyy	hh:mm:ss	hh:mm:ss.ss		
Start of run	09/02/2009	12:18:06			
End of run	09/02/2009	12:28:06			
Duration of run			00:10:00.00		
Total pause time			00:00:00.00		
Overload occurred	No				
Total overload time			00:00:00.00		
Under-range occurred	No				
Low battery occurred	No				
User calibration information:					
Calibrated before run on	09/02/2009	12:17:13	at	114.0	dB
Calibrated after run on	09/02/2009	12:29:11	at	114.0	dB
Input	Microphone				

Setup information:

Setup name	Factory Setup
Model number	CEL-450 Version 1.06
Serial number	074210
Run Mode	Broadband SLM
Frequency weighting for RMS	A
Frequency weighting for Peak	Z
Time weighting	Fast
Measurement range	0 - 140 dB
Exchange rate (Q)	3
Period time	n.a.
Exposure duration	00:00:00
Threshold	70 dB

Time history profiles:

Profiles:	Off
Profile sample interval	n.a.
Profile function 1	n.a.
Profile function 2	n.a.
Profile function 3	n.a.
Profile function 4	n.a.

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- Cumulative period results -

Number of records	0
Start of run	09/02/2009 12:18:06
Duration of run	00:10:00.00
Overload occurred	No
Under-range occurred	No
Low battery occurred	No
Pause was used	No

Function	Level (dB)
LAFmx	73.3
LAFmn	54.4
LAeq	61.5
LZpk	95.5
LAE	89.2
LEP,d	44.7
LTm3	63.5
LTm5	64.2
HML	11.9

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APPENDIX C

TNM Noise Model Input/Output Data*

*Via CD

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