FINAL

NOISE STUDY REPORT

Interstate 275 (State Road 93)
Project Development & Environment Study

From north of Dr. Martin Luther King, Jr. Boulevard (SR 574)
to north of Bearss Avenue (SR 678/CR 582)

Hillsborough County, Florida

ETDM Number: 13854
Work Program Item Segment Number: 431821-1

Florida Department of Transportation
District Seven
Tampa, Florida

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Florida Department of Transportation (FDOT) pursuant to Section 327 of Title 23 of the United States Code (23 U.S.C. §327) and a Memorandum of Understanding dated December 14, 2016 and executed by Federal Highway Administration and FDOT.

April 2019

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This project evaluates capacity and operational improvements along Interstate 275 including the addition of a general-purpose lane in each direction and a typical section that would accommodate transit on the inside shoulders.

Florida Department of Transportation
District Seven
Tampa, Florida

Prepared By:
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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT), District Seven, is conducting a Project Development and Environment (PD&E) Study to evaluate the need for capacity and operational improvements along 7.70 miles of State Road 93 (SR 93)/ Interstate 275 (I-275) from north of Dr. Martin Luther King, Jr. Boulevard/SR 574 (MLK Boulevard) to north of Bearss Avenue/SR 678/County Road (CR) 582 in Hillsborough County, Florida.

The objective of the PD&E Study is to assist FDOT in reaching a decision on the type, location, and conceptual design of the I-275 improvements to safely and efficiently accommodate future travel demand. This PD&E Study documents the need for the improvements and the steps taken to develop and evaluate improvement alternatives along with proposed typical sections, and provision of general purpose lanes with transit accommodations. The anticipated social, physical, and natural environmental effects and costs of these improvements are identified, and the alternatives are compared on a variety of factors to identify the alternative that best balances the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs).

The PD&E Study satisfies applicable state and federal requirements, including the National Environmental Policy Act, to qualify this project for federal-aid funding of future phases (design, right of way, and construction). The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process. This project was designated as ETDM Project #13854. An ETDM Final Programming Screen Summary Report was republished on February 7, 2014, containing comments from the Environmental Technical Advisory Team (ETAT) on the project's effects on various natural, physical, and social resources. The lead agency determined the Class of Action to be a Type 2 Categorical Exclusion.

This *Noise Study Report* (NSR) for the project was prepared as part of the PD&E Study as required by the FDOT's PD&E Manual, Part 2, Chapter 18 (June 14, 2017) and in accordance with the Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772)—Procedures for Abatement of Highway Traffic Noise and Construction Noise (July 13, 2010).

A total of 1,749 noise sensitive receptors were evaluated. The receptors represent 1,947 properties on which there are noise sensitive land uses. Of the 1,947 properties, 1,924 of the properties are residences, 11 are places of worship, four are schools, three are parks, two are recreational areas (a commercial facility with a miniature golf course and a tennis court at a condominium), one is a medical facility (assisted living facility), and two are hotels.

A total of 439 properties with noise sensitive land uses are predicted to be impacted by traffic noise with existing conditions. In the future, without the proposed improvements, 448 noise sensitive properties are predicted to be impacted. Finally, with the proposed improvements, 749 properties with a sensitive land use are predicted to be impacted by traffic noise. A total of 739 of the 749 properties impacted are residences, three are places of worship, three are schools, one is a park, and two are recreational areas.

Traffic management measures, modifications to the roadway alignment, buffer zones, and noise barriers were considered as abatement measures. With the exception of proposed noise barriers or barrier extensions for the impacted properties within the Common Noise Environments (CNEs), described in Table **ES-1**, noise abatement measures were not determined to be both feasible and reasonable.

Table ES-1: Summary of Potentially Reasonable and Feasible Noise Barriers

CNE No.	Description	Appendix B Sheet Number	Number of Impacted Receptors[1]	Range in Number of Benefited Receptors[2]	Range in Total Estimated Barrier Cost[3]
1	Residences between Osborne Ave. and Hillsborough Ave. on the east side of I-275	1	59	41-57	$703,200-$1,685,580
2	Seminole Heights Baptist Church	1	1	0	--
3/5	Residences between Osborne Ave. and Hillsborough Ave. on the west side of I-275	1	80	75-79	$962,880-$1,786,260
4	St. Paul Lutheran Church	1	1	0	--
6	Residences between Hillsborough Ave. and Kingsway Rd. on the east side of I-275	2	44	11-43	$404,880-$1,113,420
7	Residences between Idlewild Ave. to E Hanna Ave. on the east side of I-275	2	22	13-22	$542,880-$736,080
8	Residences between Hillsborough Ave. and E Paris St. on the west side of I-275	3	53	22-53	$837,840-$1,689,060
9/11	Residences between Hillsborough Ave. to Sligh Ave. on the west side of I-275	2-3	140	80-134	$1,821,480-$3,210,600
10	Seminole Heights Elementary School	2-3	2	0	--
12/13	Residences between Sligh Ave. and the Hillsborough River on the east side of I-275	4-5	66	30-64	$1,336,440-$1,838,220
16/17	Residences west of I-275 between to Sligh Ave. and the Hillsborough River	4-5	79	29-79	$1,533,360-$2,377,140
18	River Tower Park	5	1	0	--
19	Residences between Waters Ave. and E Yukon St. on the east side of I-275	6	30	22-30	$824,820-$1,042,140
20	Residences between Waters Ave. and E Yukon St. on the west side of I-275	6	32	11-31	$441,600-$913,680
23	Tennis court at the Westchester Manor Condominiums	6	1	0	--
23a	Residences at the Westchester Manor Condominiums	6	1	0	--
24	Extension of an existing noise barrier for the residences east of I-275 between Busch Blvd. and Bougainvillea Ave.	7-8	21	20	$588,000
29	Community Charter Schools of Excellence	9	1	0	--
30	Extension of an existing noise barrier for the residences east of I-275 between Fowler Ave. and 127th Ave.	10	30	30	$854,400
31	Extension of an existing noise barrier for the residences west of I-275 between Fowler Avenue and 122nd Ave.	10	9	6	$215,760
32	Miles Elementary and Memory Care Assisted Living Facility	10	1	0	--
33	Residences west of I-275, south of East 127th Street and east of Oak Rose Lane	10	10	0	--
40	Extension of an existing noise barrier for the residences located east of I-275 between Fletcher Ave. and 138th Ave.	12	2	0	--
41	Grand Prix Tampa Family Fun Center	12	1	0	--
42/46	Extension of an existing noise barrier for the residences between 145th Ave. and Bearss Ave. on the east side of I-275	12-13	3	3	$48,000
43/45	Residences between Fletcher Avenue and 145th Ave. on the west side of I-275	12	37	32-37	$737,040-$2,362,800

CNE No.	Description	Appendix B Sheet Number	Number of Impacted Receptors[1]	Range in Number of Benefited Receptors[2]	Range in Total Estimated Barrier Cost[3]
47	Noise barrier for the residences between Fletcher Ave. and Bearss Ave. on the west side of I-275	13	18	17-18	$653,400-$1,045,440
49	Residences along Clear Lane	14	4	0	--
Total			749	442-706	$11,102,820-$21,541,500

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.

The estimated total cost to construct the noise barriers and barrier extensions ranges from approximately $11,102,820 to $21,541,440 depending on barrier length and height.

The FDOT is committed to the construction of noise barriers at the locations above, contingent upon the following:

- Detailed noise analysis during the final design process supports the need for, and the feasibility and reasonableness of providing a barrier as abatement;
- The detailed analysis demonstrates that the cost of a noise barrier will not exceed the cost-effective limit;
- The impacted residents/property owners benefited by the noise barrier desire that a noise barrier be constructed; and
- All safety and engineering conflicts or issues related to construction of a noise barrier are resolved.

Notably, the noise barriers for the impacted properties in CNEs 3, 6, 7, 8, 9, 12/13, 16, 19, 20, 45, and 47 have the potential to visually block outdoor advertising signs. The locations of the outdoor advertising signs are shown on the aerials provided in **Appendix B**. Should the barriers at these locations remain feasible and reasonable, after the design phase noise analysis is completed, and should the signs be found to be conforming and legally permitted, a notice of the possible noise barrier screening of the signs will be provided to the affected sign permit holder(s) as well as the appropriate local sign regulating agency. A public hearing will also be held to receive input on the proposed noise barrier/sign conflict.

Some land uses adjacent to I-275 are identified on the FDOT listing of noise- and vibration-sensitive sites (e.g., residential use). Application of the *FDOT Standard Specifications for Road and Bridge Construction* may minimize or eliminate potential issues should they arise during the construction process.

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District Seven, is conducting a Project Development and Environment (PD&E) Study to evaluate the need for capacity and operational improvements along 7.70 miles of State Road 93 (SR 93)/Interstate 275 (I-275) from north of Dr. Martin Luther King, Jr. Boulevard/SR 574 (MLK Boulevard) to north of Bearss Avenue/SR 678/County Road (CR) 582 in Hillsborough County, Florida.

The objective of the PD&E Study is to assist FDOT in reaching a decision on the type, location, and conceptual design of the I-275 improvements to safely and efficiently accommodate future travel demand. This PD&E Study documents the need for the improvements and the steps taken to develop and evaluate improvement alternatives along with proposed typical sections and interchange enhancement alternatives.

This Noise Study Report (NSR) is one of several documents being prepared as part of the I-275 PD&E Study. Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772), Procedures for Abatement of Highway Traffic Noise and Construction Noise (July 13, 2010), requires that projects requiring approval, or that are funded by, the Federal Highway Administration (FHWA) be subjected to a traffic noise analysis and, if applicable, an evaluation of abatement measures.

1.1 Description of Proposed Action

The proposed action evaluates the need to provide capacity and operational improvements along 7.70 miles of State Road 93 (SR 93)/Interstate 275 (I-275) from north of MLK Boulevard to north of Bearss Avenue in Hillsborough County, Florida (**see Figure 1**). This evaluation considers the operational and highway safety benefits of implementing capacity improvements and compares them to the cost savings and minimization of adverse impacts associated with a No-Build Alternative. An evaluation matrix compares the No-Build and Build Alternative on a variety of factors. This process identifies the alternative that best balances the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs).

The Build Alternative includes one additional travel lane in each direction of I-275. The proposed typical section contains four 12-foot general purpose lanes in each direction and accommodates transit on the inside shoulders. The improvements would be constructed on the existing alignment with the same existing horizontal and vertical geometries. All the proposed improvements within the I-275 project corridor would be accomplished within the existing right of way. Minimal right of way may be required at the Bearss Avenue interchange for storm water ponds.

Planning for the Tampa Bay area interstates began in the late 1980s with the Tampa Interstate Study (TIS) Master Plan being approved in late 1980s with improvements outlined to relieve congestion and improve mobility. The TIS Master Plan included additional travel lanes on the Tampa Bay area interstates and included a transit envelope for the east-west movement but not along this segment of I-275.

Figure 1: Project Location Map

In 2013, building upon the original TIS Master Plan, the Tampa Bay Express (TBX) program was developed to provide guidance for improvements to the Tampa Bay interstate system. The TBX program also identified freeway segments (including this segment of I-275) for the addition of tolled express lanes. In 2017, FDOT District Seven renamed TBX to Tampa Bay Next (TBNext) to demonstrate the Department's commitment to comprehensive, integrated transportation planning and development. As part of TBNext, FDOT District Seven committed to remove the express lanes from this segment of I-275 and allow the I-75 corridor to provide the north/south express lanes movement. Providing express lanes on I-75 is more regionally focused.

As stated above, the improvements proposed for this segment of I-275, from north of MLK Boulevard to north of Bearss Avenue, will include one additional general-purpose lane in each direction. There would also be improvements to the inside shoulder that will allow for the integration of infrastructure for transit.

1.2 Existing Facility

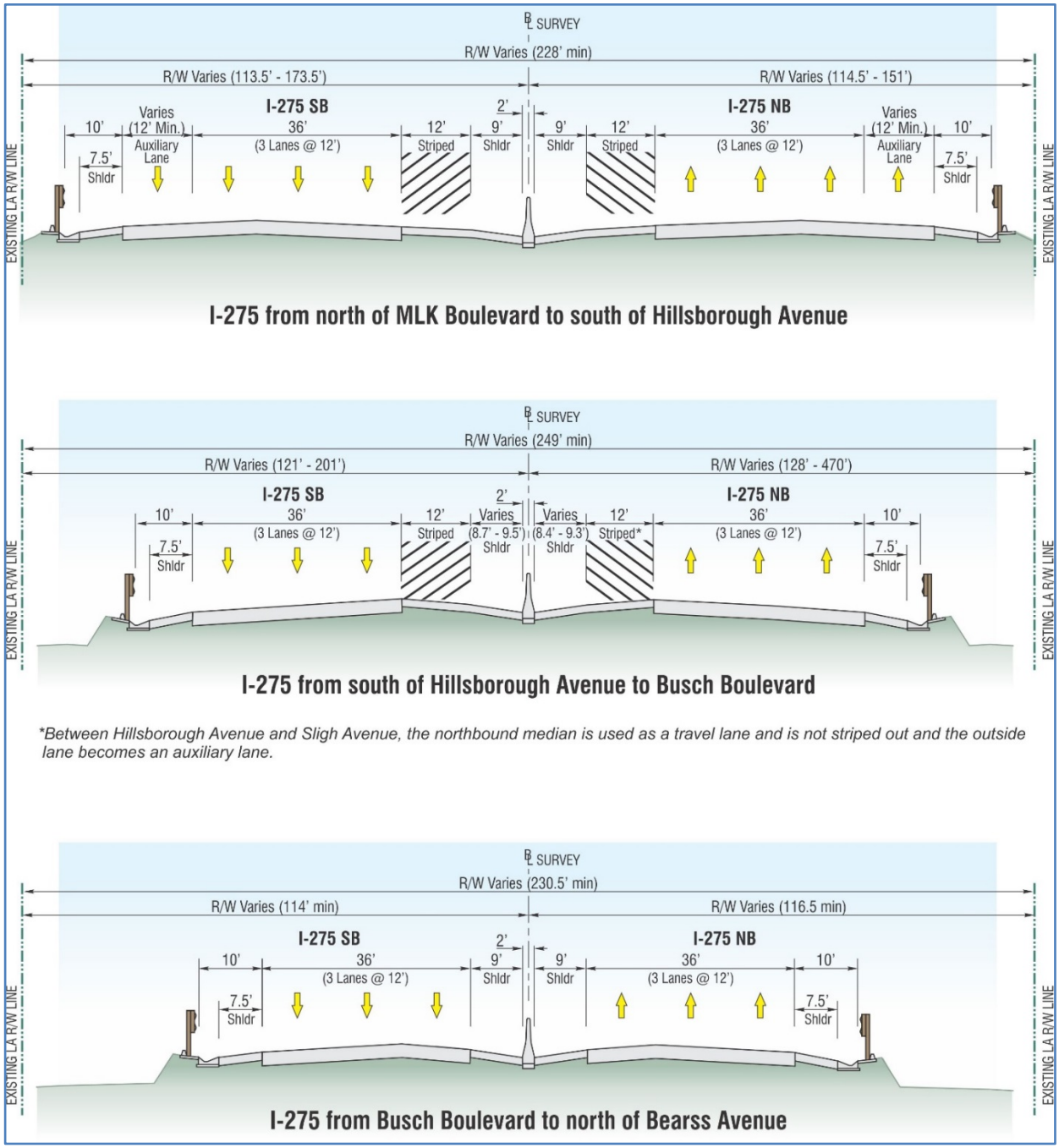
I-275 is a limited access freeway that runs in a north-south direction within the project limits. I-275 is part of the Federal Highway System (National Highway System) Interstate System, Florida's State Highway System, and the Strategic Intermodal System (SIS). Within the project limits there are seven interchanges:

- Hillsborough Avenue
- Sligh Avenue
- Bird Street
- Busch Boulevard
- Fowler Avenue
- Fletcher Avenue
- Bearss Avenue

The existing I-275 is a six-lane divided typical section which varies slightly throughout the project limits **(Figure 2)**. The posted speed varies from 55 mph to 65 mph. The existing right of way along I-275 ranges from approximately 220 feet between Linebaugh Avenue and Bougainvillea Avenue to approximately 1,400 feet at the Busch Boulevard interchange.

The I-275 corridor contains 18 bridges. Fourteen bridges span roadways, two bridges span both a roadway and railroad tracks, and two bridges span waterways. Fourteen of the 16 bridges over roadways do not meet the required minimum vertical clearance of 16.5 feet. The I-275 bridges over Busch Boulevard and US 41/Nebraska Avenue that span both a roadway and a railroad meet the minimum vertical clearance of 16.5 feet over roadways, but do not meet the required minimum vertical clearance of 23.5 feet over railroads.

Figure 2: I-275 Existing Typical Sections



1.3 Project Purpose and Need

The purpose of the project is to evaluate additional lanes along I-275 from north of MLK Boulevard to north of Bearss Avenue to increase capacity and relieve congestion. These

improvements are expected to enhance the overall safety and improve the operating conditions of the facility within the project limits.

Statewide and regional transportation plans and studies by FDOT and the Hillsborough County Metropolitan Planning Organization (MPO) identify the need for interstate improvements.

This segment of I-275 provides a vital connection to area tourist and recreational destinations, major employment/activity centers, and the University of South Florida; and is a convenient route for commuters and other work-related travel both north and south of the area. The corridor is also critical to the transport of goods and services. The capacity improvements are needed to accommodate projected future traffic and enhance corridor mobility and safety.

The need for improvements on this segment of I-275 is based on several factors. These factors include plan consistency, regional connectivity, improving safety and capacity, enhancing emergency evacuation, accommodating projected population and employment growth, supporting multi-modal service, and providing access to intermodal and freight centers.

2.0 BUILD ALTERNATIVES

2.1 Mainline I-275

The Build Alternative includes widening I-275 from an existing six-lane divided interstate to an eight-lane divided interstate, plus accommodating transit on the inside shoulder. The Bearss Avenue interchange will be reconfigured and operational improvements will be implemented at Hillsborough Avenue; no other interchange configurations will change with the improvements.

The proposed typical section includes eight 12-foot wide general purpose lanes (four in each direction), two 15-foot wide inside shoulders which accommodate transit, 12-foot wide outside shoulders, and a 2-foot wide concrete barrier separating the two directions of travel. The proposed I-275 mainline typical section is shown **Figure 3**.

The existing horizontal and vertical alignment will be maintained in the Build Alternative to avoid right of way impacts. The proposed improvements for mainline I-275 will take place within the existing right of way. Minimal right of way may be required at the Bearss Avenue interchange for storm water ponds.

2.2 Interchange Build Alternative

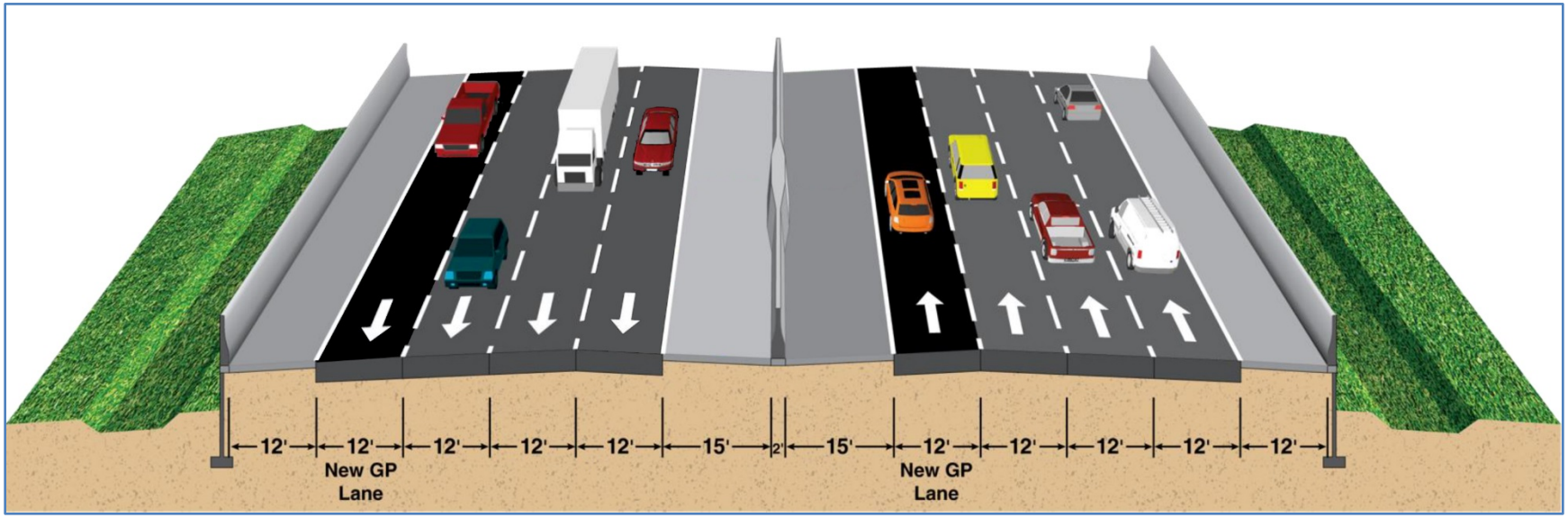
The interchange ramps along the corridor will accommodate the mainline widening of I-275, but the interchange configurations will not change, with the exception of Hillsborough Avenue and Bearss Avenue interchanges. Operational improvements will be included at these two interchanges.

On Hillsborough Avenue, east of I-275, a signal is proposed for the on-ramp for I-275 northbound. An eastbound to northbound dual left will be constructed at this intersection by widening Hillsborough Avenue to accommodate more vehicles entering I-275. Also, the I-275 northbound loop off-ramp will be reconstructed to direct traffic to this proposed signalized intersection.

The vertical and horizontal constraints at the existing bridges at the Bearss Avenue interchange cannot accommodate the proposed improvements; thus, the Bearss Avenue interchange will be reconstructed as a single point urban interchange (SPUI). The design includes reconstructing the I-275 bridge over Bearss Avenue and reconstructing the on- and off-ramps from the I-275 gores to approximately halfway to the Bearss Avenue intersection. The bridge design will accommodate potential future widening of Bearss Avenue. The bridge reconstruction will create the configuration for a SPUI interchange to be implemented in the future.

The future configuration would have one traffic signal underneath the I-275 bridge to control through traffic on Bearss Avenue and left-turning traffic entering or exiting I-275 at the intersection.

Figure 3: 2I-275 Proposed Typical Section



3.0 METHODOLOGY

As stated in the Introduction of this NSR, the traffic noise analysis has been prepared in accordance with all applicable guidelines as stated within both 23 CFR 772 and Part 2, Chapter 18 of the FDOT PD&E Manual (January 14, 2019). As such, the analysis was performed using the FHWA's Traffic Noise Model (TNM, Version 2.5). Use of the TNM is required when evaluating the potential for traffic noise impacts during the design year of roadway improvement projects for which the regulations, policies and guidelines with 23 CFR 772 and Part 2, Chapter 18 of the PD&E Manual are applicable.

For properties with uses other than residential, the methodologies described in the FDOT's A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations were also used. Special land uses in the study area include churches, schools, parks, golf courses and a tennis court.

3.1 Noise Metrics

The predicted traffic noise levels presented in this report are expressed in decibels on the "A"-weighted scale (dB(A)). This scale most closely approximates the response characteristics of the human ear to traffic noise. All traffic noise levels are reported as equivalent levels (Leq(h)). Levels reported as Leq(h) are equivalent steady-state sound levels that contain the same acoustic energy as time-varying sound levels over a period of one hour.

3.2 Traffic Data

Noise levels are low when traffic volumes are low and operating conditions are good (level-of-service (LOS) A or B) and when traffic is so congested that movement is slow (LOS D, E, or F). Generally, the maximum hourly noise level occurs between these two conditions (i.e., LOS C).

The traffic volumes used in the analysis were either the roadway design LOS C volume or the forecast demand volume, whichever was less, so that the predicted traffic noise levels with the improvements to I-275 represent the maximum hourly noise levels. The Existing (year 2017), Future No-Build (year 2045) and Future Build (year 2045) traffic data used in the analysis are provided in **Appendix A** of this NSR.

3.3 Noise Abatement Criteria

For the purpose of evaluating traffic noise, the FHWA established Noise Abatement Criteria (NAC). As shown in **Table 3-1**, these criteria vary according to a properties' activity category (i.e., land use). For comparative purposes, typical noise levels for common indoor and outdoor activities are provided in **Table 3-2**.

When predicted traffic noise levels "approach" or exceed the NAC, or when predicted future noise levels increase substantially from existing levels, the FHWA requires that noise

abatement measures be considered. FDOT defines the word “approach” to mean within 1 dB(A) of the NAC. The FDOT’s NAC are also shown in Table 2-1.

Table 3-1 FHWA/FDOT Noise Abatement Criteria

Activity Category	Description of Activity Category	Activity Leq(h)[1]	
		FHWA	FDOT
A	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.	57 (Exterior)	56 (Exterior)
B[2]	Residential	67 (Exterior)	66 (Exterior)
C[2]	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.	67 (Exterior)	66 (Exterior)
D	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.	52 (Interior)	51 (Interior)
E[2]	Hotels, motels, offices, restaurants/bars and other developed lands, properties or activities not included in A-D or F.	72 (Exterior)	71 (Exterior)
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.	--	--

Sources: Table 1 of 23 CFR Part 772 and Figure 18-1 of Chapter 18 of the FDOT’s PD&E Manual (dated 1-14-19).

[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.

Note: Noise abatement considerations are also warranted when a substantial noise increase is predicted to occur (i.e., when the predicted future traffic noise level with an improvement project is equal to or greater than 15 dB(A) when compared to the existing traffic noise level.

Table 3-2 Typical Noise Levels

Common Outdoor Activities	Noise Level dB(A)	Common Indoor Activities
	---110---	Rock band
Jet flyover at 1,000 feet		
	---100---	
Gas lawnmower at 3 feet		
	---90---	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	---80---	Garbage disposal at 3 feet
Noisy urban area daytime		
Gas lawnmower at 100 feet	---70---	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	---60---	
		Large business office
Quiet urban daytime	---50---	Dishwasher in next room
Quiet urban nighttime	---40---	Theater, large conference room (background)
Quiet suburban nighttime		
	---30---	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	---20---	
		Broadcast/recording studio
	---10---	
	---0---	
Lowest Threshold of Human Hearing		Lowest Threshold of Human Hearing

Source: California Department of Transportation Technical Noise Supplement, Oct. 1998, Page 18.

FHWA regulations also state that a traffic noise impact is predicted to occur when the increase in traffic noise levels with a proposed improvement is substantial when compared to existing levels. The FDOT considers that a substantial increase would occur when traffic noise levels are predicted to increase 15 dB(A) or more above existing conditions as a direct result of a transportation improvement project.

3.4 Noise Abatement Measures

When traffic noise impacts are predicted, noise abatement measures are considered for the impacted properties and the feasibility and reasonableness of providing abatement are considered. Feasibility factors are related to the acoustical and engineering properties of an abatement measure while reasonableness factors relate to the social, economic and environmental properties of a measure.

The following subsections of this NSR present and discuss four methods of abating traffic noise impacts.

3.4.1 Traffic Management

Some types of traffic management reduce noise levels. For example, trucks can be prohibited from certain streets and roads, or be permitted to only use certain streets and roads during daylight hours. The timing of traffic lights can also be changed to smooth out the flow of traffic and eliminate the need for frequent stops and starts. Speed limits can also be reduced.

3.4.2 Alignment Modifications

Modifying the horizontal and/or vertical alignment of a roadway can also be an effective traffic noise mitigation measure. When the horizontal alignment is shifted (i.e., moved) away from a noise sensitive property or when the vertical alignment is shifted below (i.e., placing the roadway below the elevation of a noise sensitive land use) or above a noise sensitive property.

3.4.3 Buffer Zones

Providing a buffer between a roadway and noise-sensitive land uses is an abatement measure that can minimize/eliminate noise impacts. To abate traffic noise at an existing noise sensitive land use, the property would be acquired to create a buffer zone. Buffer zones can also be used to eliminate the potential for new noise sensitive land uses to be impacted by traffic noise. For this purpose, and to encourage use of this abatement measure through local land use planning, noise contours have been developed and are further discussed in Section 5.0 of this NSR.

3.4.4 Noise Barriers

The most common type of noise abatement measure is construction of a noise barrier. Noise barriers have the potential to reduce traffic noise levels by blocking the sound path between the motor vehicles on the roadway (the source) and the noise-sensitive land uses adjacent to the roadway.

In order to effectively reduce traffic noise, a noise barrier must be relatively long, continuous (without intermittent openings) and sufficiently tall. For a noise barrier to be considered a potential abatement measure the barrier must also provide the following:

- Minimum Noise Reduction Requirements - A barrier must provide at least a 5 dB(A) reduction in traffic noise for two or more impacted noise-sensitive receptors and also provide at least a 7 dB(A) reduction (i.e., the FDOT's noise reduction design goal) for at least one benefited receptor. Receptors are discrete representative locations on a property that has noise sensitive land uses (see Table 2-1).

The cost of a noise barrier must also be reasonable. For this purpose, the FDOT established the following cost-effective limit:

- Cost Effective Limit – At a cost of $30 per square foot, a barrier should not cost more than $42,000 per benefited noise sensitive receptor (a benefited receptor is one that receives at least a 5 dB(A) reduction in noise from a mitigation measure). For special land uses (e.g., the outdoor eating area of a restaurant), the cost of a barrier is based on the number of people using the impacted and benefited area.

If the results of the preliminary analysis indicate that a noise barrier would provide the required reduction in traffic noise at a cost at or below the cost-effective limit, additional factors are then considered. These factors relate to barrier design and construction (i.e., given site-specific details, can a barrier actually be constructed), safety, access to and from adjacent properties, right-of-way (ROW) requirements, maintenance and impacts on utilities and drainage amongst other factors. The viewpoint of the impacted property owners (and renters if applicable) who may, or may not, desire a noise barrier, is also a factor that is considered when evaluating noise barriers as an abatement measure.

4.0 TRAFFIC NOISE ANALYSIS

4.1 Noise Sensitive Receptors

As previously stated, noise sensitive receptors are representative locations of a noise sensitive land use. The location of the receptors evaluated on the noise sensitive land uses adjacent to the I-275 project are shown on aerials provided in **Appendix B**. A total of 1,749 noise sensitive receptors (discrete representative locations on a property that has noise sensitive land uses) were evaluated. The receptors represent 1,947 properties on which there are noise sensitive land uses. A total of 1,924 of the properties are residences, 11 are places of worship, four are schools, three are parks, two are recreational areas, one is a medical facility (an assisted living facility) and two are hotels.

Table 4-1 lists and describes each Common Noise Environment (CNE) and provides the number of evaluated noise sensitive receptors in each area.

Following FHWA/FDOT guidance, residences were evaluated as Activity Category "B" (i.e. abatement considered at a predicted traffic noise of 66 dB(A)). Schools, parks, recreational areas and places of worship, where exterior areas of use exist, were evaluated as Activity Category "C" (i.e., abatement considered at a predicted traffic noise level of 66 dB(A)). Some of the places of worship do not have areas of exterior use. Therefore, these properties were evaluated as Activity Category "D" (i.e., abatement considered at a predicted interior traffic noise level of 51 dB(A)). Finally, the hotels were evaluated as Activity Category "E" (i.e., abatement considered at a predicted traffic noise level of 71 dB(A)). The assigned Activity Categories are listed in the table above for each CNE.

Table 4-1 Noise Sensitive Areas

CNE No.	Sheet No. (See Appendix B)	Activity Category	Number of Properties with Noise Sensitive Land Uses (Properties)	Number of Evaluated Receptors	Name and/or Location of Noise Sensitive Properties
1	1	B - Residential	82	79	Residences east of I-275 between East Osborne Avenue and Hillsborough Avenue
2	1	C - Place of Worship (Exterior)	1	2	Seminole Heights Baptist Church
3/5	1	B - Residential	85	70	Residences west of I-275 between East Osborne Avenue and Hillsborough Avenue
4	1	C - Place of Worship (Exterior) D - Place of Worship (Interior)	1	3	St Paul Lutheran Church
6	2	B - Residential	58	51	Residences east of I-275 between East Mohawk Avenue and East Henry Avenue including Miami Place and Osceola Place
7	2	B - Residential	27	19	Residences east of I-275 between East Idlewild Avenue and East Hanna Avenue
8	3	B - Residential	55	51	Residences east of I-275 between East Hanna Avenue and East Sligh Avenue
9/11	2-3	B - Residential	152	127	Residences west of I-275 between Hillsborough Avenue and Sligh Avenue
10	2-3	C - Place of Worship (Exterior) C - School (Exterior) D - Place of Worship (Interior)	3	23	Seminole Heights Methodist Church, Seminole Heights Elementary School, and church at 610 E North Street
12/13	4-5	B - Residential	135	111	Residences east of I-275 between East Sligh Avenue and the Hillsborough River
14	4	D - Place of Worship (Interior)	1	1	Word of Life Tabernacle
15	5	C- Park	1	4	Sulfur Springs Pool & Park
16/17	4-5	B - Residential	149	116	Residences west of I-275 between East Sligh Avenue and the Hillsborough River
18	5	C - Park	1	16	River Tower Park
19	6	B - Residential C - Park	65	52	Residences east of I-275 between East Waters Avenue and East Yukon Street and Cheney Park

CNE No.	Sheet No. (See Appendix B)	Activity Category	Number of Properties with Noise Sensitive Land Uses (Properties)	Number of Evaluated Receptors	Name and/or Location of Noise Sensitive Properties
20	6	B - Residential	55	40	Residences west of I-275 between East Waters Avenue and East Yukon Street
21	6	B - Residential	6	4	Residences east of I-275 between East Eskimo Avenue and East Skagway Avenue
22	6	D - Place of Worship (Interior)	1	1	Ambassadors of Christ Temple of Prayer
23	6	C – Recreational Area	1	4	Tennis court at the Westchester Manor Condominiums
23a	6	B - Residential	20	20	Residences at the Westchester Manor Condominiums
24	7-8	B - Residential	126	120	Residences east of I-275 between East Wilma Street and East Linebaugh Avenue
25	7	B - Residential	61	53	Residences in the Central Mobile Home Park and the Jersey Mobile Home Park
26	8	C - School (Exterior)	1	21	Most Holy Redeemer Inter-Parochial School
27	8-9	B - Residential	106	95	Residences west of I-275 between East Althea Avenue and East 109th Avenue and including all of North Dixon Avenue
28	8-9	B - Residential	161	139	Residences east of I-275 between East Bougainvillea Avenue and East Fowler Avenue
29	9	C - School (Exterior)	1	12	Community Charter Schools of Excellence
30	10	B - Residential	81	74	Residences east of I-275 between East 118th Avenue and East 127th Avenue
31	10	B - Residential	35	35	Residences west of I-275 between East 119th Avenue and East 122th Avenue
32	10	D - School (Interior) C - School (Exterior) D – Medical Facility (Interior)	2	11	Frank D. Miles Elementary and Step Ahead Academy and Memory Care Assisted Living Facility
33	10	B - Residential	20	2	Residences west of I-275 between East 124th Avenue and East 127th Avenue
34	11	B - Residential	64	55	Residences east of I-275 between East 127th Avenue and East 132nd Avenue

CNE No.	Sheet No. (See Appendix B)	Activity Category	Number of Properties with Noise Sensitive Land Uses (Properties)	Number of Evaluated Receptors	Name and/or Location of Noise Sensitive Properties
35	11	D - Place of Worship (Interior)	1	1	Iglesia Oreb Monte De Dios
36	11	E - Hotel	1	2	Days Inn Hotel pool
37	11	D - Place of Worship (Interior)	1	1	Chinese Christian Alliance Church
38	11	B - Residential	42	42	Residences west of I-275 between Hoffman Boulevard and East 132nd Avenue
39	11	E - Hotel	1	2	Super 8 Motel Pool
40	12	B - Residential	60	44	Residences east of I-275 between East Fletcher Avenue and East 138th Avenue including the Hidden Oaks Mobile Home Park
41	12	D - Place of Worship (Interior) C – Recreational Facility	2	16	Iglesia De Dios Pentecostal and Grand Prix Tampa (a miniature golf course)
42	12	B - Residential	10	10	Residences along East 145th Avenue
43	12	B - Residential	52	22	Residences in the Oak Grove Apartments
44	12	C - Place of Worship (Exterior) D - Place of Worship (Interior)	1	2	Gateway Christian Center
45	12	B - Residential	32	32	Residences west of I-275 between East 143rd Avenue and East 145th Avenue
46	13	B - Residential	58	34	Residences in the Fountain Palm Apartment Homes and the Chalet Village Mobile Home Park
47	13	B - Residential	37	37	Residences west of I-275 between Garland Court and East Bearss Avenue
48	13	D - Place of Worship (Interior)	1	2	Christian Growth Fellowship
49	14	B - Residential	5	5	Residences along Clear Lane
50	14	B - Residential	76	76	Residences in the Lakeshore Villas Mobile Home Park
51	15	B – Residential	10	10	Residences east of I-275 and north of North Nebraska Avenue
Total			1,947	1,749	

4.2 Measured Noise Levels

Both existing and future noise levels (with and without the proposed improvements) were modeled using the TNM. To verify the accuracy of the predictions, the computer model was validated using field measured noise levels adjacent to the project corridor. Traffic data including motor vehicle volumes, vehicle mix, vehicle speeds and meteorological conditions were recorded during each measurement period.

The field measurements were conducted in accordance with the FHWA's Measurement of Highway-Related Noise. The measurements were obtained using a Larson Davis Model CA-250, Type II integrating sound level meter (SLM). The SLM was calibrated before and after the measurement period with a Larson Davis CAL200 calibrator.

The recorded traffic data were used as input for the TNM to determine if, given the topography and site conditions of the area, the computer model could "re-create" the measured levels with the existing roadway. Following FDOT guidelines, a noise prediction model is considered within the accepted level of accuracy if the measured and predicted noise levels are within a tolerance standard of 3 dB(A).

Table 4-2 presents the field measurements and the validation results. As shown, the ability of the model to predict noise levels within the FDOT limits of plus or minus 3 dB(A) for the project was confirmed. Documentation in support of the validation is provided in **Appendix C** of this NSR.

Table 4-2 Validation Data

General Location	Site Number: Location	Measurement Period	Modeled (dB(A))	Measured (dB(A))	Difference
South of West Bearss Avenue and West of I-275	Site MS1-1: First Row Residence (143 East 143rd Avenue)	1	68.4	66.6	1.8
		2	67.7	65.6	2.1
		3	67.7	65.7	2.0
	Site MS1-2: Second Row Residence (138 East 143rd Avenue)	1	65.0	62.2	2.8
		2	64.5	61.5	3.0
		3	64.6	61.8	2.8
South of East Broad Street and East of I-275	Site MS2-1: First Row Residence (7307 North Huntley Avenue)	1	70.0	68.6	1.4
		2	70.5	68.9	1.6
		3	70.6	69.7	0.9
	Site MS2-2: Second Row - Word of Life Tabernacle (7309 North Huntley Avenue)	1	64.6	62.9	1.7
		2	65.1	63.0	2.1
		3	65.3	63.7	1.6

4.3 Predicted Traffic Noise Levels

The predicted traffic noise levels for each evaluated receptor are provided in **Appendix D**. **Table 4-3** lists the number of evaluated receptors in each CNE and the number of receptors predicted to be impacted by traffic noise with existing conditions and for future conditions with and without the improvements to I-275.

Table 4-3 Summary of Traffic Noise Analysis Results

CNE No.	Sheet No. (See Appendix B)	Activity Category	Number of Properties with Noise Sensitive Land Uses (Properties)	Number of Evaluated Receptors	Number of Impacted Noise Sensitive Land Uses		
					Existing (2017)	No Build (2040)	Build (2040)
1	1	B – Residential	82	79	28	28	59
2	1	C - Place of Worship (Exterior)	1	2	1	1	1
3/5	1	B – Residential	85	70	43	44	80
4	1	C - Place of Worship (Exterior)	1	2	0	0	1
		D - Place of Worship (Interior)		1	0	0	0
6	2	B – Residential	58	51	23	23	44
7	2	B - Residential	27	19	17	17	22
8	3	B - Residential	55	51	36	37	53
9/11	2-3	B - Residential	152	127	73	75	140
10	2-3	C - Place of Worship (Exterior)	3	10	1	1	1
		C - School (Exterior)		12	0	0	1
		D - Place of Worship (Interior)		1	0	0	0
12/13	4-5	B - Residential	135	111	44	45	66
14	4	D - Place of Worship (Interior)	1	1	0	0	0
15	5	C - Park	1	4	0	0	0
16/17	4	B - Residential	149	116	48	50	79
18	5	C - Park	1	16	1	1	1
19	6	B - Residential	65	47	12	12	30
		C - Park		7	0	0	0
20	6	B - Residential	55	40	20	20	32
21	6	B - Residential	6	4	0	0	0
22	6	D - Place of Worship (Interior)	1	1	0	0	0
23	6	C – Recreational Area	1	4	0	0	1
23a	6	B - Residential	20	20	0	0	1
24	7-8	B - Residential	126	120	10	11	21
25	7	B - Residential	61	53	0	0	0
26	8	C - School (Exterior)	1	21	0	0	0
27	8-9	B - Residential	106	95	0	0	0
28	8-9	B - Residential	161	139	0	0	0
29	9	C - School (Exterior)	1	12	1	1	1
30	10	B - Residential	81	74	21	21	30
31	10	B - Residential	35	35	5	6	9
32	10	D - School (Interior)	2	2	0	0	0
		C - School (Exterior)		8	0	0	1
		D - Medical Facility (Interior)		1	0	0	0

CNE No.	Sheet No. (See Appendix B)	Activity Category	Number of Properties with Noise Sensitive Land Uses (Properties)	Number of Evaluated Receptors	Number of Impacted Noise Sensitive Land Uses		
					Existing (2017)	No Build (2040)	Build (2040)
33	10	B - Residential	20	2	10	10	10
34	11	B - Residential	64	55	0	0	0
35	11	D - Place of Worship (Interior)	1	1	0	0	0
36	11	E - Hotel	1	2	0	0	0
37	11	D - Place of Worship (Interior)	1	1	0	0	0
38	11	B - Residential	42	42	0	0	0
39	11	E - Hotel	1	2	0	0	0
40	12	B - Residential	60	44	1	1	2
41	12	D - Place of Worship (Interior)	2	1	0	0	0
		C - Recreational Area		15	1	1	1
42	12	B - Residential	10	10	0	0	1
43	12	B - Residential	52	22	19	19	26
44	12	C - Place of Worship (Exterior)	1	1	0	0	0
		D - Place of Worship (Interior)		1	0	0	0
45	12	B - Residential	32	32	7	7	11
46	13	B - Residential	58	34	1	1	2
47	13	B - Residential	37	37	14	14	18
48	13	D - Place of Worship (Interior)	1	2	0	0	0
49	14	B - Residential	5	5	2	2	4
50	14	B - Residential	76	76	0	0	0
51	15	B - Residential	10	10	0	0	0
Total			1,947	1,749	439	448	749

As shown in the table above, 439 properties with noise sensitive land uses are predicted to be impacted by traffic noise under the existing (2017) conditions. In the future no build scenario (no improvements), 448 noise sensitive properties are predicted to be impacted. In the future, build scenario (with the proposed improvements), 749 properties with a sensitive land use are predicted to be impacted by traffic noise. A total of 740 of the 749 properties impacted with the proposed improvements are residences, three are places of worship, three are schools, two are recreational areas, and one is a park. Of note, noise impacts occur at properties with exterior use.

4.4 Abatement Considerations

As previously stated, when traffic noise impacts are predicted, noise abatement measures are considered for the impacted properties. The following discusses the FDOT's consideration of each of the measures for which an overview was provided in Section 2.4 of this NSR.

4.4.1 Traffic Management

Reducing traffic speeds and/or the traffic volume or changing the motor vehicle fleet on I-275 is inconsistent with the goal of improving the ability of the roadway to handle the forecast traffic volume.

Therefore, traffic management measures are not considered to be a reasonable noise abatement measure for the I-275 project.

4.4.2 Alignment Modifications

A change in the horizontal or vertical alignment of a roadway may reduce noise levels at noise sensitive receptors. The proposed improvements would be constructed to follow the existing roadway alignment. Because shifting the alignment horizontally would require substantial ROW acquisitions and, because noise sensitive land uses are located on both sides of the roadway, a modification to the alignment of I-275 for the purpose of reducing traffic impacts is not considered to be a reasonable noise abatement measure. Suppressing the roadway's vertical alignment to create a natural berm between the highway and receivers or raising the vertical alignment is not considered to be reasonable due to the cost associated with this measure.

4.4.3 Buffer Zones

As previously stated, to abate predicted traffic noise at an existing noise sensitive land use, the property would have to be acquired. The same cost-effective limit that applies to noise barriers (i.e., $42,000 per benefited noise sensitive receptor) would apply to the purchase price of any impacted noise sensitive property. A review of data from the Hillsborough Property Appraiser indicates that the cost to acquire the developed properties adjacent to I-275 exceeds the cost-effective limit. Therefore, creating a buffer zone by acquiring existing noise sensitive properties is not considered to be a reasonable noise abatement measure.

4.4.4 Noise Barriers

TNM was used to evaluate the ability of noise barriers to reduce traffic noise levels for the impacted noise sensitive receptors adjacent to I-275. The barriers were evaluated at heights from eight to 22 feet (in two-foot increments). The length of each barrier was optimized to determine if at least the minimum noise reduction requirements (i.e., a minimum reduction of 5 dB(A) for two impacted receptors and a minimum reduction of 7 dB(A) for one benefited receptor) could be achieved.

For the majority of the CNEs, noise barriers were evaluated five feet within the FDOT's ROW. In elevated sections of I-275 (e.g., overpasses at interchanges), barriers were also evaluated on the shoulder of the I-275 travel lanes. Because the shoulder barriers would be located on either bridge or retaining wall structure, these barriers were evaluated at a maximum height of eight feet. Notably, in CNEs with elevated segments of I-275, a combination of a ROW barrier and shoulder barrier was evaluated.

Notably, barriers were optimized (length and height) in an attempt to benefit all of the impacted receptors in an CNE. In some areas between interchanges with high densities of receptors, CNEs were analyzed together, such as CNE 3 and CNE 5 (i.e., CNE 3/5). In this case, the barriers were optimized to benefit the impacted receptors in both CNEs.

The following provides the results of the noise barrier evaluation and discusses the potential amount of noise reduction and the cost effectiveness of providing barriers as an abatement measure for the CNEs in which traffic noise has been predicted to impact noise sensitive properties (i.e., the CNEs listed in **Table 4-3** for which receptors are predicted to be impacted with the Build Alternative).

4.4.4.1 CNE 1

A combination of noise barriers located five feet within the FDOT ROW line and along the shoulder were evaluated for the 59 impacted residences located east of I-275 between East Osborne Avenue and Hillsborough Avenue (Receptors 1 through 3, 6,7, 12 through 14, 18 through 22, 25 through 28, 30 through 33, 35 through 39, 41 through 53, 55 through 57, 59 through 62, 64 through 73 and 75 through 77).

The results of the evaluation are provided in **Table 4-4**. As shown, at barrier heights of 8 to 22 feet, at least 41 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved, and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-5**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 1.

Table 4-4 CNE 1: Barrier Results for Residences east of I-275 between Osborne Avenue and Hillsborough Avenue

Barrier (Shoulder/ ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 59										
8/ 8	1,349/ 1,581	27	9	5	41	8	49	$703,200	$14,351	Yes
8/ 10	1,599/ 1,581	15	17	17	49	10	59	$858,060	$14,543	Yes
8/ 12	1,599/ 1,901	10	12	30	52	11	63	$1,068,120	$16,654	Yes
8/ 14	1,497/ 1,901	7	6	41	54	14	68	$1,157,700	$17,025	Yes
8/ 16	1,397/ 2,104	6	1	48	55	14	69	$1,345,200	$19,496	Yes
8/ 18	1,699/ 2,155	5	3	48	56	14	70	$1,571,460	$22,449	Yes
8/ 20	1,397/ 2,155	3	4	49	56	16	72	$1,628,280	$22,615	Yes
8/ 22	1,097/ 2,155	4	3	50	57	18	75	$1,685,580	$22,474	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-5 CNE 1: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's I-275 ROW and portions on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

4.4.4.2 CNE 2

A noise barrier was evaluated for the impacted area of the Seminole Heights Baptist Church (Receptors 1 and 2). The church is located north of East Giddens Avenue, east of I-275. The impacted frequent use area is a playground. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. The result was that regardless of length or height, a noise barrier was unable to achieve the noise reduction design goal of 7 dB(A) in the area impacted by traffic noise. As such, a barrier is not considered a reasonable noise abatement measure for the Seminole Heights Baptist Church.

4.4.4.3 CNE 3/5

A combination of noise barriers located five feet within the FDOT ROW line and along the shoulder was evaluated for the 80 impacted residences located west of I-275 between East Osborne Avenue and Hillsborough Avenue (CNE 3: Receptors 1 through 3, 5 through 8, 10 through 27, 29 through 44; CNE 5: 1 through 18).

The results of the evaluation are provided in **Table 4-6**. As shown, at barrier heights of 8 to 22 feet, at least 75 of the impacted residences would receive a benefit from a reduction in traffic noise of 5

dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-7**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 3/5.

Table 4-6 CNE 3/5: Barrier Results for Residences west of I-275 between Osborne Avenue and Hillsborough Avenue

Barrier (Shoulder/ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 80										
8/8	1,595/ 2,417	24	28	23	75	0	75	$962,880	$12,838	Yes
8/10	1,396/ 2,521	14	20	43	77	0	77	$1,091,340	$14,173	Yes
8/12	1,494/ 2,417	10	6	61	77	1	78	$1,228,680	$15,752	Yes
8/14	1,296/ 2,521	6	6	65	77	0	77	$1,369,860	$17,790	Yes
8/16	1,096/ 2,417	3	7	68	78	0	78	$1,423,200	$18,246	Yes
8/18	796/ 2,521	4	5	69	78	1	79	$1,552,380	$19,650	Yes
8/20	696/ 2,417	6	2	70	78	1	79	$1,617,240	$20,471	Yes
8/22	796/ 2,417	5	4	70	79	1	80	$1,786,260	$22,328	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-7 CNE 3/5: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW for I-275 and portions on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.4 CNE 4

A noise barrier was evaluated for the impacted area of the St Paul Lutheran Church (Receptors 2 and 3). The church is located off of North Central Avenue, west of I-275. The impacted frequent use area is a playground. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal length of 650 feet and an optimal height of 12 feet, a barrier would reduce predicted traffic noise levels within the impacted area a minimum of 7 dB(A). Because it is not known how frequently the impacted and benefited area of the church would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Assuming the optimal barrier length and height, the minimum daily use required within the impacted and benefited area of the church, in order for a barrier to be considered cost effective, is 329 person-hours (i.e., 329 people would have to use the area for one hour each day of the

year). Because it is not reasonable to assume that this level of activity would occur within the impacted area that would be benefited by a barrier, it is not considered a reasonable noise abatement measure for the impacted area of the St Paul Lutheran Church.

4.4.4.5 CNE 6

A noise barrier was evaluated five feet within the FDOT ROW line for the 44 impacted residences located east of I-275 between East Mohawk Avenue and East Clifton Street (Receptors 1 through 12,15 through 19, 21, 22, 24 through 26, 29, 30, 33-35, 37 through 43, and 45 through 51).

The results of the evaluation are provided in **Table 4-8**. As shown, at barrier heights of 8 to 22 feet, at least 11 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-9**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 6.

Table 4-8 CNE 6: Barrier Results for Residences east side of I-275 from Hillsborough Avenue to Kingsway Road

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 44										
8	1,687	7	3	1	11	0	11	$404,880	$36,807	Yes
10	1,687	6	6	10	22	0	22	$506,100	$23,005	Yes
12	1,981	11	3	21	35	0	35	$713,160	$20,376	Yes
14	1,981	3	10	28	41	6	47	$832,020	$17,703	Yes
16	1,981	1	3	38	42	9	51	$950,880	$18,645	Yes
18	1,687	3	7	33	43	9	52	$910,980	$17,519	Yes
20	1,687	2	6	35	43	9	52	$1,012,200	$19,465	Yes
22	1,687	2	2	39	43	9	52	$1,113,420	$21,412	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-9 CNE 6: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW for I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.6 CNE 7

A combination of noise barriers was evaluated, one located five feet within the FDOT ROW line and three barriers along the shoulder. There are 22 impacted residences located east of I-275 between East Clifton Street and East Hanna Avenue (Receptors 1 through 9, 11 through 13, 16, and 17).

The results of the evaluation are provided in **Table 4-10**. As shown, at barrier heights of 8 to 22 feet, at least 13 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit. Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-11**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 7.

Table 4-10 CNE 7: Barrier Results for Residences east side of I-275 from Idlewild Avenue to E Hanna Avenue

Barrier (Shoulder/ ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 22										
8/8	906/ 1,356	11	2	7	13	0	13	$542,880	$27,144	Yes
8/10	1,106/ 718	8	3	9	20	0	20	$480,840	$24,042	Yes
8/12	805/ 1,338	5	1	15	21	0	21	$674,880	$32,137	Yes
8/14	906/ 1,318	5	1	16	21	1	22	$771,000	$35,045	Yes
8/16	805/ 1,025	6	2	14	21	1	22	$685,200	$29,791	Yes
8/18	705/ 932	4	0	18	21	1	22	$672,480	$29,238	Yes
8/20	504/ 932	1	3	18	21	1	22	$680,160	$29,572	Yes
8/22	504/ 932	1	3	18	21	1	22	$736,080	$32,003	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-11 CNE 7: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located with portions within the FDOT's I-275 ROW and portions on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.7 CNE 8

A combination of noise barriers was evaluated, one located five feet within the FDOT ROW line and four barriers along the shoulder. There are 53 impacted residences located east of I-275 between Hanna Avenue and Sligh Avenue (Receptors 1 through 45 and 47 through 50).

The results of the evaluation are provided in **Table 4-12**. As shown, at barrier heights of 8 to 22 feet, at least 22 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-13**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 8.

Table 4-12 CNE 8: Barrier Results for Residences east side of I-275 from Hanna Avenue to Sligh Avenue

Barrier (Shoulder/ ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 53										
8/8	1,406/ 2,085	12	7	3	22	0	22	$837,840	$38,084	Yes
8/10	1,606/ 2,085	12	10	16	38	0	38	$1,010,940	$26,604	Yes
8/12	1,306/ 2,085	15	7	26	48	0	48	$1,064,040	$22,168	Yes
8/14	1,406/ 2,085	8	11	34	53	0	53	$1,213,140	$22,889	Yes
8/16	1,304/ 2,085	5	5	43	53	0	53	$1,313,760	$24,788	Yes
8/18	1,304/ 2,085	5	4	44	53	2	55	$1,438,860	$26,161	Yes
8/20	1,304/ 2,085	3	5	45	53	2	55	$1,563,960	$28,436	Yes
8/22	1,304/ 2,085	3	5	45	53	2	55	$1,689,060	$30,710	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.
[5] 8-foot shoulder barrier on a structure is included in total barrier length and cost.

Table 4-13 CNE 8: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located with portions within the FDOT's I-275 ROW and portions on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.8 CNE 9/11

A combination of noise barriers located five feet within the FDOT ROW line and along the shoulder were evaluated. There are 140 impacted residences located west of I-275 between Hillsborough Avenue and Sligh Avenue (CNE 9: Receptors 1 through 34, 36 through 38, 40 through 53, and 55 through 61; CNE 11: 1 through 64).

The results of the evaluation are provided in **Table 4-14**. As shown, at ROW barrier heights of 10 to 22 feet, at least 80 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved, and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-15**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 9/11.

Table 4-14 CNE 9/11: Barrier Results for Residences west side of I-275 from Hillsborough Avenue to Sligh Avenue

Barrier (Shoulder/ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 140										
8/8	1,987/ 4,644	21	7	7	35	0	35	$1,591,440	$45,470	No
8/10	1,887/ 4,562	39	20	21	80	1	81	$1,821,480	$22,487	Yes
8/12	1,787/ 4,562	47	24	49	120	0	120	$2,071,200	$17,260	Yes
8/14	1,186/ 4,614	28	39	63	130	2	132	$2,222,520	$16,837	Yes
8/16	1,187/ 4,562	15	24	94	133	2	135	$2,474,640	$18,331	Yes
8/18	689/ 4,614	5	16	113	134	2	136	$2,656,920	$19,536	Yes
8/20	689/ 4,614	3	9	122	134	4	138	$2,933,760	$21,259	Yes
8/22	689/ 4,614	2	4	128	134	5	139	$3,210,600	$23,098	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-15 CNE 9/11: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located with portions within the FDOT's I-275 ROW and portions on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.9 CNE 10

A noise barrier was evaluated for the impacted areas of the Seminole Heights United Methodist Church and the Seminole Heights Elementary School (Receptors 10A-1 through 10A-10, and 10B-1 through 10B-12). The church is located between East Paris Street and East Hanna Avenue, west of I-275. The frequent use area of the church is a playground. The school is located between East Hanna Avenue and East Fern Street, west of I-275. The impacted frequent use area of the school is a playground. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal length of 1,585 feet and an optimal height of 22 feet, a barrier would benefit the entire impacted area. Because it is not known how frequently the impacted and benefited area of the playgrounds would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Assuming the optimal barrier length and height, the minimum daily use required within

the impacted and benefited areas of the playgrounds in order for a barrier to be considered cost effective is 1,471 person-hours (i.e., 1,471 people would have to use the area for one hour each day of the year). Because it is not reasonable to assume that this level of activity would occur within the impacted area that would be benefited by a barrier, it is not considered a reasonable noise abatement measure for the impacted areas of the Seminole Heights United Methodist Church and the Seminole Heights Elementary School.

4.4.4.10 CNE 12/13

A combination of noise barriers was evaluated, one located five feet within the FDOT ROW line and four barriers along the shoulder. There are 66 impacted residences located east of I-275 between East Sligh Avenue and the Hillsborough River (CNE 12: Receptors 1, 5 through 8, 11 through 19, 21 through 42, 44, 45, 47, 49, 51 through 53, and 55; CNE 13: Receptors 1, 30, 32, 35 through 37, 39 through 42, 44, 45 and 50).

The results of the evaluation are provided in **Table 4-16**. As shown, at ROW barrier heights of 12 to 22 feet, at least 30 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-17**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 12/13.

Table 4-16 CNE 12/13: Barrier Results for Residences east side of I-275 from Sligh Avenue to the Hillsborough River

Barrier (Shoulder/ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 66										
8/8	699/ 2,651	7	0	1	8	0	8	$476,880	$59,610	No
8/10	1,856/ 2,962	7	9	6	22	3	25	$1,252,260	$50,090	No
8/12	1,657/ 3,062	10	1	19	30	7	37	$1,336,440	$36,120	Yes
8/14	1,457/ 3,062	10	10	22	42	13	55	$1,390,380	$25,280	Yes
8/16	1,258/ 2,962	6	11	29	46	14	60	$1,396,560	$23,276	Yes
8/18	1,500/ 2,962	7	3	39	49	14	63	$1,550,580	$24,612	Yes
8/20	1,800/ 2,962	7	3	43	53	16	69	$1,718,520	$24,906	Yes
8/22	1,899/ 1,599	15	4	45	64	17	81	$1,838,220	$22,694	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.

[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-17 CNE 12/13: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW and portions on the shoulder for I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.11 CNE 16/17

A combination of noise barriers was evaluated, two located five feet within the FDOT ROW line and seven barriers along the shoulder. There are 79 impacted residences located west of I-275 between East Sligh Avenue and Bird Street (CNE 16: Receptors 1, 3, 11, 12, 14, 16, 18, 19, 23, 24, 26 through 30, 32 through 36, 39 through 41, 44, and 48 through 51; CNE 17: Receptors 1, 2, 5, 9, 10, 14-16, 18, 19, 21 through 23, 25 through 58, and 60).

The results of the evaluation are provided in **Table 4-18**. As shown, at barrier heights of 12 to 22 feet, at least 29 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit. Following FDOT's Plans Preparation Manual (PPM), the height of roadway shoulder barriers is limited to a maximum of 8 feet.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-19**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNEs 16 and 17.

Table 4-18 CNE 16/17: Barrier Results for Residences west side of I-275 from Sligh Avenue to Bird Street

Barrier (Shoulder/ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 79										
8/8	1,801/ 3,126	11	4	17	17	5	22	$1,182,480	$53,749	No
8/10	1,801/ 3,126	11	7	24	24	8	32	$1,370,040	$42,814	No
8/12	1,700/ 3,126	10	8	29	29	11	40	$1,533,360	$38,334	Yes
8/14	2,193/ 3,126	9	7	33	33	18	51	$1,839,240	$36,064	Yes
8/16	2,030/ 3,126	13	6	43	43	35	78	$1,987,680	$25,483	Yes
8/18	1,828/ 3,126	7	15	53	53	35	88	$2,126,760	$24,168	Yes
8/20	1,591, 3,126	14	14	75	75	38	113	$2,257,440	$19,977	Yes
8/22	1,828/ 2,937	7	13	79	79	44	123	$2,377,140	$19,326	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.
[5] 8-foot shoulder barrier on a structure is included in total barrier length and cost.

Table 4-19 CNE 16/17: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located with portions within the FDOT's I-275 ROW and portions on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.12 CNE 18

A noise barrier was evaluated for the impacted area of the River Tower Park (Receptors 1, 2, 9 and 13). The park is located south of Bird Street, west of I-275. The impacted frequent use area is a park. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal length of 1,130 feet and an optimal height of 16 feet, a barrier would reduce predicted traffic noise levels within the impacted area a minimum of 7 dB(A). Because it is not known how frequently the impacted and benefited area of the park would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Assuming the optimal barrier length and height, the minimum daily use required within the impacted and benefited area of the park in order for a barrier to be considered cost effective is 3,617 person-hours (i.e., 3,617 people would have to use the area for one hour each day of the year). Because it is not reasonable to assume that this level of activity would occur within the

impacted area that would be benefited by a barrier, it is not considered a reasonable noise abatement measure for the impacted area of River Tower Park.

4.4.4.13 CNE 19

A combination of noise barriers was evaluated, one located five feet within the FDOT ROW line and two on wall structures at the north and south ends of the CNE. There are 30 impacted residences located east of I-275 between East Waters Avenue and East Yukon Street (Receptors 1 through 5, 7, 8, 10, 12 through 17, 19 through 21, 24, 25, 31, 32, 35, 39, 42, and 45).

The results of the evaluation are provided in **Table 4-20**. As shown, at barrier heights of 18 to 22 feet, at least 22 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-21**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 19.

Table 4-20 CNE 19: Barrier Results for Residences east of I-275 between Waters Avenue and E Yukon Street

Barrier (Shoulder/ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 30										
8/8	NA	0	0	0	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]
8/10	0/ 1,046	2	0	0	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
8/12	0/ 1,320	3	2	0	5	0	5	$475,200	$95,040	No
8/14	0/ 1,320	3	1	3	7	0	7	$554,400	$79,200	No
8/16	253/ 1,415	2	2	5	9	0	9	$739,920	$73,992	No
8/18	253/ 1,415	13	2	7	22	1	23	$824,820	$34,368	Yes
8/20	451/ 1,415	3	13	9	25	0	25	$957,240	$36,817	Yes
8/22	451/ 1,415	5	3	22	30	10	40	$1,042,140	$25,418	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.
[5] 7 dB(A) reduction not achieved at any receptor.
[6] 5 dB(A) reduction or greater was not achieved at two or more receptors.

Table 4-21 CNE 19: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located with portions within the FDOT's I-275 ROW and portions on the shoulder of I-275 and would not block ingress or egress to any property
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.14 CNE 20

A combination of noise barriers was evaluated, one located five feet within the FDOT ROW line, one on the wall structure at the south end of the CNE, and one on the wall structure at the north end of the CNE. There are 32 impacted residences located west of I-275 between East Waters Avenue and East Yukon Street (Receptors 3, 4, 6 through 12, 15 through 19, 21, 22, 24 through 27, 30 through 34, and 36 through 40).

The results of the evaluation are provided in **Table 4-22**. As shown, at barrier heights of 16 to 22 feet, at least 11 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because a barrier is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. A summary of the additional barrier considerations is provided in **Table 4-23**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 20.

Table 4-22 CNE 20: Barrier Results for Residences west of I-275 between Waters Avenue and E Yukon Street

Barrier (Shoulder/ROW)		Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
Height (feet)	Length (feet)	5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 32										
8/8	NA[5,6]	1	0	0	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]
8/10	NA[5]	1	1	0	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
8/12	200/ 1,020	5	0	2	7	0	7	$415,200	$59,314	No
8/14	200/ 920	2	6	2	10	0	10	$434,400	$43,440	No
8/16	0/ 920	2	1	8	11	0	11	$441,600	$40,145	Yes
8/18	402/ 1,020	7	0	11	18	0	18	$647,280	$35,960	Yes
8/20	452/ 1,120	10	4	14	28	0	28	$780,480	$27,874	Yes
8/22	452/ 1,220	7	6	18	31	6	37	$913,680	$24,694	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.
[5] 7 dB(A) reduction not achieved at any receptor.
[6] 5 dB(A) reduction or greater was not achieved at two or more receptors.

Table 4-23 CNE 20: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located with portions within the FDOT's I-275 ROW and portions on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.15 CNE 23

A combination of noise barriers was evaluated, one located five feet within the FDOT ROW line and one on the shoulder. A noise barrier was evaluated for the impacted area of the Westchester Manor Condominiums (Receptors 1 through 4). The condominiums are located south of Busch Boulevard, west of I-275. The impacted frequent use area is a tennis court. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal combined length of 1,016 feet and optimal heights of 22 feet for the FDOT ROW and 8 feet for the shoulder barrier, a barrier would reduce predicted traffic noise levels within the impacted area a minimum of 7 dB(A). Because it is not known how frequently the impacted and benefited area of the tennis court would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Assuming the optimal barrier length and height, the minimum daily use required within

the impacted and benefited area of the school in order for a barrier to be considered cost effective is 876 person-hours (i.e., 876 people would have to use the area for one hour each day of the year). Because it is not reasonable to assume that this level of activity would occur within the impacted area that would be benefited by a barrier, it is not considered a reasonable noise abatement measure for the impacted area of the Westchester Manor Condominiums.

4.4.4.16 CNE 23a

One receptor (Receptor 8), a second story balcony, was predicted to be impacted at the Westchester Manor Condominiums. For a noise barrier to be considered for construction, at least the minimum noise reduction requirements must be met (i.e., two or more impacted noise-sensitive receptors must be benefited). Because this requirement cannot be met for this area, a barrier is not considered a feasible and reasonable abatement measure for the impacted receptor in CNE 23a.

4.4.4.17 CNE 24

A barrier extension, along the ROW line on the north and south ends of the existing noise barrier (Barrier B4R) and new barrier segments on the roadway shoulder over Linebaugh Avenue and at the north end of the existing noise barrier, were evaluated for the 21 newly impacted residences located east of I-275 between Busch Boulevard and Bougainvillea Avenue (Receptors 1 through 16, 18 through 21, and 115). These are impacted receptors that have received a building permit after the 1995/1996 PD&E study which widened I-275 from 4 to 6 lanes. The existing barriers were built for the conditions of that past PD&E study. These impacted receptors are located at, or near, the ends of the existing barrier. The existing barrier provides a noise reduction of at least 5 dB(A) to two or more impacted residences and provides the noise reduction goal of 7 dB(A) to at least one impacted residence.

The results of the evaluation for the extension of the existing barrier and barrier segments on the roadway shoulder are provided in **Table 4-24**. As shown, with an extension of the south end of the existing barrier (18 feet tall), an extension of the north end of the existing barrier (22 feet tall) and two shoulder barriers (8 feet tall), one over Linebaugh Avenue and one at the north end of the existing barrier, 20 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more and the cost of the barrier extension would be below the FDOT's cost reasonable limit.

Because the barrier extension is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier extension was evaluated further. A summary of the additional barrier extension considerations is provided in **Table 4-25**. Based on the review of these factors, extension of the existing barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 24.

Table 4-24 CNE 24: Barrier Results for Residences east of I-275 between Busch Boulevard and Bougainvillea Avenue

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
8 18 22	598 696 104	2	3	15	20	1	21	$588,000	$28,000	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-25 CNE 24: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW and shoulder for I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

4.4.4.18 CNE 29

A noise barrier was evaluated for the impacted area of the Community Charter Schools of Excellence (Receptors 1 through 12). The school is located between North Central Avenue and North Dixon Avenue, just north of East 109th Avenue, west of I-275. The impacted frequent use area is a playground and multi-use area. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal length of 1,279 feet and an optimal height of 18 feet, a barrier would reduce predicted traffic noise levels within the impacted area a minimum of 7 dB(A). Because it is not known how frequently the impacted and benefited area of the school would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Assuming the optimal barrier length and height, the minimum daily use required within the impacted and benefited area of the school in order for a barrier to be considered cost effective is 1,699 person-hours (i.e., 1,699 people would have to use the area for one hour each day of the year). Because it is not reasonable to assume that this level of activity would occur within the impacted area that would be benefited by a barrier, it is not considered a reasonable noise abatement measure for the impacted area of the Community Charter Schools of Excellence.

4.4.4.19 CNE 30

A barrier extension, along the ROW line, to the south end of the existing noise barrier (Barrier B10/B11R) at this CNE was evaluated for the 30 newly impacted residences located east of I-275 between Fowler Avenue and 127th Avenue (Receptors 1 through 7, 9 through 12, 14 through 16, 18 through 22, 24 through 27, 29 through 31, 33, 34, 37, and 38). These impacted receptors are located at, or near, the south end of the existing barrier. The existing barrier provides a noise reduction of at least 5 dB(A) to two or more impacted residences and provides the noise reduction goal of 7 dB(A) to at least one impacted residence.

The results of the barrier extension evaluation are provided in **Table 4-26**. As shown, an extension of the south end of the existing barrier (20 feet tall), all 30 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more and the cost of the barrier extension would be below the FDOT's cost reasonable limit.

Because the barrier extension is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier extension was evaluated further. A summary of the additional barrier extension considerations is provided in **Table 4-27**. Based on the review of these factors, extension of the existing barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 30.

Table 4-26 CNE 30: Existing Barrier Extension Results for Residences east of I-275 between Fowler Avenue and 127th Avenue

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
20	1,424	2	1	27	30	5	35	$854,400	$24,411	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-27 CNE 30: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW for I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

4.4.4.20 CNE 31

A barrier extension, along the shoulder, to the south end of the existing noise barrier (Barrier B14) at this CNE was evaluated for the 9 newly impacted residences located west of I-275 between Fowler Avenue and 122nd Avenue (Receptors 1 through 3, 6 through 9, 12, and 13). These impacted receptors are located at, or near, the south end of the existing barrier. The existing barrier provides a noise reduction of at least 5 dB(A) to two or more impacted residences and provides the noise reduction goal of 7 dB(A) to at least one impacted residence.

The results of the barrier extension evaluation are provided in **Table 4-28**. Since there is insufficient space within the ROW to extend the existing barrier farther south, the barrier extension was evaluated on the shoulder. As shown, an extension of the south end of the existing barrier (evaluated at a height of 8 feet), up to 6 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more and the cost of the barrier extension would be below the FDOT's cost reasonable limit.

Because the barrier extension is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier extension was evaluated further. A summary of the additional barrier extension considerations is provided in **Table 4-29**. Based on the review of these factors, extension of the existing barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 31.

Table 4-28 CNE 31: Existing Barrier Extension Results for Residences west of I-275 between Fowler Avenue and 122nd Avenue

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
8	899	2	3	1	6	2	8	$215,760	$26,970	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-29 CNE 31: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located on the shoulder of I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

4.4.4.21 CNE 32

A noise barrier was evaluated for the impacted area of the Miles Elementary School (Receptors 1.1 through 1.9), Step Ahead Academy (Receptor 3), and Memory Care Assisted Living Facility (1 through 2). The schools and assisted living facility are located between East 122nd Avenue and 127th Avenue, west of I-275. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

Due to the distance of the receptors from the barrier, the noise reduction design goal of 7 dB(A) could not be achieved at any of the evaluated barrier heights. Therefore, a barrier is not considered a reasonable noise abatement measure for the impacted area of CNE 32.

4.4.4.22 CNE 33

Combinations of noise barriers were evaluated for the residences in the subdivision off of East 127th Street on Oak Rose Lane (Receptors 1 and 2). The results of the barrier analysis are provided in **Table 4-30**. No combinations of ROW barrier or shoulder barrier at any of the evaluated barrier heights, achieved the noise reduction design goal of 7 dB(A). Therefore, a barrier is not considered a reasonable noise abatement measure for the impacted residences in CNE 33.

Table 4-30 CNE 33: Barrier Results for Residences west of I-275, south of East 127th Street and east of Oak Rose Lane

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
8-10	NA[5,6]	0	0	0	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]	NA[5,6]
12-22	NA[5]	10	0	0	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.
[5] 7 dB(A) reduction not achieved at any receptor.
[6] 5 dB(A) reduction or greater was not achieved at two or more receptors.

4.4.4.23 CNE 40

A barrier extension, along the ROW line, to the north end of the existing noise barrier (Barrier B18) at this CNE was evaluated for the two newly impacted residences located east of I-275 between Fletcher Avenue and 138th Avenue (Receptors 41 and 44). These impacted receptors are located at, or near, the north end of the existing barrier. The existing barrier provides a noise reduction of at least 5 dB(A) to two or more impacted residences and provides the noise reduction goal of 7 dB(A) to at least one impacted residence.

The results of the barrier extension evaluation are provided in **Table 4-31**. As shown, with an extension of the north end of the existing barrier, both impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more. However, because the cost of the barrier extension would be above the FDOT's cost reasonable limit, a barrier extension is not considered a reasonable noise abatement measure.

Table 4-31 CNE 40: Barrier Results for Residences west of I-275 between Fletcher Avenue and 138th Avenue

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
16	300	0	1	1	2	0	2	$144,000	$72,000	No

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

4.4.4.24 CNE 41

A noise barrier was evaluated for the impacted area of the Grand Prix Tampa Family Fun Center (Receptor 1). The impacted area is a portion of the miniature golf course. The recreational area is located between East 138th Avenue and East 145th Avenue, east of I-275. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal length of 578 feet and an optimal height of 16 feet, a barrier would reduce predicted traffic noise levels within the impacted area a minimum of 7 dB(A). Because it is not known how frequently the impacted and benefited area of the miniature golf course would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Assuming the optimal barrier length and height, the minimum daily use required within the impacted and benefited area of the Grand Prix Tampa in order for a barrier to be considered cost effective is 390 person-hours (i.e., 390 people would have to use the area for one hour each day of the year). Because it is not reasonable to assume that this level of activity would occur within the impacted area that would be benefited by a barrier, it is not considered a reasonable noise abatement measure for the impacted area of Grand Prix Tampa.

4.4.4.25 CNE 42 and 46

A barrier extension, along the ROW line, to the south and north end of the existing noise barrier (Barrier B19) at these two CNEs was evaluated for the three newly impacted residences located east of I-275 between 145th Avenue and Bearss Avenue (Receptor 2 in CNE 42 and Receptors 29 and 30 in CNE 46). These impacted receptors are located at, or near, the ends of the existing barrier. The existing barrier provides a noise reduction of at least 5 dB(A) to two or more impacted residences and provides the noise reduction goal of 7 dB(A) to at least one impacted residence.

The results of the barrier extension evaluation are provided in **Table 4-32**. As shown, with an extension of the north and south ends of the existing barrier (16 feet tall), all three of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more, and the cost of the barrier extension would be below the FDOT's cost reasonable limit.

Because the barrier extension is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier extension was evaluated further. A summary of the additional barrier extension considerations is provided in **Table 4-33**. Based on the review of these factors, an extension of the existing barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 42 and 46.

Table 4-32 CNE 42 and 46: Barrier Results for Residences west of I-275 between Fletcher Avenue and 138th Avenue

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
16	100	1	1	1	3	0	3	$48,000	$16,000	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-33 CNE 42 and 46: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW for I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

4.4.4.26 CNE 43/45

A noise barrier was evaluated five feet inside of the FDOT ROW line. There are 40 impacted residences located west of I-275 between Fletcher Avenue and East 145th Avenue (CNE 43: Receptors 1, 2, 6-8, 12, 13, 16-18, and 22. CNE 45: 1-3, 7-9, 13, 14, 18, 26, and 27).

The results of the evaluation are provided in **Table 4-34**. As shown, at barrier heights between 8 and 22 feet, at least 32 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit.

Because the results of the analysis indicate that a barrier would provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier will be evaluated further. A summary of the additional barrier considerations is provided in **Table 4-35**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 43/45.

Table 4-34 CNE 43/45: Barrier Results for Residences west of I-275 between Fletcher Avenue and East 145th Avenue

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 40										
8	3,071	9	10	13	32	0	32	$737,040	$23,033	Yes
10	2,921	3	7	33	33	13	46	$876,300	$19,050	Yes
12	3,176	2	8	34	34	13	47	$1,143,360	$24,327	Yes
14	3,278	2	4	36	36	18	54	$1,376,760	$25,496	Yes
16	3,278	2	2	36	36	19	55	$1,573,440	$28,608	Yes
18	3,278	1	2	37	37	26	63	$1,770,120	$28,097	Yes
20	3,278	1	3	37	37	28	65	$1,966,800	$30,258	Yes
22	3,580	1	2	37	37	28	65	$2,362,800	$36,351	Yes

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-35 CNE 43/45: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW for I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

4.4.4.27 CNE 47

A noise barrier was evaluated for the 18 impacted residences (Receptors 6, 7, 14, 15, 17 through 19, 21, 23 through 26, 28 through 31, 33, and 35) along April Lane, Laurie Lane, and Fisher Road. The barrier was evaluated five feet inside of the FDOT ROW line.

The results of the evaluation are provided in **Table 4-36**. As shown, at a barrier height of 10 to 16 feet, at least 17 of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit. Notably, at 18 feet and higher the noise barrier is no longer cost reasonable because the additional height of the barrier does not provide a noise reduction of at least 5 dB(A) to any additional receptors.

Because the results of the analysis indicate that a barrier would provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier will be evaluated further. A summary of the additional barrier considerations is provided in **Table 4-37**. Based on the review of these factors, a barrier was determined to be a potential noise abatement measure for the impacted residences in CNE 47.

Table 4-36 CNE 47: Barrier Results for Residences west of I-275 between Fletcher Avenue and Bearss Avenue

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 18										
8	2,178	6	2	1	9	0	9	$522,720	$58,080	No
10	2,178	8	8	1	17	2	19	$653,400	$34,389	Yes
12	2,178	1	12	5	18	4	22	$784,080	$35,640	Yes
14	2,178	1	8	9	18	8	26	$914,760	$35,183	Yes
16	2,178	0	1	17	18	8	26	$1,045,440	$40,209	Yes
18	2,178	0	1	17	18	8	26	$1,176,120	$45,235	No
20	2,178	0	1	17	18	8	26	$1,306,800	$50,262	No
22	2,178	0	0	18	18	8	26	$1,437,480	$55,288	No

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.

Table 4-37 CNE 47: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW for I-275 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Notably, should a final determination be made that a noise barrier is a feasible and reasonable abatement measure during the project's design phase, and depending on the final length of the barrier, there is a potential for an outdoor advertising sign to be visually blocked.

4.4.4.28 CNE 49

A noise barrier was evaluated for the four impacted residences (Receptors 1 through 4) along Clear Lane. The barrier was evaluated five feet inside of the FDOT ROW line. The results of the evaluation are provided in **Table 4-38**. As shown, at barrier heights between 18 and 22 feet, all four of the impacted residences would receive a benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved. However, because the cost of the barrier at all barrier heights would be above the FDOT's cost reasonable limit, a barrier five feet within the FDOT's ROW is not considered a reasonable noise abatement measure.

Table 4-38 CNE 49: Barrier Results for Residences east of I-275 along Clear Lane

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 - 5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Residences = 4										
8	NA[5]	0	0	1	1	0	1	NA[5]	NA[5]	NA[5]
10	458	1	0	1	2	0	2	$137,400	$68,700	No
12	358	1	0	1	2	0	2	$128,880	$64,440	No
14	358	1	0	1	2	0	2	$150,360	$75,180	No
16	855	1	0	2	3	0	3	$410,400	$136,800	No
18	1,005	1	1	2	4	0	4	$542,700	$135,675	No
20	905	2	0	2	4	0	4	$543,000	$135,750	No
22	855	2	0	2	4	0	4	$564,300	$141,075	No

[1] Receptors with a predicted noise level of 66 dB(A) or greater.
[2] Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
[3] Based on a unit cost of $30 per square foot.
[4] FDOT cost reasonable criterion is $42,000 per benefited receptor.
[5] 5 dB(A) reduction or greater was not achieved at two or more receptors.

5.0 CONCLUSIONS

As previously stated, future traffic noise levels with the proposed improvements are predicted to approach, meet, or exceed the NAC at 748 properties with noise sensitive uses. The results of the evaluation indicate that construction of noise barriers and barrier extensions are a potentially reasonable and feasible noise abatement method to reduce predicted traffic noise for up to 706 of the 748 properties. A summary of the noise barriers is provided in **Table 5-1** below.

Table 5-1: Summary of Potentially Reasonable and Feasible Noise Barriers

CNE No.	Description	Appendix B Sheet Number	Number of Impacted Receptors[1]	Range in Number of Benefited Receptors[2]	Range in Total Estimated Barrier Cost[3]
1	Residences between Osborne Ave. and Hillsborough Ave. on the east side of I-275	1	59	41-57	$703,200-$1,685,580
2	Seminole Heights Baptist Church		1	0	--
3/5	Residences between Osborne Ave. and Hillsborough Ave. on the west side of I-275	1	80	75-79	$962,880-$1,786,260
4	St. Paul Lutheran Church		1	0	--
6	Residences between Hillsborough Ave. and Kingsway Rd. on the east side of I-275	2	44	11-43	$404,880-$1,113,420
7	Residences between Idlewild Ave. to E Hanna Ave. on the east side of I-275	2	22	13-22	$542,880-$736,080
8	Residences between Hillsborough Ave. and E Paris St. on the west side of I-275	3	53	22-53	$837,840-$1,689,060
9/11	Residences between Hillsborough Ave. to Sligh Ave. on the west side of I-275	2-3	140	80-134	$1,821,480-$3,210,600
10	Seminole Heights Elementary School	2-3	2	0	--
12/13	Residences between Sligh Ave. and the Hillsborough River on the east side of I-275	4-5	66	30-64	$1,336,440-$1,838,220
16/17	Residences west of I-275 between to Sligh Ave. and the Hillsborough River	4-5	79	29-79	$1,533,360-$2,377,140
18	River Tower Park	5	1	0	--
19	Residences between Waters Ave. and E Yukon St. on the east side of I-275	6	30	22-30	$824,820-$1,042,140
20	Residences between Waters Ave. and E Yukon St. on the west side of I-275	6	32	11-31	$441,600-$913,680
23	Tennis court at the Westchester Manor Condominiums	6	1	0	--
23a	Residences at the Westchester Manor Condominiums	6	1	0	--
24	Extension of an existing noise barrier for the residences east of I-275 between Busch Blvd. and Bougainvillea Ave.	7-8	21	20	$588,000
29	Community Charter Schools of Excellence	9	1	0	--
30	Extension of an existing noise barrier for the residences east of I-275 between Fowler Ave. and 127th Ave.	10	30	30	$854,400
31	Extension of an existing noise barrier for the residences west of I-275 between Fowler Avenue and 122nd Ave.	10	9	6	$215,760

CNE No.	Description	Appendix B Sheet Number	Number of Impacted Receptors[1]	Range in Number of Benefited Receptors[2]	Range in Total Estimated Barrier Cost[3]
32	Miles Elementary and Memory Care Assisted Living Facility	10	1	0	--
33	Residences west of I-275, south of East 127th Street and east of Oak Rose Lane	10	10	0	--
40	Extension of an existing noise barrier for the residences located east of I-275 between Fletcher Ave. and 138th Ave.	12	2	0	--
41	Grand Prix Tampa Family Fun Center	12	1	0	--
42/46	Extension of an existing noise barrier for the residences between 145th Ave. and Bearss Ave. on the east side of I-275	12-13	3	3	$48,000
43/45	Residences between Fletcher Avenue and 145th Ave. on the west side of I-275	12	37	32-37	$737,040-$2,362,800
47	Noise barrier for the residences between Fletcher Ave. and Bearss Ave. on the west side of I-275	13	18	17-18	$653,400-$1,045,440
49	Residences along Clear Lane	14	4	0	--
Total			749	442-706	$11,102,820-$21,541,440

The estimated total cost to construct the noise barriers and barrier extensions ranges from approximately $11,102,820 to $21,541,440depending on barrier length and height.

Notably, the noise barriers for the impacted properties in CNEs 3, 6, 7, 8, 9, 12, 14, 16, 19, 20, 45, and 47 have the potential to visually block outdoor advertising signs. The locations of the outdoor advertising signs are shown on the aerials provided in **Appendix B**. Should the barriers at these locations remain a feasible and reasonable abatement measure after the detailed noise analysis is completed during the final design process and, the signs are determined to be conforming and legally permitted signs, a notice of the possible screening will be provided to the affected sign permit holder(s) and the appropriate local sign regulating agency. A public hearing will also be held to receive input on the proposed noise barrier/sign conflict.

5.1 Statement of Likelihood

The FDOT is committed to the construction noise barriers at the locations in the bullet list above, contingent upon the following:

- Detailed noise analysis during the final design process continues to support the need for, and the feasibility and reasonableness of providing the barriers as abatement;
- The detailed analysis demonstrates that the cost of the noise barrier will not exceed the cost-effective limit;
- The residents/property owners benefited by the noise barrier desire that a noise barrier be constructed; and
- All safety and engineering conflicts or issues related to construction of a noise barrier are resolved.

6.0 NOISE CONTOURS

Land uses such as residences and recreational areas are considered incompatible with highway noise levels that approach or exceed the NAC. To reduce the possibility of additional traffic noise-related impacts, noise level contours were developed for the future improved roadway facility. These noise contours delineate the extent of the predicted traffic noise impact area from the improved roadway's edge-of-pavement for each of the land use Activity Categories (Table 3-1). **Table 6-1** provides the distance from the edge-of-pavement at which traffic noise levels are predicted to be 56 dB(A)—the NAC for land uses classified as Activity Category A, to 66 dB(A)—the NAC for land uses classified as Activity Category B and C, and to 71 dB(A)—the NAC for land uses classified as Activity Category E.

Local officials will be provided a copy of the final NSR to promote compatibility between any future land developments in this area and the proposed project.

Table 6-1 Noise Contour Limits

I-275 Roadway Segment	Distance from Improved Roadway's Edge-of-Pavement (ft)*		
	Activity Category A 56 dB(A)	Activity Category B/C 66 dB(A)	Activity Category E 71 dB(A)
N. of MLK Jr. Boulevard to Sligh Avenue	1,040	360	180
Sligh Avenue to Busch Boulevard	970	330	170
Busch Boulevard to Fletcher Avenue	1,050	380	200
Fletcher Avenue to Bearss Avenue	1,120	440	230
North of Bearss Avenue	1,010	400	210

* See Table 3-1 for a description of the activities that occur within each category. Distances do not reflect any reduction in noise levels that would occur from existing structures (shielding) and should be used for planning purposes only.

7.0 CONSTRUCTION NOISE AND VIBRATION

Some land uses adjacent I-275 are identified on the FDOT listing of noise- and vibration-sensitive sites (e.g., residential use). Construction of the proposed roadway improvements is not expected to have a significant noise or vibration effect. Additionally, the application of the FDOT Standard Specifications for Road and Bridge Construction may minimize or eliminate potential issues. Should unanticipated noise or vibration issues arise during the construction process, the Project Engineer, in coordination with the District Noise Specialist and the Contractor, will investigate additional methods of controlling these impacts.

8.0 COMMUNITY COORDINATION

A project-related public hearing is planned. Details regarding the hearing (i.e., date and location) and any traffic noise-related issues raised at the hearing will be documented in the final NSR.

9.0 REFERENCES

Federal Highway Administration. U.S. Department of Transportation. July 13, 2010. Title 23 CFR, Part 772. *Procedures for Abatement of Highway Traffic Noise and Construction Noise.*

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

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Federal Highway Administration. May 1996. *Measurement of Highway-Related Noise*. FHWA-PD-96-046.

Florida Department of Transportation. July 22, 2009. *A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations.*

Florida Department of Transportation. January 14, 2019. *Project Development and Environment Manual*, Part 2, Chapter 18 – Highway Traffic Noise.

Florida Department of Transportation. July 1, 2013. *Plans Preparation Manual*, Volume 1, Chapter 32 – Sound Barriers.

Florida Department of Transportation. July 2018. *Standard Specifications for Road and Bridge Construction*.

Florida Department of Transportation. Environmental Management Office. January 1, 2016. *Traffic Noise Modeling and Analysis Practitioners Handbook*.

California Department of Transportation. September 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*.

APPENDIX A

Traffic Data

Northbound I-275 GUL Mainline - AM Peak Hour

Segment No:	1			2			3			4		
From/To:	North of MLK Jr Boulevard			Hillsborough Avenue - Sligh Avenue			Sligh Avenue - Bird Street			Bird Street - Busch Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4 + 1 Aux	3 + 1 Aux	3 + 1 Aux	4 + 1 Aux	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	177000	256000	256000	176200	250600	250600	176600	252100	252100	156600	220100	220100
Speed: (mph)	55	55	55	55	55	55	55	55	55	55	55	55
(kmh)	89	89	89	89	89	89	89	89	89	89	89	89
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.21%	1.21%	1.21%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%
% Heavy Trucks DHV	1.04%	1.04%	1.04%	1.21%	1.21%	1.21%	1.22%	1.22%	1.22%	1.21%	1.21%	1.21%
% Buses DHV	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%
% Motorcycles DHV	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
DDHV LOS (C)	4,580	4,580	7,080	5,580	5,580	7,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		9,900	9,900		9,691	9,691		9,749	9,749		8,511	8,511
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,475	4,475	6,918	5,453	5,453	6,918	4,476	4,476	5,941	4,476	4,476	5,941
Med Trucks	56	56	86	58	58	73	47	47	63	48	48	63
Hvy Trucks	47	47	73	68	68	86	56	56	74	55	55	74
Buses	3	3	5	4	4	5	3	3	4	3	3	4
Motorcycles	1	1	2	2	2	2	1	1	2	1	1	2
Total	4,579	4,579	7,079	5,581	5,581	7,079	4,580	4,580	6,080	4,580	4,580	6,080
Demand												
Autos	0	9,674	9,674	0	9,470	9,470	0	9,527	9,527	0	8,317	8,317
Med Trucks	0	120	120	0	100	100	0	101	101	0	88	88
Hvy Trucks	0	102	102	0	118	118	0	118	118	0	103	103
Buses	0	6	6	0	6	6	0	6	6	0	5	5
Motorcycles	0	3	3	0	3	3	0	3	3	0	3	3
Total	0	9,899	9,899	0	9,691	9,691	0	9,749	9,749	0	8,511	8,511

Northbound I-275 GUL Mainline - AM Peak Hour

Segment No:	5			6			7			8		
From/To:	Busch Boulevard - Fowler Avenue			Fowler Avenue - Fletcher Avenue			Fletcher Avenue- Bearss Avenue			North of Bearss Avenue		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4	3	3	4	3	3	4	3	3	3
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	147200	210100	210100	119400	183100	183100	96200	158100	158100	59100	112200	112200
Speed: (mph)	60	60	60	60	60	60	65	65	65	70	70	70
(kmh)	97	97	97	97	97	97	105	105	105	113	113	113
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.05%	1.05%	1.05%	1.06%	1.06%	1.06%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.20%	1.20%	1.20%	1.19%	1.19%	1.19%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.09%	0.09%	0.09%	0.07%	0.07%	0.07%	0.09%	0.09%	0.09%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%	0.04%	0.04%	0.04%
DDHV LOS (C)	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	4,580
DDHV (Demand)		8,124	8,124		6,512	6,512		5,065	5,065		3,289	3,289
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	LOS (C)	Demand	Demand
LOS (C)												
Autos	4,473	4,473	5,938	4,475	4,475	5,941	4,475	4,475	5,941	4,475	4,475	4,475
Med Trucks	47	47	63	48	48	64	48	48	64	47	47	47
Hvy Trucks	56	56	74	55	55	73	55	55	72	56	56	56
Buses	7	7	10	4	4	5	3	3	4	4	4	4
Motorcycles	4	4	5	2	2	3	2	2	2	2	2	2
Total	4,580	4,580	6,080	4,580	4,580	6,081	4,580	4,580	6,079	4,580	4,580	4,580
Demand												
Autos	0	7,935	7,935	0	6,363	6,363	0	4,949	4,949	0	3,214	3,214
Med Trucks	0	84	84	0	69	69	0	54	54	0	34	34
Hvy Trucks	0	99	99	0	78	78	0	60	60	0	40	40
Buses	0	13	13	0	6	6	0	3	3	0	3	3
Motorcycles	0	7	7	0	3	3	0	2	2	0	1	1
Total	0	8,125	8,125	0	6,513	6,513	0	5,065	5,065	0	3,289	3,289

Southbound I-275 GUL Mainline - AM Peak Hour

Segment No:	1			2			3			4		
From/To:	North of Bearss Avenue			Bearss Avenue - Fletcher Avenue			Fletcher Avenue - Fowler Avenue			Fowler Avenue - Busch Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	3	3	3	4	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	59100	112200	112200	96200	158100	158100	119400	183100	183100	147200	210100	210100
Speed (mph)	70	70	70	65	65	65	60	60	60	60	60	60
(kmh)	113	113	113	105	105	105	97	97	97	97	97	97
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.04%	1.04%	1.04%	1.05%	1.05%	1.05%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.20%	1.20%	1.20%	1.22%	1.22%	1.22%
% Buses DHV	0.09%	0.09%	0.09%	0.07%	0.07%	0.07%	0.09%	0.09%	0.09%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%	0.04%	0.04%	0.04%	0.08%	0.08%	0.08%
DDHV LOS (C)	4,580	4,580	4,580	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		6,769	6,769		9,124	9,124		9,927	9,927		10,745	10,745
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,475	4,475	4,475	4,475	4,475	5,941	4,475	4,475	5,941	4,473	4,473	5,938
Med Trucks	47	47	47	47	47	63	48	48	64	47	47	63
Hvy Trucks	56	56	56	56	56	74	55	55	73	56	56	74
Buses	4	4	4	3	3	4	4	4	5	7	7	10
Motorcycles	2	2	2	2	2	2	2	2	3	4	4	5
Total	4,580	4,580	4,580	4,580	4,580	6,080	4,580	4,580	6,081	4,580	4,580	6,080
Demand												
Autos	0	6,614	6,614	0	8,916	8,916	0	9,699	9,699	0	10,495	10,495
Med Trucks	0	70	70	0	94	94	0	105	105	0	111	111
Hvy Trucks	0	82	82	0	111	111	0	119	119	0	131	131
Buses	0	6	6	0	6	6	0	8	8	0	17	17
Motorcycles	0	3	3	0	3	3	0	4	4	0	9	9
Total	0	6,769	6,769	0	9,124	9,124	0	9,927	9,927	0	10,746	10,746

Southbound I-275 GUL Mainline - AM Peak Hour

Segment No:	5			6			7			8		
From/To:	Busch Boulevard - Bird Street			Bird Street - Sligh Avenue			Sligh Avenue - Hillsborough Avenue			North of MLK Jr Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4	3	3	4	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	156600	220100	220100	176600	252100	252100	176200	250600	250600	177000	256000	256000
Speed (mph)	55	55	55	55	55	55	55	55	55	55	55	55
(kmh)	89	89	89	89	89	89	89	89	89	89	89	89
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%
% Heavy Trucks DHV	1.21%	1.21%	1.21%	1.22%	1.22%	1.22%	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%
% Buses DHV	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%
% Motorcycles DHV	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
DDHV LOS (C)	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		11,258	11,258		12,900	12,900		12,823	12,823		13,100	13,100
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,476	4,476	5,941	4,476	4,476	5,941	4,475	4,475	5,941	4,475	4,475	5,941
Med Trucks	48	48	63	47	47	63	47	47	63	47	47	63
Hvy Trucks	55	55	74	56	56	74	56	56	74	56	56	74
Buses	3	3	4	3	3	4	3	3	4	3	3	4
Motorcycles	1	1	2	1	1	2	1	1	2	1	1	2
Total	4,580	4,580	6,080	4,580	4,580	6,080	4,579	4,579	6,080	4,579	4,579	6,080
Demand												
Autos	0	11,001	11,001	0	12,606	12,606	0	12,530	12,530	0	12,801	12,801
Med Trucks	0	117	117	0	134	134	0	133	133	0	136	136
Hvy Trucks	0	136	136	0	157	157	0	156	156	0	159	159
Buses	0	7	7	0	8	8	0	8	8	0	8	8
Motorcycles	0	4	4	0	4	4	0	4	4	0	4	4
Total	0	11,258	11,258	0	12,901	12,901	0	12,823	12,823	0	13,100	13,100

Northbound I-275 GUL Mainline - PM Peak Hour

Segment No:	1			2			3			4		
From/To:	North of MLK Jr Boulevard			Hillsborough Avenue - Sligh Avenue			Sligh Avenue - Bird Street			Bird Street - Busch Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4 + 1 Aux	3 + 1 Aux	3 + 1 Aux	4 + 1 Aux	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	177000	256000	256000	176200	250600	250600	176600	252100	252100	156600	220100	220100
Speed: (mph)	55	55	55	55	55	55	55	55	55	55	55	55
(kmh)	89	89	89	89	89	89	89	89	89	89	89	89
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%
% Heavy Trucks DHV	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%	1.22%	1.22%	1.22%	1.21%	1.21%	1.21%
% Buses DHV	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%
% Motorcycles DHV	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
DDHV LOS (C)	4,580	4,580	7,080	5,580	5,580	7,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		13,100	13,100		12,823	12,823		12,900	12,900		11,258	11,258
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,475	4,475	6,918	5,453	5,453	6,918	4,476	4,476	5,941	4,476	4,476	5,941
Med Trucks	47	47	73	58	58	73	47	47	63	48	48	63
Hvy Trucks	56	56	86	68	68	86	56	56	74	55	55	74
Buses	3	3	5	4	4	5	3	3	4	3	3	4
Motorcycles	1	1	2	2	2	2	1	1	2	1	1	2
Total	4,579	4,579	7,079	5,581	5,581	7,079	4,580	4,580	6,080	4,580	4,580	6,080
Demand												
Autos	0	12,801	12,801	0	12,530	12,530	0	12,606	12,606	0	11,001	11,001
Med Trucks	0	136	136	0	133	133	0	134	134	0	117	117
Hvy Trucks	0	159	159	0	156	156	0	157	157	0	136	136
Buses	0	8	8	0	8	8	0	8	8	0	7	7
Motorcycles	0	4	4	0	4	4	0	4	4	0	4	4
Total	0	13,100	13,100	0	12,823	12,823	0	12,901	12,901	0	11,258	11,258

Southbound I-275 GUL Mainline - AM Peak Hour

Segment No:	1			2			3			4		
From/To:	North of Bearss Avenue			Bearss Avenue - Fletcher Avenue			Fletcher Avenue - Fowler Avenue			Fowler Avenue - Busch Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	3	3	3	4	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	59100	112200	112200	96200	158100	158100	119400	183100	183100	147200	210100	210100
Speed (mph)	70	70	70	65	65	65	60	60	60	60	60	60
(kmh)	113	113	113	105	105	105	97	97	97	97	97	97
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.04%	1.04%	1.04%	1.05%	1.05%	1.05%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.20%	1.20%	1.20%	1.22%	1.22%	1.22%
% Buses DHV	0.09%	0.09%	0.09%	0.07%	0.07%	0.07%	0.09%	0.09%	0.09%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%	0.04%	0.04%	0.04%	0.08%	0.08%	0.08%
DDHV LOS (C)	4,580	4,580	4,580	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		6,769	6,769		9,124	9,124		9,927	9,927		10,745	10,745
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,475	4,475	4,475	4,475	4,475	5,941	4,475	4,475	5,941	4,473	4,473	5,938
Med Trucks	47	47	47	47	47	63	48	48	64	47	47	63
Hvy Trucks	56	56	56	56	56	74	55	55	73	56	56	74
Buses	4	4	4	3	3	4	4	4	5	7	7	10
Motorcycles	2	2	2	2	2	2	2	2	3	4	4	5
Total	4,580	4,580	4,580	4,580	4,580	6,080	4,580	4,580	6,081	4,580	4,580	6,080
Demand												
Autos	0	6,614	6,614	0	8,916	8,916	0	9,699	9,699	0	10,495	10,495
Med Trucks	0	70	70	0	94	94	0	105	105	0	111	111
Hvy Trucks	0	82	82	0	111	111	0	119	119	0	131	131
Buses	0	6	6	0	6	6	0	8	8	0	17	17
Motorcycles	0	3	3	0	3	3	0	4	4	0	9	9
Total	0	6,769	6,769	0	9,124	9,124	0	9,927	9,927	0	10,746	10,746

Southbound I-275 GUL Mainline - AM Peak Hour

Segment No:	5			6			7			8		
From/To:	Busch Boulevard - Bird Street			Bird Street - Sligh Avenue			Sligh Avenue - Hillsborough Avenue			North of MLK Jr Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4	3	3	4	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	156600	220100	220100	176600	252100	252100	176200	250600	250600	177000	256000	256000
Speed (mph)	55	55	55	55	55	55	55	55	55	55	55	55
(kmh)	89	89	89	89	89	89	89	89	89	89	89	89
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%
% Heavy Trucks DHV	1.21%	1.21%	1.21%	1.22%	1.22%	1.22%	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%
% Buses DHV	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%
% Motorcycles DHV	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
DDHV LOS (C)	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		11,258	11,258		12,900	12,900		12,823	12,823		13,100	13,100
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,476	4,476	5,941	4,476	4,476	5,941	4,475	4,475	5,941	4,475	4,475	5,941
Med Trucks	48	48	63	47	47	63	47	47	63	47	47	63
Hvy Trucks	55	55	74	56	56	74	56	56	74	56	56	74
Buses	3	3	4	3	3	4	3	3	4	3	3	4
Motorcycles	1	1	2	1	1	2	1	1	2	1	1	2
Total	4,580	4,580	6,080	4,580	4,580	6,080	4,579	4,579	6,080	4,579	4,579	6,080
Demand												
Autos	0	11,001	11,001	0	12,606	12,606	0	12,530	12,530	0	12,801	12,801
Med Trucks	0	117	117	0	134	134	0	133	133	0	136	136
Hvy Trucks	0	136	136	0	157	157	0	156	156	0	159	159
Buses	0	7	7	0	8	8	0	8	8	0	8	8
Motorcycles	0	4	4	0	4	4	0	4	4	0	4	4
Total	0	11,258	11,258	0	12,901	12,901	0	12,823	12,823	0	13,100	13,100

Northbound I-275 GUL Mainline - PM Peak Hour

Segment No:	1			2			3			4		
From/To:	North of MLK Jr Boulevard			Hillsborough Avenue - Sligh Avenue			Sligh Avenue - Bird Street			Bird Street - Busch Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4 + 1 Aux	3 + 1 Aux	3 + 1 Aux	4 + 1 Aux	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	177000	256000	256000	176200	250600	250600	176600	252100	252100	156600	220100	220100
Speed: (mph)	55	55	55	55	55	55	55	55	55	55	55	55
(kmh)	89	89	89	89	89	89	89	89	89	89	89	89
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%
% Heavy Trucks DHV	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%	1.22%	1.22%	1.22%	1.21%	1.21%	1.21%
% Buses DHV	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%
% Motorcycles DHV	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
DDHV LOS (C)	4,580	4,580	7,080	5,580	5,580	7,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		13,100	13,100		12,823	12,823		12,900	12,900		11,258	11,258
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,475	4,475	6,918	5,453	5,453	6,918	4,476	4,476	5,941	4,476	4,476	5,941
Med Trucks	47	47	73	58	58	73	47	47	63	48	48	63
Hvy Trucks	56	56	86	68	68	86	56	56	74	55	55	74
Buses	3	3	5	4	4	5	3	3	4	3	3	4
Motorcycles	1	1	2	2	2	2	1	1	2	1	1	2
Total	4,579	4,579	7,079	5,581	5,581	7,079	4,580	4,580	6,080	4,580	4,580	6,080
Demand												
Autos	0	12,801	12,801	0	12,530	12,530	0	12,606	12,606	0	11,001	11,001
Med Trucks	0	136	136	0	133	133	0	134	134	0	117	117
Hvy Trucks	0	159	159	0	156	156	0	157	157	0	136	136
Buses	0	8	8	0	8	8	0	8	8	0	7	7
Motorcycles	0	4	4	0	4	4	0	4	4	0	4	4
Total	0	13,100	13,100	0	12,823	12,823	0	12,901	12,901	0	11,258	11,258

Northbound I-275 GUL Mainline - PM Peak Hour

Segment No:	5			6			7			8		
From/To:	Busch Boulevard - Fowler Avenue			Fowler Avenue - Fletcher Avenue			Fletcher Avenue- Bearss Avenue			North of Bearss Avenue		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4	3	3	4	3	3	4	3	3	3
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	147200	210100	210100	119400	183100	183100	96200	158100	158100	59100	112200	112200
Speed: (mph)	60	60	60	60	60	60	65	65	65	70	70	70
(kmh)	97	97	97	97	97	97	105	105	105	113	113	113
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.05%	1.05%	1.05%	1.06%	1.06%	1.06%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.20%	1.20%	1.20%	1.19%	1.19%	1.19%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.09%	0.09%	0.09%	0.07%	0.07%	0.07%	0.09%	0.09%	0.09%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%	0.04%	0.04%	0.04%
DDHV LOS (C)	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	4,580
DDHV (Demand)		10,745	10,745		9,927	9,927		8,645	8,645		6,290	6,290
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,473	4,473	5,938	4,475	4,475	5,941	4,475	4,475	5,941	4,475	4,475	4,475
Med Trucks	47	47	63	48	48	64	49	49	64	47	47	47
Hvy Trucks	56	56	74	55	55	73	55	55	72	56	56	56
Buses	7	7	10	4	4	5	3	3	4	4	4	4
Motorcycles	4	4	5	2	2	3	2	2	2	2	2	2
Total	4,580	4,580	6,080	4,580	4,580	6,081	4,581	4,581	6,079	4,580	4,580	4,580
Demand												
Autos	0	10,495	10,495	0	9,699	9,699	0	8,448	8,448	0	6,146	6,146
Med Trucks	0	111	111	0	104	104	0	92	92	0	65	65
Hvy Trucks	0	131	131	0	119	119	0	103	103	0	77	77
Buses	0	17	17	0	8	8	0	6	6	0	5	5
Motorcycles	0	9	9	0	4	4	0	3	3	0	3	3
Total	0	10,746	10,746	0	9,926	9,926	0	8,646	8,646	0	6,291	6,291

Southbound I-275 GUL Mainline - PM Peak Hour

Segment No:	1			2			3			4		
From/To:	North of Bearss Avenue			Bearss Avenue - Fletcher Avenue			Fletcher Avenue - Fowler Avenue			Fowler Avenue - Busch Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	3	3	3	4	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	59100	112200	112200	96200	158100	158100	119400	183100	183100	147200	210100	210100
Speed (mph)	70	70	70	65	65	65	60	60	60	60	60	60
(kmh)	113	113	113	105	105	105	97	97	97	97	97	97
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.04%	1.04%	1.04%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.21%	1.21%	1.21%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.09%	0.09%	0.09%	0.07%	0.07%	0.07%	0.09%	0.09%	0.09%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%	0.04%	0.04%	0.04%	0.08%	0.08%	0.08%
DDHV LOS (C)	4,580	4,580	4,580	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		3,768	3,768		5,544	5,544		6,512	6,512		8,124	8,124
Stamina/TNM Input	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,475	4,475	4,475	4,475	4,475	5,941	4,475	4,475	5,941	4,473	4,473	5,938
Med Trucks	47	47	47	48	48	63	47	47	63	47	47	63
Hvy Trucks	56	56	56	55	55	74	56	56	74	56	56	74
Buses	4	4	4	3	3	4	4	4	5	7	7	10
Motorcycles	2	2	2	2	2	2	2	2	3	4	4	5
Total	4,580	4,580	4,580	4,580	4,580	6,080	4,580	4,580	6,081	4,580	4,580	6,080
Demand												
Autos	0	3,682	3,682	0	5,417	5,417	0	6,363	6,363	0	7,935	7,935
Med Trucks	0	39	39	0	58	58	0	67	67	0	84	84
Hvy Trucks	0	46	46	0	67	67	0	79	79	0	99	99
Buses	0	3	3	0	4	4	0	6	6	0	13	13
Motorcycles	0	2	2	0	2	2	0	3	3	0	7	7
Total	0	3,769	3,769	0	5,544	5,544	0	6,512	6,512	0	8,125	8,125

Southbound I-275 GUL Mainline - PM Peak Hour

Segment No:	5			6			7			8		
From/To:	Busch Boulevard - Bird Street			Bird Street - Sligh Avenue			Sligh Avenue - Hillsborough Avenue			North of MLK Jr Boulevard		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Dir Lanes:	3	3	4	3	3	4	3	3	4	3	3	4
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	156600	220100	220100	176600	252100	252100	176200	250600	250600	177000	256000	256000
Speed (mph)	55	55	55	55	55	55	55	55	55	55	55	55
(kmh)	89	89	89	89	89	89	89	89	89	89	89	89
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%	57.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
% Medium Trucks DHV	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%
% Heavy Trucks DHV	1.21%	1.21%	1.21%	1.22%	1.22%	1.22%	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%
% Buses DHV	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%
% Motorcycles DHV	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
DDHV LOS (C)	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080	4,580	4,580	6,080
DDHV (Demand)		8,511	8,511		9,749	9,749		9,691	9,691		9,900	9,900
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)												
Autos	4,476	4,476	5,941	4,476	4,476	5,941	4,475	4,475	5,941	4,475	4,475	5,941
Med Trucks	48	48	63	47	47	63	47	47	63	47	47	63
Hvy Trucks	55	55	74	56	56	74	56	56	74	56	56	74
Buses	3	3	4	3	3	4	3	3	4	3	3	4
Motorcycles	1	1	2	1	1	2	1	1	2	1	1	2
Total	4,580	4,580	6,080	4,580	4,580	6,080	4,579	4,579	6,080	4,579	4,579	6,080
Demand												
Autos	0	8,317	8,317	0	9,527	9,527	0	9,470	9,470	0	9,674	9,674
Med Trucks	0	88	88	0	101	101	0	100	100	0	102	102
Hvy Trucks	0	103	103	0	118	118	0	118	118	0	120	120
Buses	0	5	5	0	6	6	0	6	6	0	6	6
Motorcycles	0	3	3	0	3	3	0	3	3	0	3	3
Total	0	8,511	8,511	0	9,749	9,749	0	9,691	9,691	0	9,899	9,899

Northbound I-275 Ramps - AM Peak Hour

Segment No:	1			2			3			4			5		
From/To:	Hillsborough Avenue EB Off Ramp			Hillsborough Avenue WB Off Ramp			Hillsborough Avenue WB On Ramp			Sligh Avenue Off Ramp			Sligh Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	4,500	7,000	7,000	7,800	10,000	10,000	13,000	16,000	16,000	7,000	11,500	11,500	8,200	12,000	12,000
Speed: (mph)	35	35	35	25	25	25	45	45	45	35	35	35	45	45	45
(kmh)	56	56	56	40	40	40	72	72	72	56	56	56	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.04%	1.04%	1.04%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.23%	1.23%	1.23%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		574	574		820	820		1,184	1,184		948	948		1,006	1,006
Stamina/TNM Input	LOS (C)	Demand	Demand	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	Demand	Demand
LOS (C)															
Autos	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	11	11	11	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,010	1,010	1,010	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand															
Autos	0	561	561	0	801	801	0	1,156	1,156	0	926	926	0	983	983
Med Trucks	0	6	6	0	9	9	0	12	12	0	10	10	0	10	10
Hvy Trucks	0	7	7	0	10	10	0	14	14	0	12	12	0	12	12
Buses	0	1	1	0	1	1	0	2	2	0	2	2	0	2	2
Motorcycles	0	0	0	0	1	1	0	1	1	0	1	1	0	1	1
Total	0	574	574	0	821	821	0	1,183	1,183	0	949	949	0	1,006	1,006

Northbound I-275 Ramps - AM Peak Hour

Segment No:	6			7			8			9			10		
From/To:	Bird Street Off Ramp			Busch Boulevard WB Off Ramp			Busch Boulevard On Ramp			Fowler Avenue Off Ramp			Fowler Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	8,000	15,000	15,000	13,500	18,000	18,000	9,200	13,000	13,000	19,500	23,000	23,000	7,100	9,000	9,000
Speed: (mph)	35	35	35	20	20	20	45	45	45	45	45	45	45	45	45
(kmh)	56	56	56	32	32	32	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	2.50%	2.50%	2.50%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.10%	0.10%	0.10%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.10%	0.10%	0.10%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	3,070	3,070	3,070	1,010	1,010	1,010
DDHV (Demand)		1,238	1,238		1,393	1,393		1,006	1,006		2,309	2,309		697	697
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	Demand	Demand	LOS (C)	Demand	Demand
LOS (C)															
Autos	986	986	986	973	973	973	986	986	986	2,998	2,998	2,998	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10	32	32	32	10	10	10
Hvy Trucks	12	12	12	25	25	25	12	12	12	37	37	37	12	12	12
Buses	2	2	2	1	1	1	2	2	2	5	5	5	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	3,069	3,069	3,069	1,009	1,009	1,009
Demand															
Autos	0	1,209	1,209	0	1,342	1,342	0	983	983	0	2,255	2,255	0	681	681
Med Trucks	0	13	13	0	14	14	0	10	10	0	24	24	0	7	7
Hvy Trucks	0	15	15	0	35	35	0	12	12	0	28	28	0	8	8
Buses	0	2	2	0	1	1	0	2	2	0	4	4	0	1	1
Motorcycles	0	1	1	0	1	1	0	1	1	0	2	2	0	1	1
Total	0	1,238	1,238	0	1,392	1,392	0	1,006	1,006	0	2,309	2,309	0	697	697

Northbound I-275 Ramps - AM Peak Hour

Segment No:	11			12			13			14		
From/To:	Fletcher Avenue Off Ramp			Fletcher Avenue On Ramp			Bearss Avenue Off Ramp			Bearss Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	2	2	2	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	16,500	20,000	20,000	3,900	6,500	6,500	24,500	31,000	31,000	5,700	8,700	8,700
Speed: (mph)	45	45	45	45	45	45	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	3,070	3,070	3,070	1,010	1,010	1,010
DDHV (Demand)		1,949	1,949		503	503		2,438	2,438		662	662
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	Demand	Demand	LOS (C)	Demand	Demand
LOS (C)												
Autos	986	986	986	986	986	986	2,998	2,998	2,998	986	986	986
Med Trucks	10	10	10	10	10	10	32	32	32	10	10	10
Hvy Trucks	12	12	12	12	12	12	37	37	37	12	12	12
Buses	2	2	2	2	2	2	5	5	5	2	2	2
Motorcycles	1	1	1	1	1	1	2	2	2	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	3,069	3,069	3,069	1,009	1,009	1,009
Demand												
Autos	0	1,904	1,904	0	491	491	0	2,381	2,381	0	647	647
Med Trucks	0	20	20	0	5	5	0	25	25	0	7	7
Hvy Trucks	0	24	24	0	6	6	0	30	30	0	8	8
Buses	0	3	3	0	1	1	0	4	4	0	1	1
Motorcycles	0	2	2	0	0	0	0	2	2	0	1	1
Total	0	1,950	1,950	0	502	502	0	2,438	2,438	0	663	663

Southbound I-275 Ramps - AM Peak Hour

Segment No:	1			2			3			4			5		
From/To:	Bearss Avenue Off Ramp			Bearss Avenue On Ramp			Fletcher Avenue Off Ramp			Fletcher Avenue On Ramp			Fowler Avenue Off Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	6,200	8,400	8,400	24,500	32,000	32,000	4,900	6,500	6,500	15,500	18,000	18,000	5,100	9,000	9,000
Speed: (mph)	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		877	877		3,232	3,232		667	667		1,471	1,471		923	923
Stamina/TNM Input	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand
LOS (C)															
Autos	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand															
Autos	0	857	857	0	3,157	3,157	0	652	652	0	1,437	1,437	0	902	902
Med Trucks	0	9	9	0	33	33	0	7	7	0	15	15	0	10	10
Hvy Trucks	0	11	11	0	39	39	0	8	8	0	18	18	0	11	11
Buses	0	1	1	0	5	5	0	1	1	0	2	2	0	1	1
Motorcycles	0	1	1	0	3	3	0	1	1	0	1	1	0	1	1
Total	0	878	878	0	3,232	3,232	0	668	668	0	1,471	1,471	0	924	924

Southbound I-275 Ramps - AM Peak Hour

Segment No:	6			7			8			9			10		
From/To:	Fowler Avenue On Ramp			Busch Boulevard Off Ramp			Busch Boulevard WB On Ramp			Bird Street On Ramp			Sligh Avenue Off Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	20,500	22,000	22,000	9,900	13,000	13,000	15,000	18,000	18,000	12,000	17,000	17,000	7,600	14,000	14,000
Speed: (mph)	45	45	45	45	45	45	25	25	25	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	40	40	40	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		1,742	1,742		1,334	1,334		1,847	1,847		1,642	1,642		1,334	1,334
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)															
Autos	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand															
Autos	0	1,701	1,701	0	1,303	1,303	0	1,804	1,804	0	1,604	1,604	0	1,303	1,303
Med Trucks	0	18	18	0	14	14	0	19	19	0	17	17	0	14	14
Hvy Trucks	0	21	21	0	16	16	0	22	22	0	20	20	0	16	16
Buses	0	3	3	0	2	2	0	3	3	0	3	3	0	2	2
Motorcycles	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1
Total	0	1,741	1,741	0	1,334	1,334	0	1,846	1,846	0	1,642	1,642	0	1,334	1,334

Southbound I-275 Ramps - AM Peak Hour

Segment No:	11			12			13		
From/To:	Sligh Avenue On Ramp			Hillsborough Avenue Off Ramp			Hillsborough Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	8,400	13,000	13,000	11,000	14,600	14,600	12,500	19,000	19,000
Speed: (mph)	45	45	45	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		1,257	1,257		1,570	1,570		1,847	1,847
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)									
Autos	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand									
Autos	0	1,228	1,228	0	1,533	1,533	0	1,804	1,804
Med Trucks	0	13	13	0	16	16	0	19	19
Hvy Trucks	0	15	15	0	19	19	0	22	22
Buses	0	2	2	0	3	3	0	3	3
Motorcycles	0	1	1	0	1	1	0	1	1
Total	0	1,257	1,257	0	1,569	1,569	0	1,846	1,846

Northbound I-275 Ramps - PM Peak Hour

Segment No:	1			2			3			4			5		
From/To:	Hillsborough Avenue EB Off Ramp			Hillsborough Avenue WB Off Ramp			Hillsborough Avenue WB On Ramp			Sligh Avenue Off Ramp			Sligh Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	4,500	7,000	7,000	7,800	10,000	10,000	13,000	16,000	16,000	7,000	11,500	11,500	8,200	12,000	12,000
Speed: (mph)	35	35	35	25	25	25	45	45	45	35	35	35	45	45	45
(kmh)	56	56	56	40	40	40	72	72	72	56	56	56	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		760	760		1,086	1,086		1,570	1,570		1,257	1,257		1,334	1,334
Stamina/TNM Input	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)															
Autos	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand															
Autos	0	742	742	0	1,061	1,061	0	1,533	1,533	0	1,228	1,228	0	1,303	1,303
Med Trucks	0	8	8	0	11	11	0	16	16	0	13	13	0	14	14
Hvy Trucks	0	9	9	0	13	13	0	19	19	0	15	15	0	16	16
Buses	0	1	1	0	2	2	0	3	3	0	2	2	0	2	2
Motorcycles	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1
Total	0	760	760	0	1,086	1,086	0	1,569	1,569	0	1,257	1,257	0	1,334	1,334

Northbound I-275 Ramps - PM Peak Hour

Segment No:	6			7			8			9			10		
From/To:	Bird Street Off Ramp			Busch Boulevard WB Off Ramp			Busch Boulevard On Ramp			Fowler Avenue Off Ramp			Fowler Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	8,000	15,000	15,000	13,500	18,000	18,000	9,200	13,000	13,000	19,500	23,000	23,000	7,100	9,000	9,000
Speed: (mph)	35	35	35	20	20	20	45	45	45	45	45	45	45	45	45
(kmh)	56	56	56	32	32	32	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	2.50%	2.50%	2.50%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.10%	0.10%	0.10%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.10%	0.10%	0.10%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	3,070	3,070	3,070	1,010	1,010	1,010
DDHV (Demand)		1,642	1,642		1,847	1,847		1,334	1,334		1,742	1,742		923	923
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	Demand	Demand
LOS (C)															
Autos	986	986	986	973	973	973	986	986	986	2,998	2,998	2,998	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10	32	32	32	10	10	10
Hvy Trucks	12	12	12	25	25	25	12	12	12	37	37	37	12	12	12
Buses	2	2	2	1	1	1	2	2	2	5	5	5	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	3,069	3,069	3,069	1,009	1,009	1,009
Demand															
Autos	0	1,604	1,604	0	1,780	1,780	0	1,303	1,303	0	1,701	1,701	0	902	902
Med Trucks	0	17	17	0	19	19	0	14	14	0	18	18	0	10	10
Hvy Trucks	0	20	20	0	46	46	0	16	16	0	21	21	0	11	11
Buses	0	3	3	0	2	2	0	2	2	0	3	3	0	1	1
Motorcycles	0	1	1	0	2	2	0	1	1	0	1	1	0	1	1
Total	0	1,642	1,642	0	1,847	1,847	0	1,334	1,334	0	1,741	1,741	0	924	924

Northbound I-275 Ramps - PM Peak Hour

Segment No:	11			12			13			14		
From/To:	Fletcher Avenue Off Ramp			Fletcher Avenue On Ramp			Bearss Avenue Off Ramp			Bearss Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	2	2	2	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	16,500	20,000	20,000	3,900	6,500	6,500	24,500	31,000	31,000	5,700	8,700	8,700
Speed: (mph)	45	45	45	45	45	45	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	3,070	3,070	3,070	1,010	1,010	1,010
DDHV (Demand)		1,949	1,949		667	667		3,232	3,232		877	877
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand
LOS (C)												
Autos	986	986	986	986	986	986	2,998	2,998	2,998	986	986	986
Med Trucks	10	10	10	10	10	10	32	32	32	10	10	10
Hvy Trucks	12	12	12	12	12	12	37	37	37	12	12	12
Buses	2	2	2	2	2	2	5	5	5	2	2	2
Motorcycles	1	1	1	1	1	1	2	2	2	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	3,069	3,069	3,069	1,009	1,009	1,009
Demand												
Autos	0	1,904	1,904	0	652	652	0	3,157	3,157	0	857	857
Med Trucks	0	20	20	0	7	7	0	33	33	0	9	9
Hvy Trucks	0	24	24	0	8	8	0	39	39	0	11	11
Buses	0	3	3	0	1	1	0	5	5	0	1	1
Motorcycles	0	2	2	0	1	1	0	3	3	0	1	1
Total	0	1,950	1,950	0	668	668	0	3,232	3,232	0	878	878

Southbound I-275 Ramps - PM Peak Hour

Segment No:	1			2			3			4			5		
From/To:	Bearss Avenue Off Ramp			Bearss Avenue On Ramp			Fletcher Avenue Off Ramp			Fletcher Avenue On Ramp			Fowler Avenue Off Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	6,200	8,400	8,400	24,500	32,000	32,000	4,900	6,500	6,500	15,500	18,000	18,000	5,100	9,000	9,000
Speed: (mph)	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		662	662		2,438	2,438		503	503		1,471	1,471		697	697
Stamina/TNM Input	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand
LOS (C)															
Autos	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand															
Autos	0	647	647	0	2,381	2,381	0	491	491	0	1,437	1,437	0	681	681
Med Trucks	0	7	7	0	25	25	0	5	5	0	15	15	0	7	7
Hvy Trucks	0	8	8	0	30	30	0	6	6	0	18	18	0	8	8
Buses	0	1	1	0	4	4	0	1	1	0	2	2	0	1	1
Motorcycles	0	1	1	0	2	2	0	0	0	0	1	1	0	1	1
Total	0	663	663	0	2,438	2,438	0	502	502	0	1,471	1,471	0	697	697

Southbound I-275 Ramps - PM Peak Hour

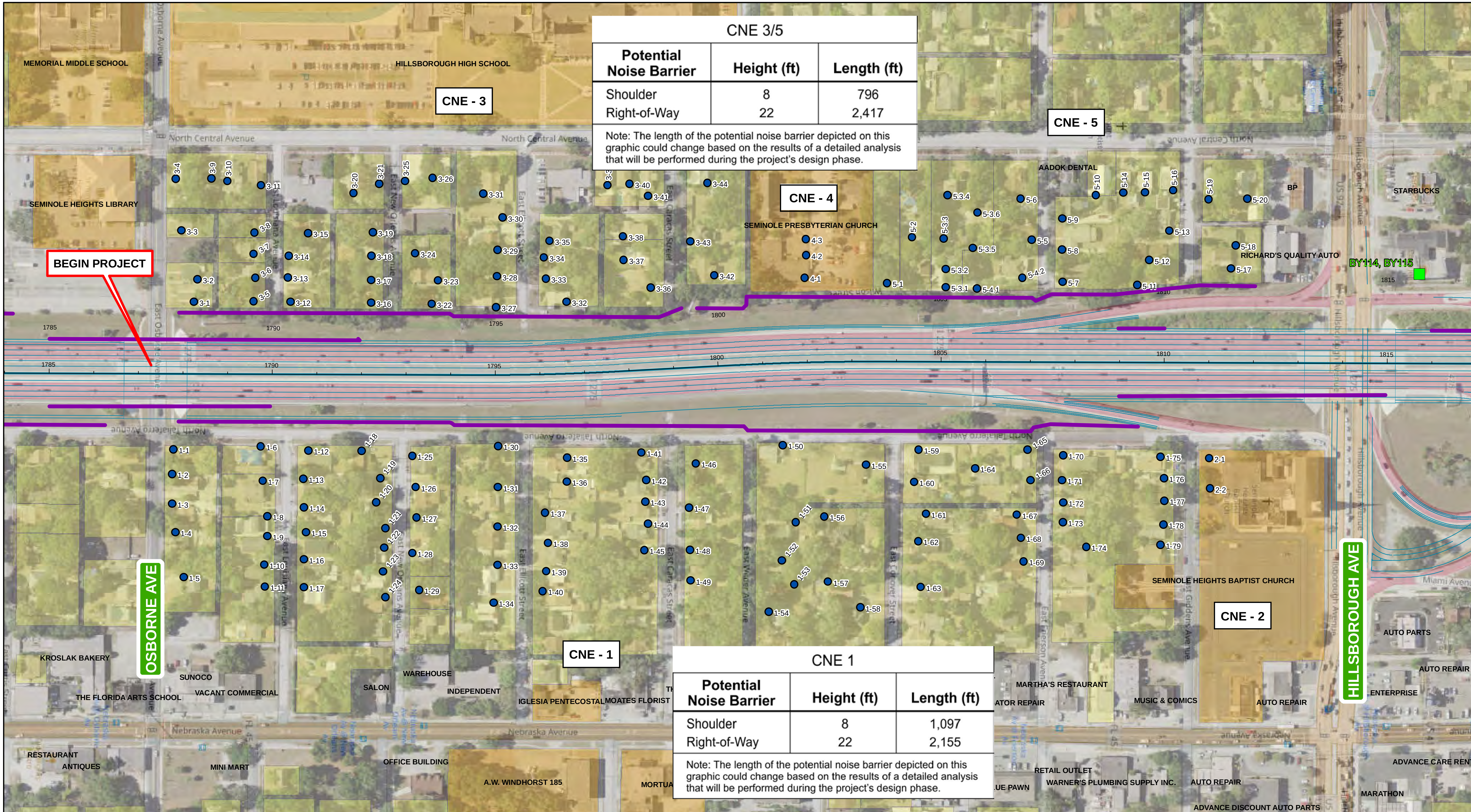
Segment No:	6			7			8			9			10		
From/To:	Fowler Avenue On Ramp			Busch Boulevard Off Ramp			Busch Boulevard WB On Ramp			Bird Street On Ramp			Sligh Avenue Off Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	20,500	22,000	22,000	9,900	13,000	13,000	15,000	18,000	18,000	12,000	17,000	17,000	7,600	14,000	14,000
Speed: (mph)	45	45	45	45	45	45	25	25	25	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	40	40	40	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		2,309	2,309		1,006	1,006		1,393	1,393		1,238	1,238		1,006	1,006
Stamina/TNM Input	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	Demand	Demand
LOS (C)															
Autos	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand															
Autos	0	2,255	2,255	0	983	983	0	1,361	1,361	0	1,209	1,209	0	983	983
Med Trucks	0	24	24	0	10	10	0	14	14	0	13	13	0	10	10
Hvy Trucks	0	28	28	0	12	12	0	17	17	0	15	15	0	12	12
Buses	0	4	4	0	2	2	0	2	2	0	2	2	0	2	2
Motorcycles	0	2	2	0	1	1	0	1	1	0	1	1	0	1	1
Total	0	2,309	2,309	0	1,006	1,006	0	1,393	1,393	0	1,238	1,238	0	1,006	1,006

Southbound I-275 Ramps - PM Peak Hour

Segment No:	11			12			13		
From/To:	Sligh Avenue On Ramp			Hillsborough Avenue Off Ramp			Hillsborough Avenue On Ramp		
Model:	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1	1	1	1	1	1	1
Year:	2017	2045	2045	2017	2045	2045	2017	2045	2045
AADT	8,400	13,000	13,000	11,000	14,600	14,600	12,500	19,000	19,000
Speed: (mph)	45	45	45	45	45	45	45	45	45
(kmh)	72	72	72	72	72	72	72	72	72
K =	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
D =	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
T_{24} =	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
DHT =	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
% Medium Trucks DHV	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%
% Heavy Trucks DHV	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
% Buses DHV	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%
% Motorcycles DHV	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
DDHV LOS (C)	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010
DDHV (Demand)		948	948		1,184	1,184		1,393	1,393
Stamina/TNM Input	LOS (C)	Demand	Demand	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)	LOS (C)
LOS (C)									
Autos	986	986	986	986	986	986	986	986	986
Med Trucks	10	10	10	10	10	10	10	10	10
Hvy Trucks	12	12	12	12	12	12	12	12	12
Buses	2	2	2	2	2	2	2	2	2
Motorcycles	1	1	1	1	1	1	1	1	1
Total	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009	1,009
Demand									
Autos	0	926	926	0	1,156	1,156	0	1,361	1,361
Med Trucks	0	10	10	0	12	12	0	14	14
Hvy Trucks	0	12	12	0	14	14	0	17	17
Buses	0	2	2	0	2	2	0	2	2
Motorcycles	0	1	1	0	1	1	0	1	1
Total	0	949	949	0	1,183	1,183	0	1,393	1,393

APPENDIX B

Noise Sensitive Receptors



CNE 3/5

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	796
Right-of-Way	22	2,417

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

CNE 1

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	1,097
Right-of-Way	22	2,155

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

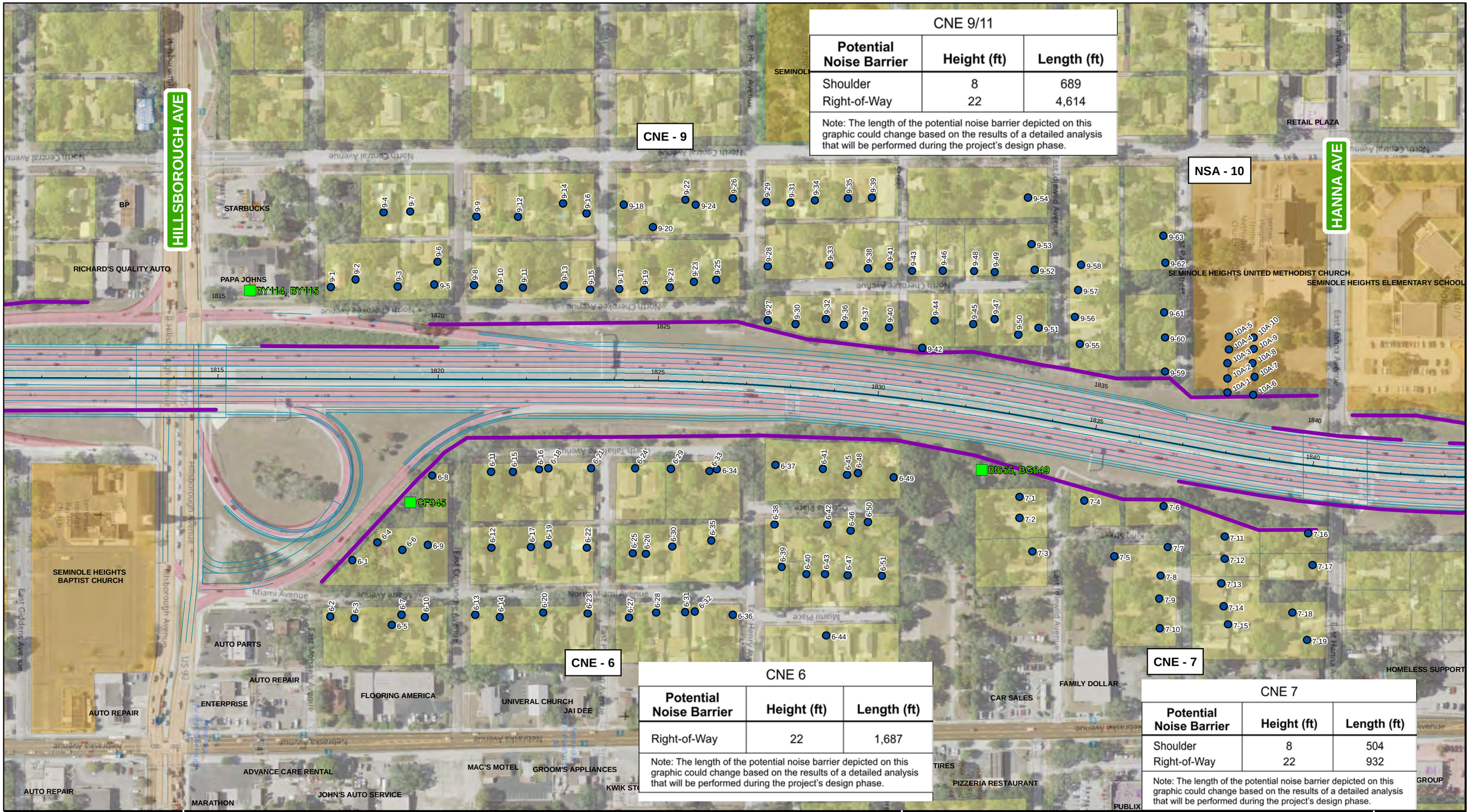
Receptor Sites
Noise Monitoring Site
Existing Noise Barriers
Potential Noise Barriers
Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria CNE - #
B: Residential, 66.0 dB(A)
C: Other Sensitive Land Uses, 66.0 dB(A)
D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans
and Noise Sensitive Receptors

Figure No.
B - 1
Sheet 1 of 15



CNE 9/11

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	689
Right-of-Way	22	4,614

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

CNE 6

Potential Noise Barrier	Height (ft)	Length (ft)
Right-of-Way	22	1,687

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

CNE 7

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	504
Right-of-Way	22	932

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria

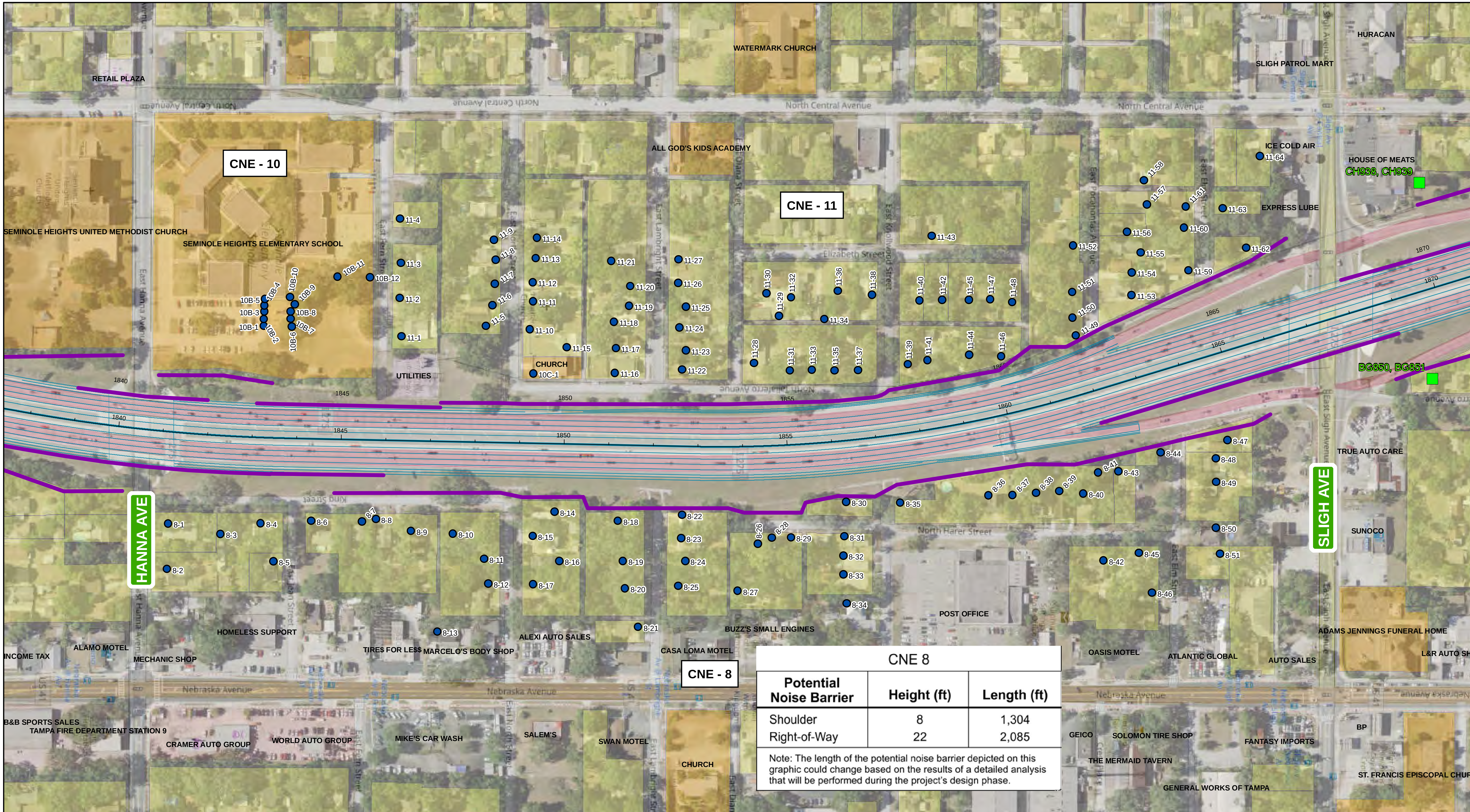
- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

CNE - #

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 2
Sheet 2 of 15



CNE 8

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	1,304
Right-of-Way	22	2,085

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria CNE - #

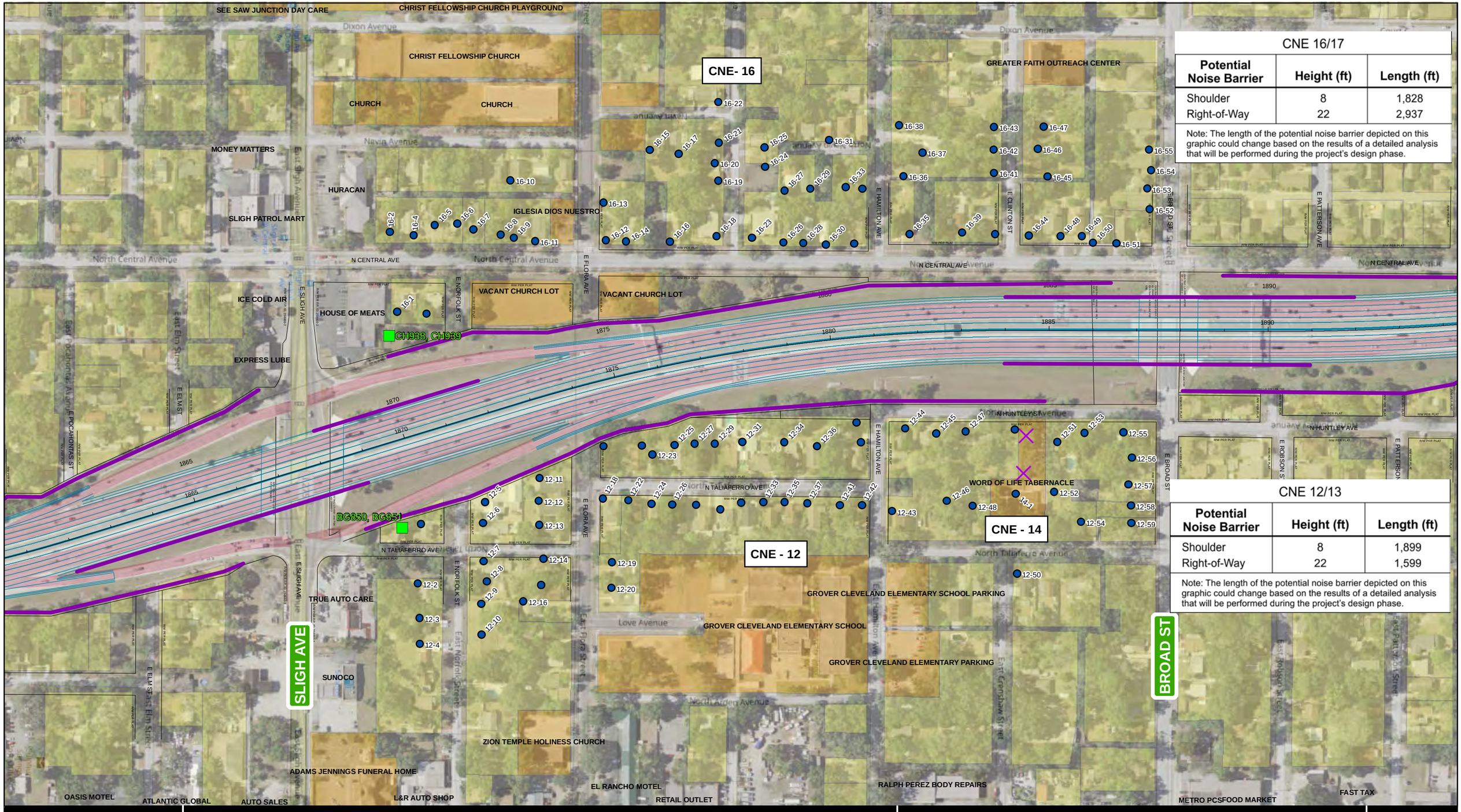
- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans
and Noise Sensitive Receptors

Figure No.
B - 3

Sheet 3 of 15



CNE 16/17

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	1,828
Right-of-Way	22	2,937

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

CNE 12/13

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	1,899
Right-of-Way	22	1,599

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

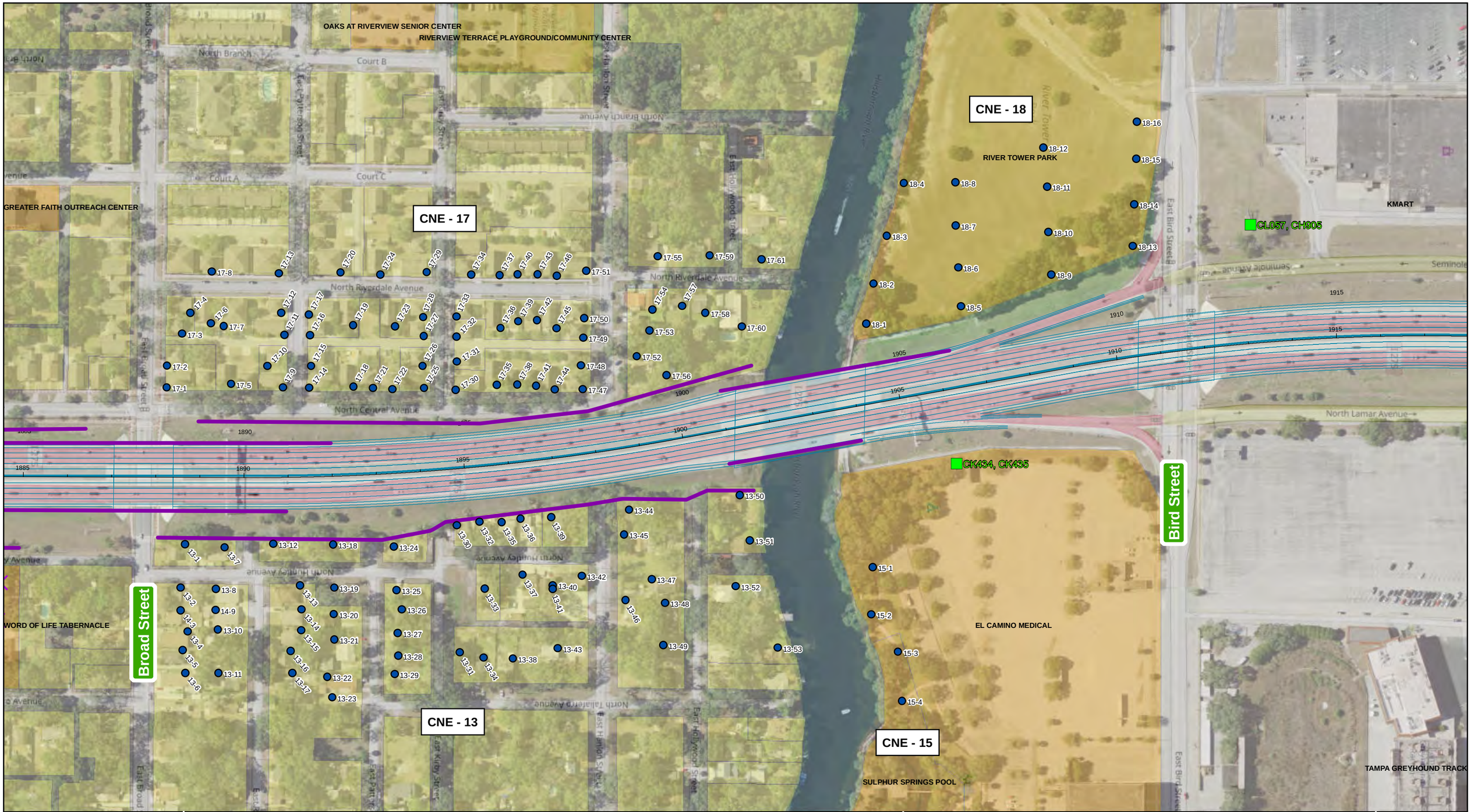
Common Noise Environment (CNE) and Criteria CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 4
Sheet 4 of 15



I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

CNE - #

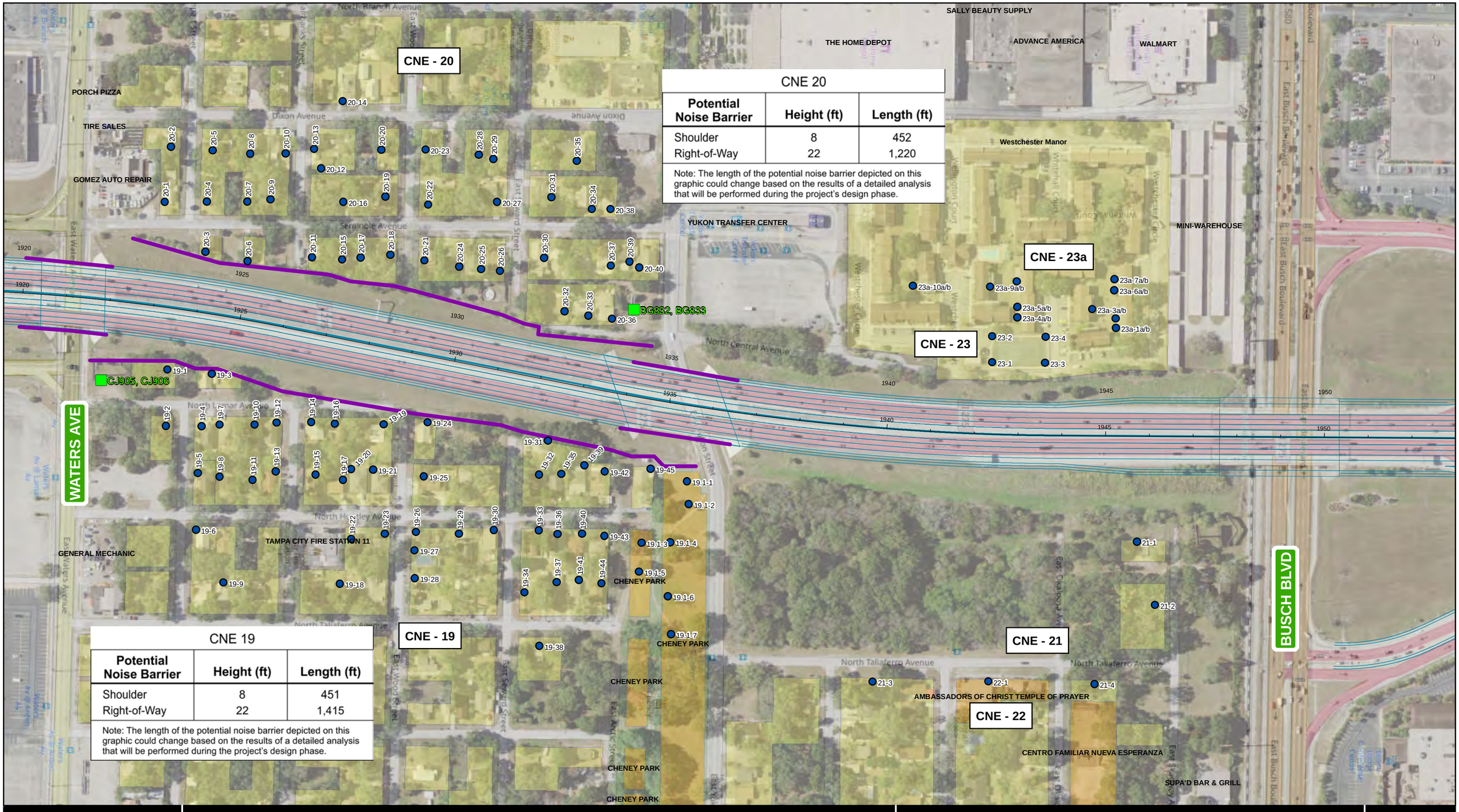
0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.

B - 5

Sheet 5 of 15



CNE 20

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	452
Right-of-Way	22	1,220

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

CNE 19

Potential Noise Barrier	Height (ft)	Length (ft)
Shoulder	8	451
Right-of-Way	22	1,415

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 6
Sheet 6 of 15

MINI-WAREHOUSE

MOST HOLY REDEEMER INTER-PAROCHIAL SCHOOL

CNE - 25

Barrier B6: 16 to 22FT, Ground Mounted

Barrier B7S: 8 to 14 FT, Shoulder Mounted

Barrier B4R Segment 1: 18 to 22FT, Ground Mounted

BUSCH BLVD

LINEBAUGH AVE

CNE - 24

CENTRO FAMILIAR NUEVA ESPERANZA

SUPA'D BAR & GRILL

VACANT HOTEL

STEPS TO MATURITY LEARNING CENTER (DAYCARE)

VACANT CHURCH

CNE 24		
Potential Noise Barrier	**Height (ft)**	**Length (ft)**
Shoulder	8	598
Right-of-Way (South)	18	696
Right-of-Way (North)	22	104

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

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PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria

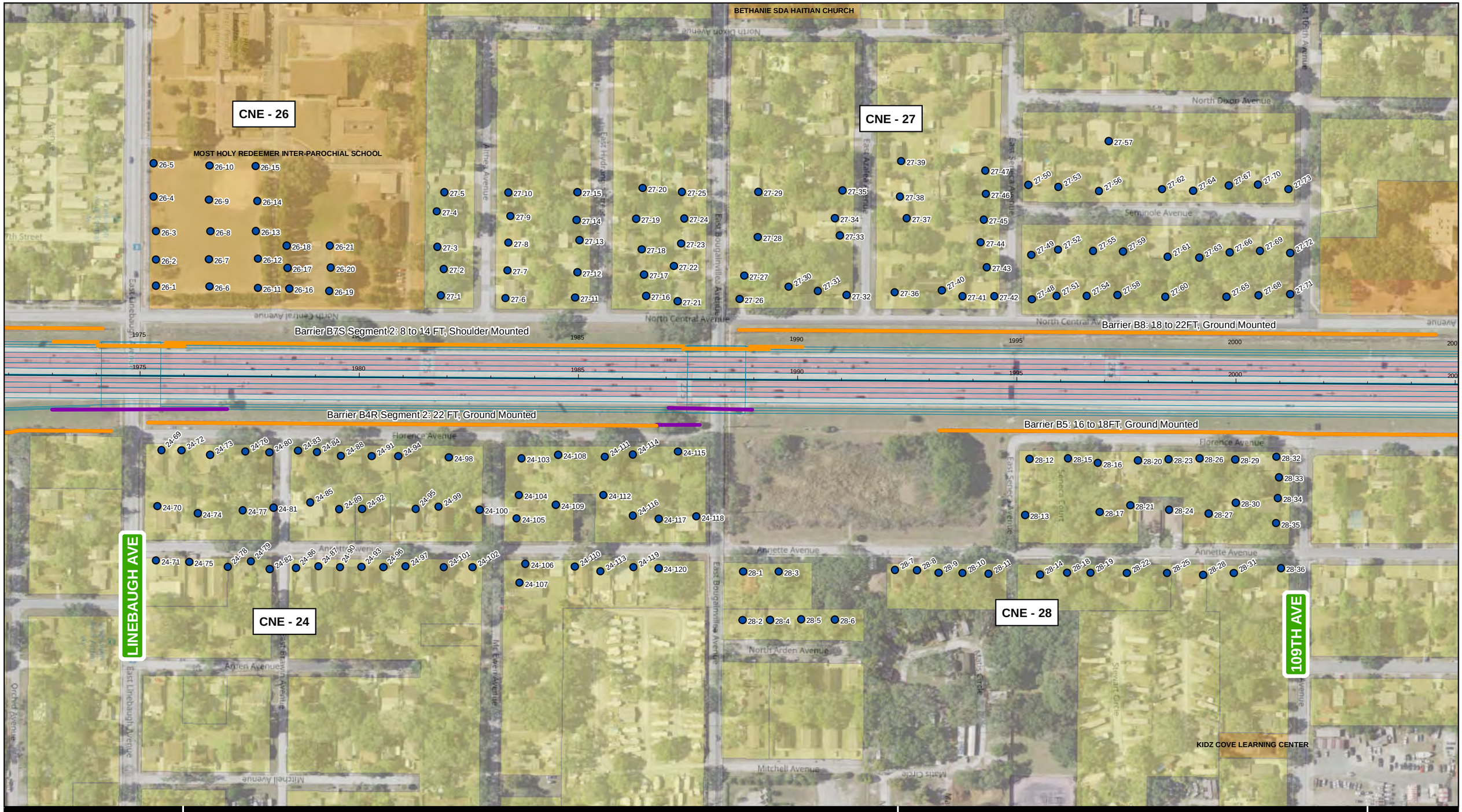
CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 7
Sheet 7 of 15



I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

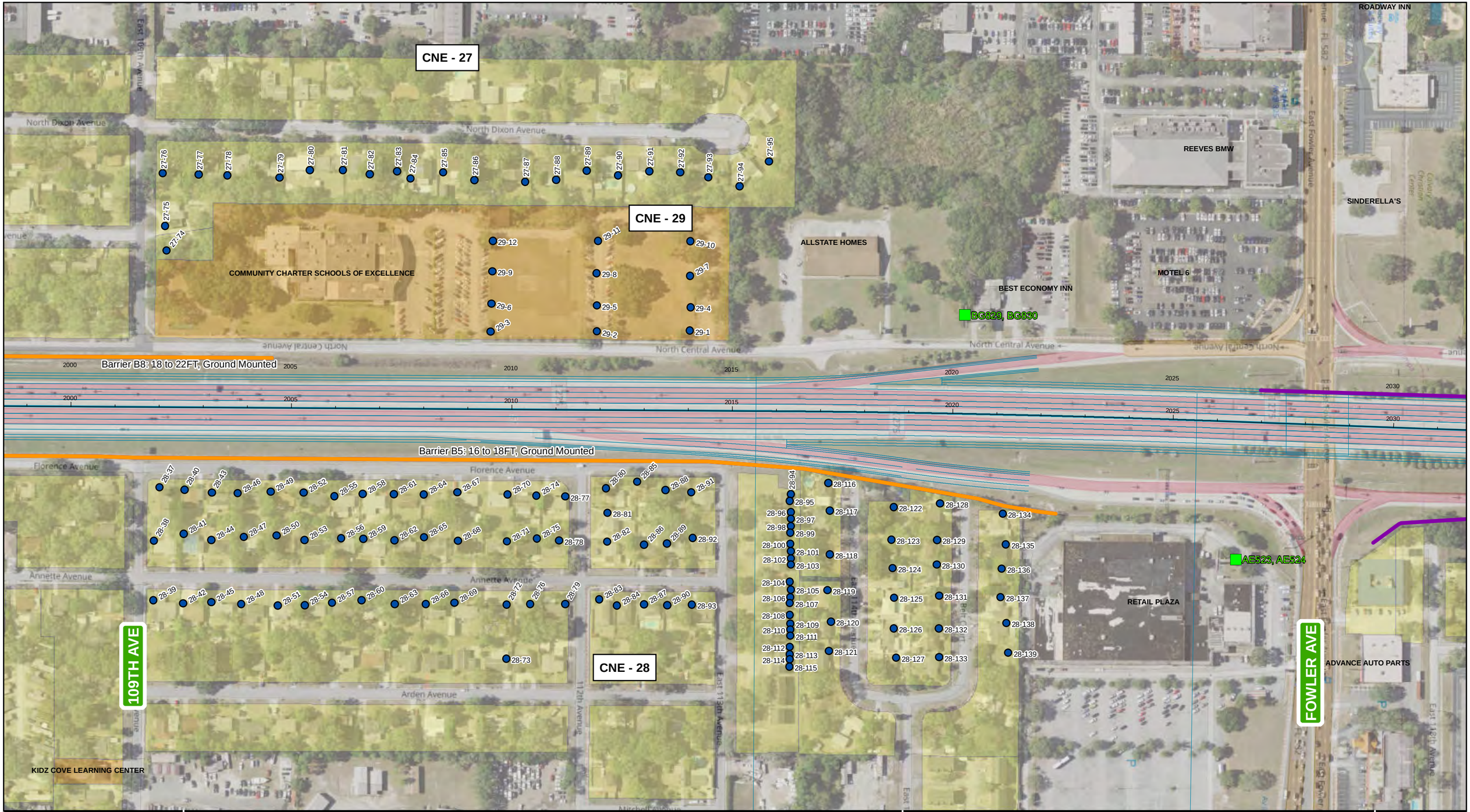
Common Noise Environment (CNE) and Criteria CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 8
Sheet 8 of 15



I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria

CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.

B - 9

Sheet 9 of 15

CNE 31		
Potential Noise Barrier	**Height (ft)**	**Length (ft)**
Shoulder	8	899

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

CNE 30		
Potential Noise Barrier	**Height (ft)**	**Length (ft)**
Right-of-Way	20	1,424

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

Barrier B14: 14 to 16 FT, Ground Mounted

Barrier B10/B11R South Segment: 20 to 22 FT, Ground Mounted

CNE - 31 | CNE - 32 | CNE - 33 | CNE - 30

REEVES BMW | STEP AHEAD ACADEMY | CHINESE CHRISTIAN ALLIANCE CHURCH | MILES ELEMENTARY | Memory Care Assisted Living Facility | RETAIL PLAZA | ADVANCE AUTO PARTS | PUBLIC STORAGE | HOWARD JOHNSON | ONE MADE WHOLE BIBLE MINISTRY

FOWLER AVE | 127TH AVE | North Central Avenue | Taliaferro Avenue

AE523, AE524 | BG109

I-275
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HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

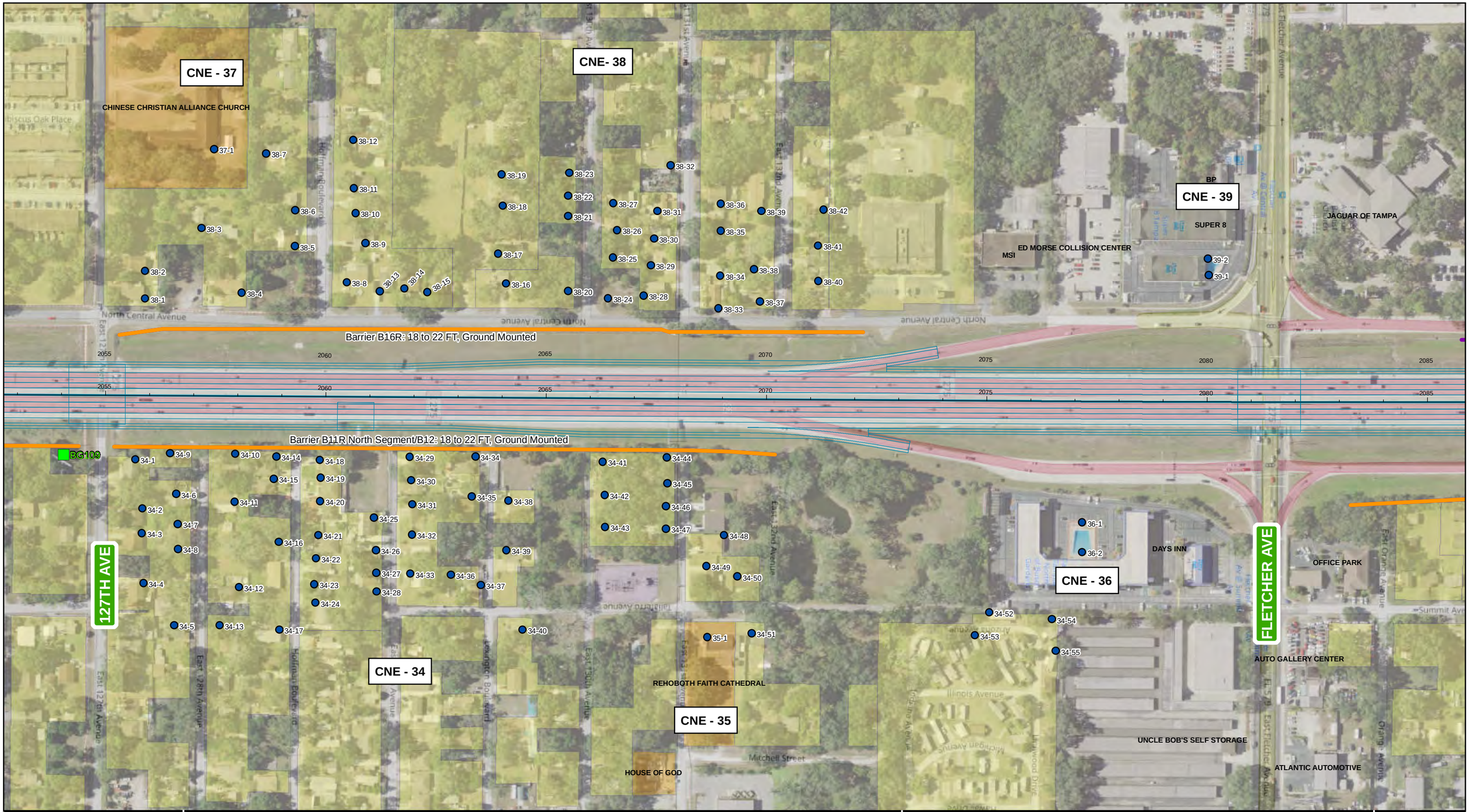
Common Noise Environment (CNE) and Criteria
- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

CNE - #

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 10
Sheet 10 of 15



I-275
PD&E STUDY

FINANCIAL PROJECT ID

431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.

B - 11

Sheet 11 of 15

CNE 43/45		
Potential Noise Barrier	**Height (ft)**	**Length (ft)**
Right-of-Way	22	3,580

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

SHOOTING SPORT
Oak Grove Apartments
AUTO SALVAGE
CNE - 43
CNE - 45
GATEWAY CHRISTIAN CENTER
CNE - 44
BP
SUPER 8
JAGUAR OF TAMPA
East Fletcher Avenue
East 137th Avenue
East 138th Avenue
East 145th Avenue
North Central Avenue
Barrier B18: 16 to 20 FT, Ground Mounted
WAREHOUSE
MALIBU GRAND PRIX
IGLESIA DE DIOS PENTECOSTAL
Salvation Army Lane
OFFICE PARK
THE SALVATION ARMY
CNE - 41
CNE - 42
AUTO GALLERY CENTER
CNE - 40
FLETCHER AVE
145TH AVE
ATLANTIC AUTOMOTIVE
COMMUNITY THRIFT STORE
SUNOCO
Summit Avenue
Nebraska Avenue

I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria
- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

CNE - #

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 12
Sheet 12 of 15

CNE - 47

CNE - 48

CNE - 47

CNE - 42

CNE - 46

AUTO SALVAGE

CHRISTIAN GROWTH FELLOWSHIP

RACETRACK

BANK OF AMERICA

VISTA INN AND SUITES

CHEVRON

CALYPSO DIVERS

IHOP

CITGO

CARMAX

SPARTA FITNESS

AMERI TECH

AC DELCO

SOUTHERN GROUND SALOON

145TH AVE

BEARSS AVE

Barrier B19: 16 FT, Ground Mounted

CNE 47		
Potential Noise Barrier	**Height (ft)**	**Length (ft)**
Right-of-Way	16	2,178

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

CNE 42/46		
Potential Noise Barrier	**Height (ft)**	**Length (ft)**
Right-of-Way	16	100

Note: The length of the potential noise barrier depicted on this graphic could change based on the results of a detailed analysis that will be performed during the project's design phase.

I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria

CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

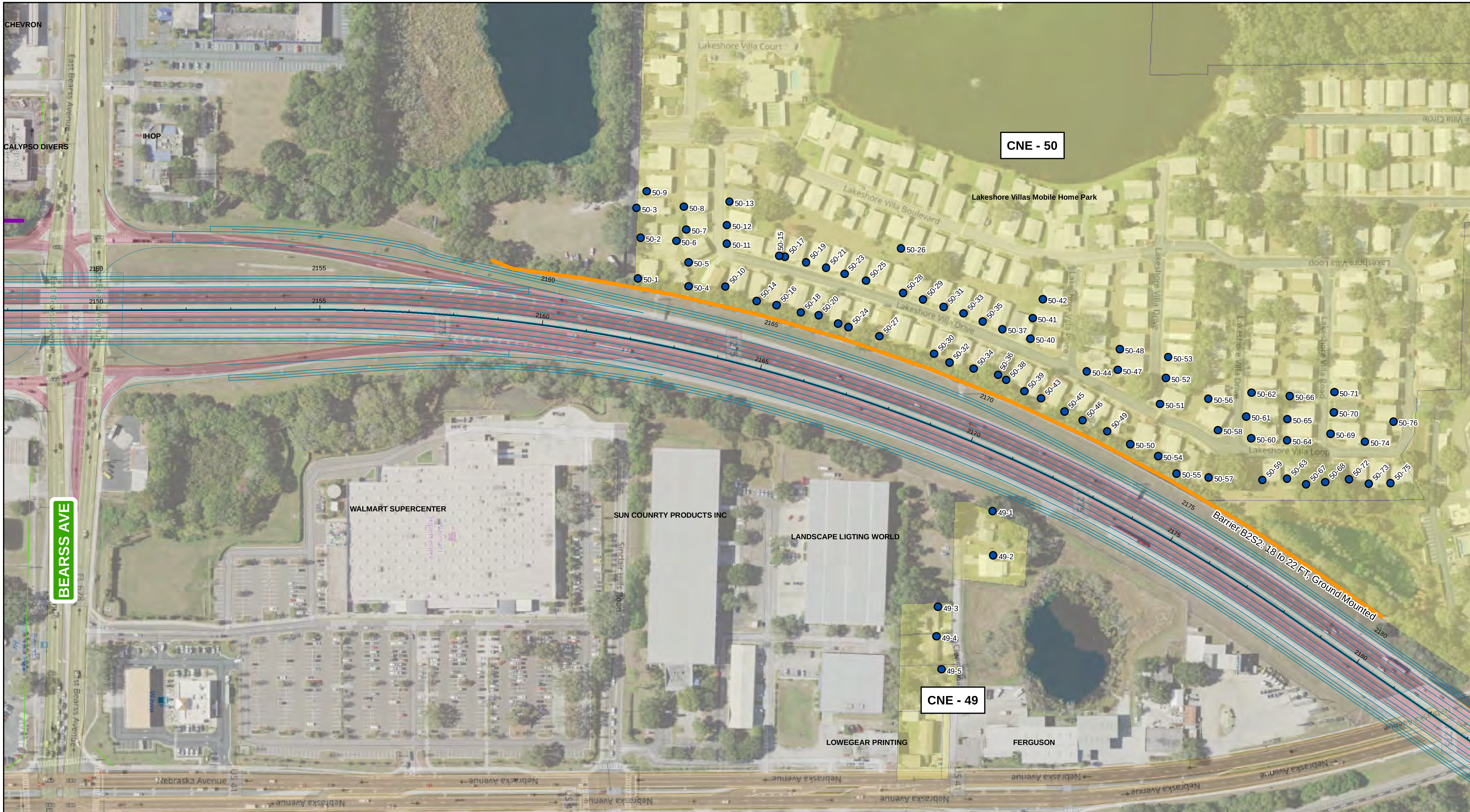
0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.

B - 13

Sheet 13 of 15


CHEVRON
CALYPSO DIVERS
IHOP
CNE - 50
Lakeshore Villas Mobile Home Park
Lakeshore Villa Court
Lakeshore Villa Boulevard
Lakeshore Villa Drive
Lakeshore Villa Loop
WALMART SUPERCENTER
SUN COUNRTY PRODUCTS INC
LANDSCAPE LIGTING WORLD
LOWEGEAR PRINTING
FERGUSON
CNE - 49
BEARSS AVE
East Bearss Avenue
Nebraska Avenue
Barrier B2S2: 18 to 22 FT, Ground Mounted
50-1
50-2
50-3
50-4
50-5
50-6
50-7
50-8
50-9
50-10
50-11
50-12
50-13
50-26
50-42
50-41
50-40
50-37
50-48
50-53
50-44
50-47
50-52
50-56
50-51
50-62
50-66
50-71
50-61
50-65
50-70
50-76
50-58
50-60
50-64
50-69
50-74
50-50
50-54
50-55
50-57
49-1
49-2
49-3
49-4
49-5

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PD&E STUDY
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431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

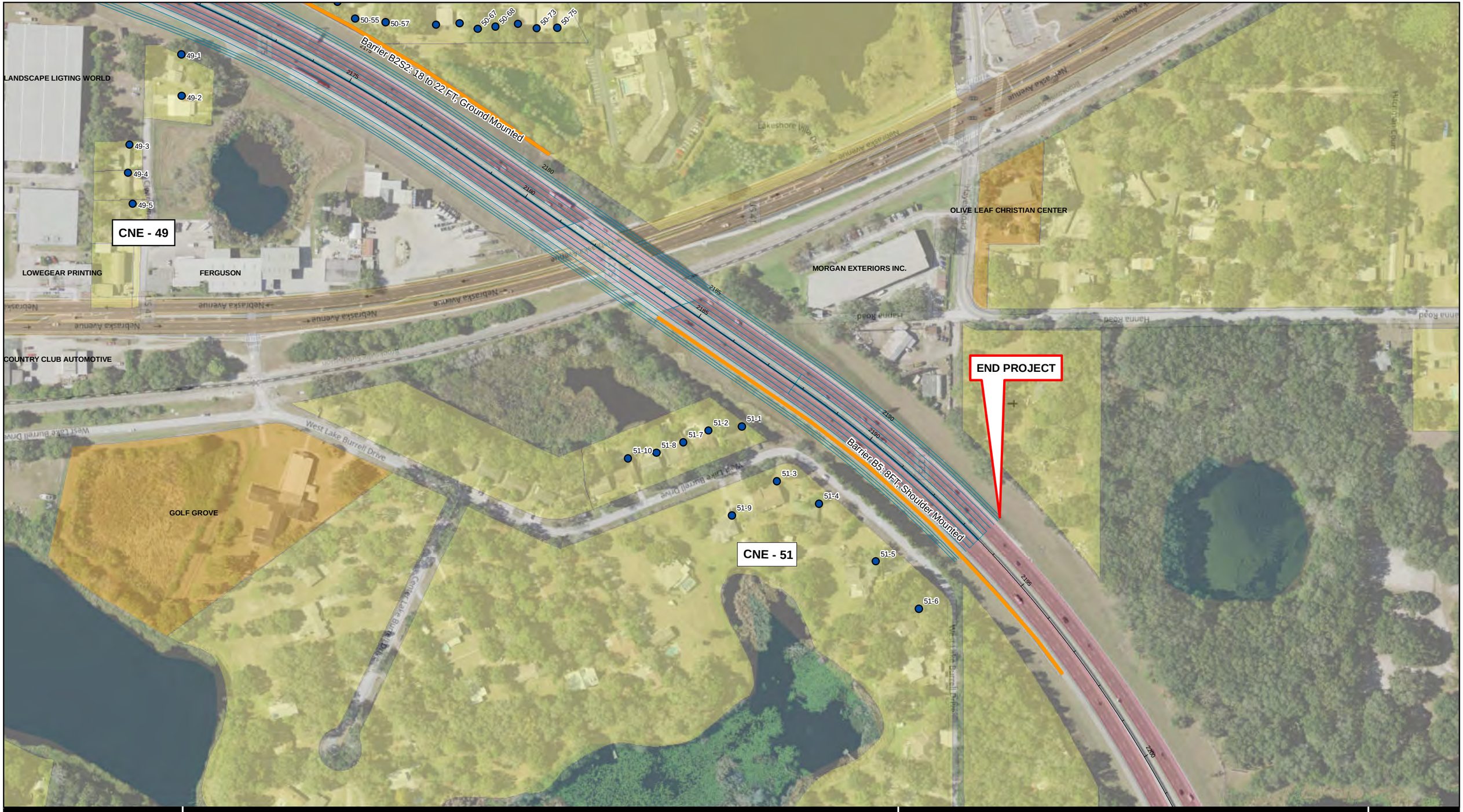
Common Noise Environment (CNE) and Criteria
- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

CNE - #

0 50 100 200 Feet

Concept Plans
and Noise Sensitive Receptors

Figure No.
B - 14
Sheet 14 of 15



I-275
PD&E STUDY
FINANCIAL PROJECT ID
431821-1
HILLSBOROUGH COUNTY

- Receptor Sites
- Noise Monitoring Site
- Existing Noise Barriers
- Potential Noise Barriers
- Outdoor Advertising Sign (Tag No.)

Common Noise Environment (CNE) and Criteria

CNE - #

- B: Residential, 66.0 dB(A)
- C: Other Sensitive Land Uses, 66.0 dB(A)
- D: Institutional (Interior), 51.0 dB(A)

0 50 100 200 Feet

Concept Plans and Noise Sensitive Receptors

Figure No.
B - 15
Sheet 15 of 15

APPENDIX C

Validation Documentation

NOISE MEASUREMENT DATA SHEET

Measurements taken by: Jim Mykytka

Date: 05-07-2015

Time Study Started: 12:16 PM

Time Study Ended: 12:46 PM

Project Identification:

Financial Project ID: 431821-1

Project Location: I-275 Express Lane Project

Site Identification: South of West Bearss Avenue and West of I-275: **Site MS1-1** First Row Residence (143 East 143rd Avenue), 180 feet West of I-275 Nearest Travel Lane, Station 2109+20, State Plane Coordinates - 509,296, 1,360,942; **Site MS1-2** Second Row Residence (138 East 143rd Avenue) 250 feet West of I-275 Nearest Travel Lane, Station 2109+50; State Plane Coordinates - 509,220, 1,360,973

Weather Conditions:

Sky: Clear_X__ Partly Cloudy___ Cloudy___ Other___

Temperature _83° F_ Wind Speed_3_mph Wind Direction _W NW_ Humidity _48%_

Equipment:

Sound Level Meter:

Type: _Larson-Davis Model 870_ Serial Numbers: __0155 & 1019__

Did you check the battery? Yes _X_ No

___

Calibration Readings: Start __114.0/114.0__ End __114.0/113.8__

Response Settings: Fast ___ Slow _X_

Weightings: A _X_ Other ___

Calibrator:

Type: __Larson-Davis Model CA 250__ Serial Number: __0702_____

Did you check the battery? Yes_X_ No___

TRAFFIC DATA

Roadway Identification	Northbound I-275		Southbound I-275	
	Run 1-Run 2-Run 3		Run 1-Run 2-Run 3	
Vehicle Type	Volume	Speed (mph)	Volume	Speed (mph)
Autos	344-356-360	66-66-65	374-379-369	59-63-63
Medium Trucks	11-8-9	66-63-62	12-7-8	58-60-61
Heavy Trucks	22-23-21	63-62-66	27-10-10	59-60-63
Buses	0-1-0	66-63-64	0-1-0	58-56-61
Motorcycles	0-0-2	63-60-65	0-1-1	62-65-63
Duration	10 minutes per run		10 minutes per run	

RESULTS [dB(A)]

Site MS1-1: L_{eq} 66.6-65.6-65.7 Lmax 77.0-70.8-75.0

Site MS1-2: L_{eq} 62.2-61.5-61.8 Lmax 74.6-67.6-74.2

Major Sources: I-275

Background Noise:

Unusual Events:

NOISE MEASUREMENT DATA SHEET

Measurements taken by: Jim Mykytka

Date: 05-07-2015

Time Study Started: 2:45 PM

Time Study Ended: 3:15 PM

Project Identification:

Financial Project ID: 431821-1

Project Location: I-275 Express Lane Project

Site Identification: South of East Broad Street and East of I-275: **Site MS2-1** First Row Residence (7307 North Huntley Avenue), 180 feet East of I-275 Nearest Travel Lane, Station 1884+00, State Plane Coordinates - 509,620, 1,338,503; **Site MS2-2** Second Row - Word of Life Tabernacle (7309 North Huntley Avenue) 315 feet East of I-275 Nearest Travel Lane, Station 1884+20; State Plane Coordinates - 509,755, 1,338,496

Weather Conditions:

Sky: Clear X Partly Cloudy ___ Cloudy ___ Other ___
Temperature 86.5° F Wind Speed 4.4 mph Wind Direction W Humidity 36.5%

Equipment:

Sound Level Meter:

Type: Larson-Davis Model 870 Serial Numbers: 0155 & 1019
Did you check the battery? Yes X No ___

Calibration Readings: Start 114.0/113.7 End 114.1/113.9
Response Settings: Fast ___ Slow X
Weightings: A X Other ___

Calibrator:

Type: Larson-Davis Model CA 250 Serial Number: 0702
Did you check the battery? Yes X No ___

TRAFFIC DATA

Roadway Identification	Northbound I-275		Southbound I-275	
	Run 1-Run 2-Run 3		Run 1-Run 2-Run 3	
Vehicle Type	Volume	Speed (mph)	Volume	Speed (mph)
Autos	819-932-889	61-61-61	738-732-737	64-66-65
Medium Trucks	10-8-4	57-57-56	12-12-8	63-64-63
Heavy Trucks	15-15-19	60-60-54	9-16-23	62-66-59
Buses	3-6-10	55-60-59	2-2-0	62-64-62
Motorcycles	1-1-2	60-58-60	3-2-1	64-66-65
Duration	10 minutes per run		10 minutes per run	

RESULTS [dB(A)]

Site MS2-1: Leq 68.6-68.9-69.7 Lmax 72.9-76.0-81.3

Site MS2-2: Leq 62.9-63.0-63.7 Lmax 67.9-71.4-75.6

Major Sources: I-275

Background Noise:

Unusual Events:

APPENDIX D

Predicted Traffic Noise Levels at Individual Receptors

Receptor ID#	Activity Category	Description of Activity Category	No. of Noise Sensitive Sites Represented	Sheet No. (See Appendix E)	Predicted Traffic Noise Level (Leq(h)) [Expressed as dB(A)]				
					Existing (2017)	No-Build (2045)	Build (2045)	Increase from Existing	Build Approaches, Meets, or Exceeds the NAC?
1-1	B	Residential	1	1	66.9	66.9	68.5	1.6	Yes
1-2	B	Residential	1	1	65.8	65.8	67.7	1.9	Yes
1-3	B	Residential	1	1	64.4	64.4	66.4	2.0	Yes
1-4	B	Residential	1	1	63.0	63.0	65.3	2.3	
1-5	B	Residential	1	1	60.3	60.3	63.2	2.9	
1-6	B	Residential	1	1	67.1	67.1	68.8	1.7	Yes
1-7	B	Residential	1	1	65.6	65.6	67.5	1.9	Yes
1-8	B	Residential	1	1	63.9	63.9	65.8	1.9	
1-9	B	Residential	1	1	62.7	62.7	64.9	2.2	
1-10	B	Residential	1	1	61.3	61.3	63.3	2.0	
1-11	B	Residential	1	1	60.6	60.6	63.1	2.5	
1-12	B	Residential	1	1	67.8	67.8	69.5	1.7	Yes
1-13	B	Residential	1	1	66.4	66.4	68.2	1.8	Yes
1-14	B	Residential	1	1	64.6	64.6	66.6	2.0	Yes
1-15	B	Residential	1	1	63.6	63.6	65.4	1.8	
1-16	B	Residential	1	1	62.0	62.0	64.4	2.4	
1-17	B	Residential	1	1	60.5	60.5	63.4	2.9	
1-18	B	Residential	1	1	69.0	69.0	70.8	1.8	Yes
1-19	B	Residential	1	1	68.5	68.5	71.5	3.0	Yes
1-20	B	Residential	1	1	65.2	65.2	68.4	3.2	Yes
1-21	B	Residential	1	1	64.2	64.3	67.4	3.2	Yes
1-22	B	Residential	1	1	62.9	62.9	66.1	3.2	Yes
1-23	B	Residential	1	1	61.6	61.6	65.6	4.0	
1-24	B	Residential	1	1	59.8	59.8	63.8	4.0	
1-25	B	Residential	1	1	70.7	70.7	73.8	3.1	Yes
1-26	B	Residential	1	1	67.2	67.2	70.3	3.1	Yes
1-27	B	Residential	1	1	64.9	64.9	68.4	3.5	Yes
1-28	B	Residential	1	1	62.5	62.5	66.3	3.8	Yes
1-29	B	Residential	4	1	60.1	60.1	64.7	4.6	
1-30	B	Residential	1	1	72.3	72.3	75.5	3.2	Yes
1-31	B	Residential	1	1	68.1	68.1	72.0	3.9	Yes
1-32	B	Residential	1	1	64.6	64.6	69.3	4.7	Yes
1-33	B	Residential	1	1	61.5	61.5	66.9	5.4	Yes
1-34	B	Residential	1	1	59.2	59.2	65.0	5.8	

1-35	B	Residential	1	1	71.0	71.0	74.3	3.3	Yes
1-36	B	Residential	1	1	67.9	67.9	71.8	3.9	Yes
1-37	B	Residential	1	1	65.8	65.8	70.2	4.4	Yes
1-38	B	Residential	1	1	63.3	63.3	68.2	4.9	Yes
1-39	B	Residential	1	1	61.6	61.6	66.9	5.3	Yes
1-40	B	Residential	1	1	60.1	60.1	65.7	5.6	
1-41	B	Residential	1	1	71.2	71.2	74.5	3.3	Yes
1-42	B	Residential	1	1	68.4	68.4	72.2	3.8	Yes
1-43	B	Residential	1	1	65.6	65.6	70	4.4	Yes
1-44	B	Residential	1	1	64.2	64.2	69.2	5.0	Yes
1-45	B	Residential	1	1	62.3	62.3	67.8	5.5	Yes
1-46	B	Residential	1	1	69.9	69.9	73.3	3.4	Yes
1-47	B	Residential	1	1	65.8	65.8	70.3	4.5	Yes
1-48	B	Residential	1	1	62.5	62.5	67.9	5.4	Yes
1-49	B	Residential	1	1	60.7	60.7	66.4	5.7	Yes
1-50	B	Residential	1	1	71.2	71.2	74.5	3.3	Yes
1-51	B	Residential	1	1	64.4	64.4	69.1	4.7	Yes
1-52	B	Residential	1	1	61.9	61.9	67.2	5.3	Yes
1-53	B	Residential	1	1	60.6	60.6	66	5.4	Yes
1-54	B	Residential	1	1	59.3	59.3	64.9	5.6	
1-55	B	Residential	1	1	69.0	69.1	72.6	3.6	Yes
1-56	B	Residential	1	1	64.8	64.8	69.4	4.6	Yes
1-57	B	Residential	1	1	60.8	60.8	66.1	5.3	Yes
1-58	B	Residential	1	1	59.7	59.7	65	5.3	
1-59	B	Residential	1	1	70.5	70.5	73.7	3.2	Yes
1-60	B	Residential	1	1	67.4	67.4	71.3	3.9	Yes
1-61	B	Residential	1	1	64.3	64.4	68.9	4.6	Yes
1-62	B	Residential	1	1	62.9	62.9	67.8	4.9	Yes
1-63	B	Residential	1	1	60.2	60.3	65.5	5.3	
1-64	B	Residential	1	1	68.7	68.8	72.3	3.6	Yes
1-65	B	Residential	1	1	70.6	70.6	73.7	3.1	Yes
1-66	B	Residential	1	1	67.9	68	71.1	3.2	Yes
1-67	B	Residential	1	1	64.8	64.9	67.6	2.8	Yes
1-68	B	Residential	1	1	64.2	64.2	67.1	2.9	Yes
1-69	B	Residential	1	1	63.4	63.4	66.4	3.0	Yes
1-70	B	Residential	1	1	70.1	70.2	71.7	1.6	Yes
1-71	B	Residential	1	1	68.1	68.1	70.2	2.1	Yes
1-72	B	Residential	1	1	66.6	66.6	68.8	2.2	Yes
1-73	B	Residential	1	1	65.3	65.3	67.6	2.3	Yes
1-74	B	Residential	1	1	64.2	64.2	65.4	1.2	
1-75	B	Residential	1	1	68.2	68.4	69.4	1.2	Yes

1-76	B	Residential	1	1	66.8	67	67.9	1.1	Yes
1-77	B	Residential	1	1	66.0	66.1	66.5	0.5	Yes
1-78	B	Residential	1	1	65.0	65.0	64.6	-0.4	
1-79	B	Residential	1	1	64.8	64.8	64.4	-0.4	
2-1	C	Place of Worship (Exterior)	1	1	67.6	68.0	69.1	1.5	Yes
2-2	C	Place of Worship (Exterior)	1	1	65.2	65.3	66.0	0.8	Yes
3-1	B	Residential	1	1	66.9	66.9	68.2	1.3	Yes
3-2	B	Residential	1	1	66.2	66.2	67.9	1.7	Yes
3-3	B	Residential	1	1	64.5	64.5	66.5	2.0	Yes
3-4	B	Residential	1	1	62.1	62.1	64.0	1.9	
3-5	B	Residential	1	1	67.6	67.6	68.9	1.3	Yes
3-6	B	Residential	1	1	66.5	66.5	68.1	1.6	Yes
3-7	B	Residential	4	1	65.3	65.3	67.1	1.8	Yes
3-8	B	Residential	1	1	65.4	65.4	68.4	3.0	Yes
3-9	B	Residential	1	1	62.9	62.9	65.9	3.0	
3-10	B	Residential	1	1	63.1	63.1	66.4	3.3	Yes
3-11	B	Residential	1	1	63.5	63.5	67.1	3.6	Yes
3-12	B	Residential	1	1	68.1	68.1	69.4	1.3	Yes
3-13	B	Residential	1	1	67.2	67.2	68.7	1.5	Yes
3-14	B	Residential	1	1	67.2	67.2	70.4	3.2	Yes
3-15	B	Residential	1	1	65.8	65.8	68.7	2.9	Yes
3-16	B	Residential	1	1	71.6	71.6	75.0	3.4	Yes
3-17	B	Residential	1	1	69.8	69.8	72.9	3.1	Yes
3-18	B	Residential	1	1	67.3	67.3	70.1	2.8	Yes
3-19	B	Residential	1	1	65.6	65.6	69.4	3.8	Yes
3-20	B	Residential	1	1	63.9	63.9	68.4	4.5	Yes
3-21	B	Residential	1	1	63.1	63.1	67.9	4.8	Yes
3-22	B	Residential	1	1	72.4	72.4	75.3	2.9	Yes
3-23	B	Residential	1	1	70.0	70.0	73.4	3.4	Yes
3-24	B	Residential	1	1	67.5	67.5	71.3	3.8	Yes
3-25	B	Residential	4	1	62.6	62.6	67.6	5.0	Yes
3-26	B	Residential	4	1	62.4	62.5	67.5	5.1	Yes
3-27	B	Residential	1	1	72.7	72.7	75.7	3.0	Yes
3-28	B	Residential	1	1	62.6	62.6	64.6	2.0	
3-29	B	Residential	1	1	67.0	67.0	71.1	4.1	Yes
3-30	B	Residential	1	1	64.5	64.5	69.2	4.7	Yes
3-31	B	Residential	1	1	63.2	63.2	68.2	5.0	Yes
3-32	B	Residential	1	1	72.2	72.2	75.3	3.1	Yes
3-33	B	Residential	1	1	69.7	69.7	73.1	3.4	Yes

3-34	B	Residential	1	1	67.8	67.8	71.8	4.0.	Yes
3-35	B	Residential	1	1	66.0	66.0	70.3	4.3	Yes
3-36	B	Residential	1	1	71.1	71.1	74.4	3.3	Yes
3-37	B	Residential	1	1	67.5	67.5	71.4	3.9	Yes
3-38	B	Residential	4	1	65.6	65.7	70.0	4.4	Yes
3-39	B	Residential	1	1	62.4	62.4	67.8	5.4	Yes
3-40	B	Residential	1	1	62.2	62.2	67.6	5.4	Yes
3-41	B	Residential	1	1	62.9	62.9	68.2	5.3	Yes
3-42	B	Residential	1	1	70.2	70.2	73.6	3.4	Yes
3-43	B	Residential	1	1	66.5	66.5	70.8	4.3	Yes
3-44	B	Residential	1	1	61.3	61.3	66.5	5.2	Yes
4-1	D	Place of Worship (Interior)	1	1	45.7	45.7	49.1	3.4	
4-2	C	Place of Worship (Exterior)	1	1	64.3	64.4	67.6	3.3	Yes
4-3	C	Place of Worship (Exterior)	1	1	64.6	64.6	68.3	3.7	Yes
5-1	B	Residential	2	1	71.3	71.4	74.5	3.2	Yes
5-2	B	Residential	1	1	66.9	67.0	71.0	4.1	Yes
5-3.1	B	Residential	1	1	72.0	72.2	74.8	2.8	Yes
5-3.2	B	Residential	2	1	70.1	70.3	73.3	3.2	Yes
5-3.3	B	Residential	2	1	67.2	67.3	71.1	3.9	Yes
5.3.4	B	Residential	1	1	63.9	64.0	68.2	4.3	Yes
5-3.5	B	Residential	1	1	68.1	68.2	71.8	3.7	Yes
5-3.6	B	Residential	1	1	65.3	65.4	69.5	4.2	Yes
5-4.1	B	Residential	1	1	72.2	72.4	75	2.8	Yes
5-4	B	Residential	1	1	70.9	71.2	74.2	3.3	Yes
5-5	B	Residential	1	1	67.5	67.6	71.3	3.8	Yes
5-6	B	Residential	1	1	64.0	64.1	67.5	3.5	Yes
5-7	B	Residential	1	1	71.5	71.8	74.7	3.2	Yes
5-8	B	Residential	1	1	68.2	68.4	71.9	3.7	Yes
5-9	B	Residential	1	1	65.9	66.0	69.7	3.8	Yes
5-10	B	Residential	1	1	65.2	65.3	68.2	3.0	Yes
5-11	B	Residential	1	1	70.4	71.1	73.0	2.6	Yes
5-12	B	Residential	1	1	67.6	67.9	69.7	2.1	Yes
5-13	B	Residential	1	1	66.6	66.7	68.0	1.4	Yes
5-14	B	Residential	1	1	65.4	65.5	68.1	2.7	Yes
5-15	B	Residential	1	1	65.5	65.6	68.1	2.6	Yes
5-16	B	Residential	1	1	65.4	65.5	66.8	1.4	Yes
5-17	B	Residential	1	1	68.4	69.2	70.2	1.8	Yes
5-18	B	Residential	1	1	66.2	66.5	67.1	0.9	Yes

5-19	B	Residential	1	1	65.4	65.5	65.1	-0.3	
5-20	B	Residential	1	1	66.3	66.3	64.3	-2.0	
6-1	B	Residential	1	2	69.4	70.6	71.4	2.0	Yes
6-2	B	Residential	1	2	64.9	65.2	66.8	1.9	Yes
6-3	B	Residential	1	2	63.9	64.1	66.5	2.6	Yes
6-4	B	Residential	1	2	68.8	69.7	71.1	2.3	Yes
6-5	B	Residential	1	2	62.6	62.6	66.0	3.4	Yes
6-6	B	Residential	1	2	66.2	66.6	69.3	3.1	Yes
6-7	B	Residential	1	2	62.9	62.9	66.3	3.4	Yes
6-8	B	Residential	1	2	72.3	72.7	74.3	2.0	Yes
6-9	B	Residential	1	2	66.0	66.2	69.4	3.4	Yes
6-10	B	Residential	1	2	62.6	62.6	66.3	3.7	Yes
6-11	B	Residential	1	2	70.9	70.9	73.6	2.7	Yes
6-12	B	Residential	1	2	65.5	65.5	69.2	3.7	Yes
6-13	B	Residential	1	2	61.8	61.8	65.9	4.1	
6-14	B	Residential	1	2	61.5	61.5	65.8	4.3	
6-15	B	Residential	1	2	70.8	70.8	73.5	2.7	Yes
6-16	B	Residential	1	2	71.0	71.0	73.7	2.7	Yes
6-17	B	Residential	1	2	65.4	65.5	69.3	3.9	Yes
6-18	B	Residential	1	2	71.1	71.2	73.9	2.8	Yes
6-19	B	Residential	1	2	65.6	65.6	69.4	3.8	Yes
6-20	B	Residential	1	2	61.0	61.0	65.7	4.7	
6-21	B	Residential	1	2	71.3	71.3	74.0	2.7	Yes
6-22	B	Residential	1	2	65.3	65.3	69.3	4.0	Yes
6-23	B	Residential	1	2	61.1	61.1	65.8	4.7	
6-24	B	Residential	2	2	71.2	71.2	74.2	3.0	Yes
6-25	B	Residential	1	2	64.8	64.8	69.0	4.2	Yes
6-26	B	Residential	1	2	64.6	64.6	69.0	4.4	Yes
6-27	B	Residential	1	2	60.4	60.4	65.5	5.1	
6-28	B	Residential	1	2	60.4	60.4	65.6	5.2	
6-29	B	Residential	1	2	70.9	71.0	74.2	3.3	Yes
6-30	B	Residential	1	2	64.8	64.8	69.2	4.4	Yes
6-31	B	Residential	1	2	60.0	60.0	65.5	5.5	
6-32	B	Residential	1	2	59.9	59.9	65.5	5.6	
6-33	B	Residential	1	2	70.6	70.6	73.9	3.3	Yes
6-34	B	Residential	1	2	70.8	70.8	74.1	3.3	Yes
6-35	B	Residential	1	2	64.9	64.9	69.5	4.6	Yes
6-36	B	Residential	1	2	59.9	59.9	65.4	5.5	
6-37	B	Residential	1	2	71.4	71.4	74.6	3.2	Yes
6-38	B	Residential	1	2	66.0	66.0	70.4	4.4	Yes
6-39	B	Residential	1	2	62.6	62.6	67.8	5.2	Yes

6-40	B	Residential	3	2	62.1	62.2	67.4	5.3	Yes
6-41	B	Residential	1	2	71.4	71.4	74.7	3.3	Yes
6-42	B	Residential	1	2	66.1	66.1	70.6	4.5	Yes
6-43	B	Residential	1	2	62.1	62.1	67.3	5.2	Yes
6-44	B	Residential	5	2	58.6	58.6	64.5	5.9	
6-45	B	Residential	1	2	70.9	70.9	74.3	3.4	Yes
6-46	B	Residential	1	2	65.9	65.9	70.4	4.5	Yes
6-47	B	Residential	1	2	62.0	62.0	67.3	5.3	Yes
6-48	B	Residential	1	2	71.2	71.2	74.6	3.4	Yes
6-49	B	Residential	1	2	71.2	71.2	74.6	3.4	Yes
6-50	B	Residential	1	2	66.7	66.7	71.0	4.3	Yes
6-51	B	Residential	1	2	62.4	62.4	67.6	5.2	Yes
7-1	B	Residential	2	2	71.0	71.0	74.4	3.4	Yes
7-2	B	Residential	2	2	68.3	68.3	71.9	3.6	Yes
7-3	B	Residential	1	2	66.2	66.2	70.4	4.2	Yes
7-4	B	Residential	6	2	71.7	71.7	74.8	3.1	Yes
7-5	B	Residential	1	2	66.5	66.5	69.7	3.2	Yes
7-6	B	Residential	1	2	68.1	68.1	69.7	1.6	Yes
7-7	B	Residential	1	2	66.4	66.4	68.7	2.3	Yes
7-8	B	Residential	1	2	64.8	64.8	67.4	2.6	Yes
7-9	B	Residential	1	2	63.1	63.1	66.0	2.9	Yes
7-10	B	Residential	1	2	61.5	61.6	64.9	3.4	
7-11	B	Residential	1	2	66.0	66.0	67.9	1.9	Yes
7-12	B	Residential	1	2	64.8	64.8	67.2	2.4	Yes
7-13	B	Residential	1	2	63.8	63.8	66.5	2.7	Yes
7-14	B	Residential	1	2	62.6	62.6	65.6	3.0	
7-15	B	Residential	1	2	61.8	61.8	65.2	3.4	
7-16	B	Residential	2	2	66.2	66.2	67.3	1.1	Yes
7-17	B	Residential	1	2	65.1	65.1	67.3	2.2	Yes
7-18	B	Residential	1	2	62.5	62.5	65.5	3.0	
7-19	B	Residential	1	2	61.8	61.8	65.1	3.3	
8-1	B	Residential	2	3	65.5	65.6	67.9	2.4	Yes
8-2	B	Residential	1	3	63.4	63.4	66.4	3.0	Yes
8-3	B	Residential	1	3	65.3	65.3	67.8	2.5	Yes
8-4	B	Residential	1	3	66.5	66.5	68.6	2.1	Yes
8-5	B	Residential	2	3	64.9	64.9	67.9	3.0	Yes
8-6	B	Residential	1	3	68.0	68.0	70.1	2.1	Yes
8-7	B	Residential	1	3	70.7	70.7	73.5	2.8	Yes
8-8	B	Residential	1	3	71.3	71.3	74.4	3.1	Yes
8-9	B	Residential	1	3	70.4	70.4	73.7	3.3	Yes
8-10	B	Residential	1	3	70.2	70.2	73.7	3.5	Yes

8-11	B	Residential	1	3	68.1	68.1	71.9	3.8	Yes
8-12	B	Residential	1	3	66.0	66.0	70.2	4.2	Yes
8-13	B	Residential	1	3	62.5	62.5	67.4	4.9	Yes
8-14	B	Residential	1	3	72.6	72.6	75.8	3.2	Yes
8-15	B	Residential	1	3	70.2	70.2	73.7	3.5	Yes
8-16	B	Residential	1	3	67.7	67.7	71.8	4.1	Yes
8-17	B	Residential	1	3	65.9	66.0	70.2	4.3	Yes
8-18	B	Residential	1	3	71.8	71.8	75.1	3.3	Yes
8-19	B	Residential	1	3	68.0	68.0	72.0	4.0	Yes
8-20	B	Residential	1	3	65.7	65.7	70.0	4.3	Yes
8-21	B	Residential	1	3	62.5	62.5	67.4	4.9	Yes
8-22	B	Residential	1	3	72.4	72.4	75.6	3.2	Yes
8-23	B	Residential	1	3	69.9	69.9	73.6	3.7	Yes
8-24	B	Residential	1	3	67.3	67.3	71.3	4.0	Yes
8-25	B	Residential	1	3	65.5	65.5	69.8	4.3	Yes
8-26	B	Residential	1	3	67.8	67.8	71.8	4.0	Yes
8-27	B	Residential	1	3	64.1	64.1	68.5	4.4	Yes
8-28	B	Residential	1	3	68.4	68.4	72.8	4.4	Yes
8-29	B	Residential	1	3	68.0	68.1	72.7	4.7	Yes
8-30	B	Residential	1	3	73.2	73.2	76.7	3.5	Yes
8-31	B	Residential	2	3	68.1	68.1	72.6	4.5	Yes
8-32	B	Residential	1	3	66.0	66.1	70.6	4.6	Yes
8-33	B	Residential	1	3	64.3	64.3	69.0	4.7	Yes
8-34	B	Residential	1	3	62.5	62.5	66.8	4.3	Yes
8-35	B	Residential	1	3	71.9	72.0	75.6	3.7	Yes
8-36	B	Residential	1	3	71.1	71.2	74.7	3.6	Yes
8-37	B	Residential	1	3	70.3	70.4	73.5	3.2	Yes
8-38	B	Residential	1	3	70.0	70.2	73.3	3.3	Yes
8-39	B	Residential	1	3	69.9	70.0	73.0	3.1	Yes
8-40	B	Residential	1	3	69.2	69.3	72.3	3.1	Yes
8-41	B	Residential	1	3	71.1	71.3	73.8	2.7	Yes
8-42	B	Residential	1	3	63.8	63.9	66.7	2.9	Yes
8-43	B	Residential	2	3	70.7	70.9	73.3	2.6	Yes
8-44	B	Residential	1	3	70.4	70.8	73.1	2.7	Yes
8-45	B	Residential	1	3	64.0	64.1	66.9	2.9	Yes
8-46	B	Residential	1	3	61.4	61.5	64.1	2.7	
8-47	B	Residential	1	3	69.0	69.6	71.5	2.5	Yes
8-48	B	Residential	1	3	68.2	68.5	70.3	2.1	Yes
8-49	B	Residential	1	3	67.0	67.2	69.2	2.2	Yes
8-50	B	Residential	1	3	64.6	64.7	66.8	2.2	Yes
8-51	B	Residential	1	3	63.4	63.5	65.5	2.1	

9-1	B	Residential	1	2	67.5	68.2	69.7	2.2	Yes
9-2	B	Residential	1	2	67.2	67.6	69.2	2.0	Yes
9-3	B	Residential	1	2	67.9	68.3	70	2.1	Yes
9-4	B	Residential	1	2	65.3	65.3	67.4	2.1	Yes
9-5	B	Residential	1	2	69.8	70.1	72.3	2.5	Yes
9-6	B	Residential	1	2	67.0	67.1	69.3	2.3	Yes
9-7	B	Residential	1	2	65.6	65.7	67.9	2.3	Yes
9-8	B	Residential	1	2	69.9	70.1	72.3	2.4	Yes
9-9	B	Residential	1	2	65.1	65.2	67.0	1.9	Yes
9-10	B	Residential	1	2	69.7	69.9	72.1	2.4	Yes
9-11	B	Residential	1	2	69.9	70.1	72.2	2.3	Yes
9-12	B	Residential	1	2	64.6	64.7	66.8	2.2	Yes
9-13	B	Residential	1	2	69.3	69.4	71.8	2.5	Yes
9-14	B	Residential	1	2	63.9	63.9	66.8	2.9	Yes
9-15	B	Residential	1	2	69.6	69.7	72.2	2.6	Yes
9-16	B	Residential	1	2	64.1	64.2	67.1	3.0	Yes
9-17	B	Residential	1	2	69.4	69.5	71.9	2.5	Yes
9-18	B	Residential	1	2	63.6	63.7	66.7	3.1	Yes
9-19	B	Residential	1	2	69.4	69.5	71.7	2.3	Yes
9-20	B	Residential	1	2	65.2	65.3	68.0	2.8	Yes
9-21	B	Residential	1	2	69.1	69.1	71.3	2.2	Yes
9-22	B	Residential	1	2	63.3	63.4	66.6	3.3	Yes
9-23	B	Residential	1	2	69.4	69.4	72.5	3.1	Yes
9-24	B	Residential	1	2	63.3	63.4	66.5	3.2	Yes
9-25	B	Residential	1	2	69.2	69.2	72.5	3.3	Yes
9-26	B	Residential	1	2	63.1	63.2	67.3	4.2	Yes
9-27	B	Residential	1	2	72.2	72.2	75.3	3.1	Yes
9-28	B	Residential	1	2	67.7	67.8	71.5	3.8	Yes
9-29	B	Residential	1	2	62.9	62.9	67.1	4.2	Yes
9-30	B	Residential	1	2	72.2	72.2	75.2	3.0	Yes
9-31	B	Residential	1	2	62.4	62.4	66.6	4.2	Yes
9-32	B	Residential	1	2	71.8	71.8	74.9	3.1	Yes
9-33	B	Residential	1	2	66.9	66.9	70.7	3.8	Yes
9-34	B	Residential	1	2	62.0	62.1	66.1	4.1	Yes
9-35	B	Residential	1	2	61.6	61.6	65.5	3.9	
9-36	B	Residential	1	2	72.6	72.6	75.7	3.1	Yes
9-37	B	Residential	1	2	71.5	71.5	74.7	3.2	Yes
9-38	B	Residential	1	2	67.0	67.0	71.1	4.1	Yes
9-39	B	Residential	1	2	61.7	61.8	65.6	3.9	
9-40	B	Residential	1	2	72.4	72.4	75.5	3.1	Yes
9-41	B	Residential	1	2	66.3	66.4	70.2	3.9	Yes

9-42	B	Residential	1	2	74.3	74.3	77.1	2.8	Yes
9-43	B	Residential	1	2	66	66	69.2	3.2	Yes
9-44	B	Residential	1	2	70.5	70.5	73.3	2.8	Yes
9-45	B	Residential	2	2	68.8	68.8	71.5	2.7	Yes
9-46	B	Residential	4	2	65.0	65.0	68.2	3.2	Yes
9-47	B	Residential	4	2	69.3	69.4	72.9	3.6	Yes
9-48	B	Residential	1	2	64.7	64.7	68.3	3.6	Yes
9-49	B	Residential	1	2	64.2	64.2	68	3.8	Yes
9-50	B	Residential	1	2	69.1	69.2	72.6	3.5	Yes
9-51	B	Residential	1	2	68.9	68.9	72.6	3.7	Yes
9-52	B	Residential	1	2	63.9	64	68	4.1	Yes
9-53	B	Residential	1	2	62.0	62.0	66.1	4.1	Yes
9-54	B	Residential	8	2	60.0	60.0	64.1	4.1	
9-55	B	Residential	1	2	68.9	68.9	72.1	3.2	Yes
9-56	B	Residential	1	2	66.6	66.6	70.7	4.1	Yes
9-57	B	Residential	1	2	64.6	64.6	68.3	3.7	Yes
9-58	B	Residential	1	2	63.5	63.5	67.6	4.1	Yes
9-59	B	Residential	1	2	66.9	66.9	68.9	2.0	Yes
9-60	B	Residential	1	2	65.6	65.6	68.6	3.0	Yes
9-61	B	Residential	1	2	64.5	64.5	68.3	3.8	Yes
9-62	B	Residential	1	2	62.0	62.0	65.5	3.5	
9-63	B	Residential	1	2	60.5	60.5	64.3	3.8	
10A-1	C	Place of Worship (Exterior)	1	2-3	67.5	67.5	68.9	1.4	Yes
10A-2	C	Place of Worship (Exterior)	1	2-3	67.0	67.0	69.0	2.0	Yes
10A-3	C	Place of Worship (Exterior)	1	2-3	66.4	66.4	68.6	2.2	Yes
10A-4	C	Place of Worship (Exterior)	1	2-3	65.6	65.6	67.8	2.2	Yes
10A-5	C	Place of Worship (Exterior)	1	2-3	65.2	65.2	67.6	2.4	Yes
10A-6	C	Place of Worship (Exterior)	1	2-3	67.0	67.0	68.5	1.5	Yes
10A-7	C	Place of Worship (Exterior)	1	2-3	66.6	66.6	68.6	2.0	Yes
10A-8	C	Place of Worship (Exterior)	1	2-3	66.1	66.1	68.4	2.3	Yes
10A-9	C	Place of Worship (Exterior)	1	2-3	65.4	65.4	67.4	2.0	Yes

10A-10	C	Place of Worship (Exterior)	1	2-3	65.0	65.0	67.2	2.2	Yes
10B-1	C	School (Exterior)	1	2-3	65.3	65.3	67.5	2.2	Yes
10B-2	C	School (Exterior)	1	2-3	65.0	65	67.3	2.3	Yes
10B-3	C	School (Exterior)	1	2-3	64.7	64.7	67.2	2.5	Yes
10B-4	C	School (Exterior)	1	2-3	64.8	64.8	67.6	2.8	Yes
10B-5	C	School (Exterior)	1	2-3	64.7	64.7	67.3	2.6	Yes
10B-6	C	School (Exterior)	1	2-3	65.7	65.7	68.0	2.3	Yes
10B-7	C	School (Exterior)	1	2-3	65.2	65.2	67.8	2.6	Yes
10B-8	C	School (Exterior)	1	2-3	65.0	65.0	67.6	2.6	Yes
10B-9	C	School (Exterior)	1	2-3	65.2	65.2	67.8	2.6	Yes
10B-10	C	School (Exterior)	1	2-3	65.0	65.0	67.4	2.4	Yes
10B-11	C	School (Exterior)	1	2-3	64.5	64.5	67.1	2.6	Yes
10B-12	C	School (Exterior)	1	2-3	64.6	64.6	67.5	2.9	Yes
10C-1	D	Place of Worship (Interior)	1	2-3	47.5	47.5	50.3	2.8	
11-1	B	Residential	1	3	68.1	68.1	72.1	4.0	Yes
11-2	B	Residential	1	3	65.8	65.8	69.6	3.8	Yes
11-3	B	Residential	1	3	63.4	63.4	68.2	4.8	Yes
11-4	B	Residential	1	3	60.5	60.5	66.1	5.6	Yes
11-5	B	Residential	1	3	67.8	67.8	72.1	4.3	Yes
11-6	B	Residential	1	3	66.0	66.0	70.1	4.1	Yes
11-7	B	Residential	1	3	64.3	64.3	68.5	4.2	Yes
11-8	B	Residential	2	3	62.6	62.6	68.2	5.6	Yes
11-9	B	Residential	1	3	61.3	61.3	66.6	5.3	Yes
11-10	B	Residential	1	3	68.0	68.0	72.2	4.2	Yes
11-11	B	Residential	1	3	65.6	65.6	69.7	4.1	Yes
11-12	B	Residential	1	3	64.1	64.1	68.5	4.4	Yes
11-13	B	Residential	1	3	62.1	62.1	66.8	4.7	Yes
11-14	B	Residential	1	3	60.9	61.0	66.3	5.4	Yes
11-15	B	Residential	1	3	69.6	69.6	73.5	3.9	Yes
11-16	B	Residential	1	3	72.1	72.1	75.7	3.6	Yes
11-17	B	Residential	1	3	69.0	69.0	72.9	3.9	Yes
11-18	B	Residential	1	3	66.8	66.8	71.0	4.2	Yes
11-19	B	Residential	1	3	64.7	64.7	69.8	5.1	Yes
11-20	B	Residential	2	3	63.0	63.0	68.3	5.3	Yes

11-21	B	Residential	5	3	62.3	62.3	67.8	5.5	Yes
11-22	B	Residential	1	3	71.6	71.6	75.4	3.8	Yes
11-23	B	Residential	1	3	68.6	68.6	72.8	4.2	Yes
11-24	B	Residential	1	3	67.3	67.3	72.1	4.8	Yes
11-25	B	Residential	1	3	64.9	64.9	69.6	4.7	Yes
11-26	B	Residential	1	3	63.7	63.7	69.6	5.9	Yes
11-27	B	Residential	1	3	62.1	62.1	68.7	6.6	Yes
11-28	B	Residential	1	3	71.0	71.0	75.3	4.3	Yes
11-29	B	Residential	1	3	66.4	66.4	72.6	6.2	Yes
11-30	B	Residential	1	3	64.8	64.8	71.5	6.7	Yes
11-31	B	Residential	1	3	71.8	71.8	76.3	4.5	Yes
11-32	B	Residential	1	3	65.2	65.2	71.9	6.7	Yes
11-33	B	Residential	1	3	71.9	71.9	76.3	4.4	Yes
11-34	B	Residential	2	3	66.9	66.9	73.2	6.3	Yes
11-35	B	Residential	1	3	72.3	72.3	77.2	4.9	Yes
11-36	B	Residential	4	3	64.8	64.8	71.9	7.1	Yes
11-37	B	Residential	1	3	72.4	72.4	77.5	5.1	Yes
11-38	B	Residential	1	3	65.0	65.0	70.8	5.8	Yes
11-39	B	Residential	1	3	72.3	72.3	78.2	5.9	Yes
11-40	B	Residential	1	3	64.8	64.9	71.9	7.1	Yes
11-41	B	Residential	2	3	72.0	72.1	78.3	6.3	Yes
11-42	B	Residential	1	3	64.6	64.7	70.6	6.0	Yes
11-43	B	Residential	1	3	61.2	61.2	66.9	5.7	Yes
11-44	B	Residential	1	3	72.5	72.7	79.5	7.0	Yes
11-45	B	Residential	1	3	65.1	65.2	71.3	6.2	Yes
11-46	B	Residential	1	3	73.6	74.0	81.1	7.5	Yes
11-47	B	Residential	1	3	66.0	66.1	71.8	5.8	Yes
11-48	B	Residential	1	3	67.4	67.6	75.4	8.0	Yes
11-49	B	Residential	1	3	73.6	74.2	79	5.4	Yes
11-50	B	Residential	1	3	70.7	71.1	76.8	6.1	Yes
11-51	B	Residential	1	3	68.6	68.8	75.1	6.5	Yes
11-52	B	Residential	1	3	65.1	65.3	72.5	7.4	Yes
11-53	B	Residential	1	3	70.4	70.8	74.8	4.4	Yes
11-54	B	Residential	1	3	68.9	69.2	73.7	4.8	Yes
11-55	B	Residential	1	3	67.4	67.7	72.1	4.7	Yes
11-56	B	Residential	1	3	65.1	65.3	69.5	4.4	Yes
11-57	B	Residential	1	3	64.3	64.5	69.4	5.1	Yes
11-58	B	Residential	1	3	62.8	63	68.1	5.3	Yes
11-59	B	Residential	1	3	68.4	69.2	72.3	3.9	Yes
11-60	B	Residential	1	3	65.8	66.1	69.9	4.1	Yes
11-61	B	Residential	1	3	64.6	64.9	68.9	4.3	Yes

11-62	B	Residential	1	3	68.3	69.4	71.6	3.3	Yes
11-63	B	Residential	1	3	65.6	66.0	69.1	3.5	Yes
11-64	B	Residential	1	3	63.9	64.1	66.9	3.0	Yes
12-1	B	Residential	1	4	69.0	70.3	70.9	1.9	Yes
12-2	B	Residential	1	4	63.5	63.9	65.2	1.7	
12-3	B	Residential	1	4	62.9	63.2	64.6	1.7	
12-4	B	Residential	1	4	61.6	61.9	63.5	1.9	
12-5	B	Residential	1	4	68.5	69.5	70.5	2.0	Yes
12-6	B	Residential	1	4	67.0	67.4	68.6	1.6	Yes
12-7	B	Residential	1	4	65.7	66	67.5	1.8	Yes
12-8	B	Residential	1	4	65.0	65.3	67.2	2.2	Yes
12-9	B	Residential	1	4	63.2	63.4	65.4	2.2	
12-10	B	Residential	1	4	61.9	62.1	64.3	2.4	
12-11	B	Residential	1	4	71.7	72.3	73.6	1.9	Yes
12-12	B	Residential	1	4	69.5	69.8	71.2	1.7	Yes
12-13	B	Residential	1	4	67.9	68.1	69.8	1.9	Yes
12-14	B	Residential	1	4	65.5	65.7	67.5	2.0	Yes
12-15	B	Residential	1	4	64.4	64.5	66.4	2.0	Yes
12-16	B	Residential	1	4	64.0	64.2	66.1	2.1	Yes
12-17	B	Residential	1	4	73.3	73.9	75.2	1.9	Yes
12-18	B	Residential	2	4	68.3	68.6	70.2	1.9	Yes
12-19	B	Residential	1	4	64.2	64.3	66.2	2.0	Yes
12-20	B	Residential	1	4	62.8	63.0	65.0	2.2	
12-21	B	Residential	1	4	72.1	72.5	73.8	1.7	Yes
12-22	B	Residential	1	4	67.7	67.9	69.6	1.9	Yes
12-23	B	Residential	1	4	71.1	71.4	72.7	1.6	Yes
12-24	B	Residential	1	4	67.0	67.2	68.9	1.9	Yes
12-25	B	Residential	1	4	71.6	71.9	73.2	1.6	Yes
12-26	B	Residential	1	4	66.9	67.1	68.8	1.9	Yes
12-27	B	Residential	1	4	71.6	71.9	73.2	1.6	Yes
12-28	B	Residential	1	4	66.7	66.9	68.5	1.8	Yes
12-29	B	Residential	1	4	71.4	71.6	73	1.6	Yes
12-30	B	Residential	1	4	66.5	66.6	68.3	1.8	Yes
12-31	B	Residential	1	4	71.3	71.5	72.9	1.6	Yes
12-32	B	Residential	1	4	66.9	67.0	68.6	1.7	Yes
12-33	B	Residential	1	4	66.8	66.9	68.5	1.7	Yes
12-34	B	Residential	1	4	71.3	71.4	72.7	1.4	Yes
12-35	B	Residential	1	4	66.5	66.6	68.3	1.8	Yes
12-36	B	Residential	1	4	70.5	70.6	72	1.5	Yes
12-37	B	Residential	1	4	66.5	66.6	68.3	1.8	Yes
12-38	B	Residential	1	4	71.8	71.9	73.3	1.5	Yes

12-39	B	Residential	1	4	70.2	70.2	71.7	1.5	Yes
12-41	B	Residential	1	4	66.1	66.2	67.9	1.8	Yes
12-42	B	Residential	1	4	65.8	65.8	67.6	1.8	Yes
12-43	B	Residential	1	4	63.3	63.4	65.3	2.0	
12-44	B	Residential	1	4	70.4	70.5	72.0	1.6	Yes
12-45	B	Residential	1	4	69.7	69.7	71.4	1.7	Yes
12-46	B	Residential	1	4	62.8	62.8	64.4	1.6	
12-47	B	Residential	1	4	69.6	69.6	71.2	1.6	Yes
12-48	B	Residential	1	4	62.7	62.7	64.6	1.9	
12-49	B	Residential	1	4	69.1	69.1	70.6	1.5	Yes
12-50	B	Residential	7	4	58.5	58.5	60.6	2.1	
12-51	B	Residential	1	4	64.5	64.6	66.0	1.5	Yes
12-52	B	Residential	1	4	64.5	64.5	66.1	1.6	Yes
12-53	B	Residential	1	4	66.5	66.6	67.4	0.9	Yes
12-54	B	Residential	1	4	63.1	63.1	64.8	1.7	
12-55	B	Residential	1	4	66.4	66.5	66.8	0.4	Yes
12-56	B	Residential	1	4	65.8	65.8	65.7	-0.1	
12-57	B	Residential	1	4	64.6	64.6	64.9	0.3	
12-58	B	Residential	4	4	64.1	64.1	64.3	0.2	
12-59	B	Residential	1	4	63.8	63.8	63.7	-0.1	
13-1	B	Residential	1	5	68.6	68.6	66.0	-2.6	Yes
13-2	B	Residential	1	5	66.0	66.0	65.3	-0.7	
13-3	B	Residential	1	5	64.6	64.6	64.6	0.0	
13-4	B	Residential	1	5	63.2	63.2	64.2	1.0	
13-5	B	Residential	1	5	62.4	62.4	63.4	1.0	
13-6	B	Residential	1	5	61.9	61.9	63.0	1.1	
13-7	B	Residential	1	5	67.4	67.4	65.5	-1.9	
13-8	B	Residential	1	5	65.3	65.3	65.3	0.0	
13-9	B	Residential	1	5	64.4	64.4	64.8	0.4	
13-10	B	Residential	1	5	63.4	63.4	64.0	0.6	
13-11	B	Residential	1	5	61.0	61.0	62.4	1.4	
13-12	B	Residential	1	5	65.9	65.9	65.3	-0.6	
13-13	B	Residential	1	5	64.3	64.3	65.3	1.0	
13-14	B	Residential	1	5	63.2	63.2	64.6	1.4	
13-15	B	Residential	1	5	62.4	62.4	63.9	1.5	
13-16	B	Residential	1	5	59.9	59.9	62.1	2.2	
13-17	B	Residential	1	5	59.6	59.6	61.9	2.3	
13-18	B	Residential	1	5	65.0	65.0	65.5	0.5	
13-19	B	Residential	1	5	63.9	63.9	65.2	1.3	
13-20	B	Residential	1	5	62.6	62.7	64.2	1.6	
13-21	B	Residential	1	5	61.4	61.4	63.1	1.7	

13-22	B	Residential	1	5	60.2	60.2	62.4	2.2	
13-23	B	Residential	1	5	59.8	59.8	62.1	2.3	
13-24	B	Residential	1	5	65.1	65.1	65.9	0.8	
13-25	B	Residential	1	5	63.8	63.8	65.4	1.6	
13-26	B	Residential	1	5	62.1	62.1	63.9	1.8	
13-27	B	Residential	1	5	61.6	61.6	63.6	2.0	
13-28	B	Residential	1	5	60.4	60.4	62.5	2.1	
13-29	B	Residential	1	5	60.4	60.4	62.6	2.2	
13-30	B	Residential	1	5	66.3	66.3	67.3	1.0	Yes
13-31	B	Residential	1	5	61.1	61.1	63.1	2.0	
13-32	B	Residential	1	5	66.9	66.9	67.7	0.8	Yes
13-33	B	Residential	1	5	63.9	63.9	65.6	1.7	
13-34	B	Residential	1	5	60.9	60.9	62.9	2.0	
13-35	B	Residential	1	5	67.3	67.4	68.5	1.2	Yes
13-36	B	Residential	1	5	67.8	67.8	69.0	1.2	Yes
13-37	B	Residential	7	5	65.0	65.0	66.7	1.7	Yes
13-38	B	Residential	1	5	60.7	60.7	62.9	2.2	
13-39	B	Residential	1	5	68.2	68.2	69.1	0.9	Yes
13-40	B	Residential	1	5	64.6	64.6	66.6	2.0	Yes
13-41	B	Residential	1	5	64.5	64.5	66.4	1.9	Yes
13-42	B	Residential	4	5	65.1	65.1	67.1	2.0	Yes
13-43	B	Residential	1	5	61.3	61.3	63.4	2.1	
13-44	B	Residential	1	5	67.0	67.0	68.3	1.3	Yes
13-45	B	Residential	1	5	65.4	65.4	67.1	1.7	Yes
13-46	B	Residential	1	5	63.1	63.1	65.4	2.3	
13-47	B	Residential	1	5	63.2	63.3	65.3	2.1	
13-48	B	Residential	1	5	61.9	61.9	63.8	1.9	
13-49	B	Residential	1	5	60.8	60.8	62.8	2.0	
13-50	B	Residential	1	5	65.3	65.3	66.1	0.8	Yes
13-51	B	Residential	1	5	63.7	63.8	65.1	1.4	
13-52	B	Residential	5	5	62.2	62.2	63.8	1.6	
13-53	B	Residential	2	5	61.1	61.1	62.7	1.6	
14-1	D	Place of Worship	1	4	39.5	39.6	36.5	-3.0	
15-1	C	Park	1	5	63.3	63.4	65.4	2.1	
15-2	C	Park	1	5	62.3	62.3	63.6	1.3	
15-3	C	Park	1	5	62.2	62.2	63.1	0.9	
15-4	C	Park	1	5	61.0	61.1	61.9	0.9	
16-1	B	Residential	1	4	65.0	65.5	66.9	1.9	Yes
16-2	B	Residential	1	4	62.2	62.3	63.8	1.6	
16-3	B	Residential	1	4	65.9	66.4	68.1	2.2	Yes
16-4	B	Residential	1	4	62.6	62.8	64.5	1.9	

16-5	B	Residential	1	4	62.5	62.7	64.5	2.0	
16-6	B	Residential	1	4	62.6	62.8	64.7	2.1	
16-7	B	Residential	2	4	62.9	63.1	65.1	2.2	
16-8	B	Residential	1	4	63.5	63.7	65.6	2.1	
16-9	B	Residential	1	4	64.0	64.2	65.9	1.9	
16-10	B	Residential	9	4	61.0	61.2	63.3	2.3	
16-11	B	Residential	1	4	64.3	64.5	66.4	2.1	Yes
16-12	B	Residential	1	4	65.5	65.7	68.0	2.5	Yes
16-13	B	Residential	1	4	63.0	63.2	65.6	2.6	
16-14	B	Residential	1	4	65.8	66.0	68.3	2.5	Yes
16-15	B	Residential	1	4	60.7	60.8	64.1	3.4	
16-16	B	Residential	1	4	66.9	67.0	69.5	2.6	Yes
16-17	B	Residential	1	4	61.0	61.1	64.7	3.7	
16-18	B	Residential	1	4	67.2	67.4	69.9	2.7	Yes
16-19	B	Residential	1	4	62.6	62.7	66.4	3.8	Yes
16-20	B	Residential	1	4	61.6	61.7	65.6	4.0	
16-21	B	Residential	1	4	60.6	60.7	64.7	4.1	
16-22	B	Residential	1	4	58.9	59.0	63.0	4.1	
16-23	B	Residential	1	4	67.8	67.9	70.6	2.8	Yes
16-24	B	Residential	1	4	62.3	62.4	66.2	3.9	Yes
16-25	B	Residential	1	4	61.2	61.4	65.3	4.1	
16-26	B	Residential	1	4	68.7	68.7	71.4	2.7	Yes
16-27	B	Residential	1	4	64.2	64.2	67.8	3.6	Yes
16-28	B	Residential	1	4	69.0	69.0	71.7	2.7	Yes
16-29	B	Residential	1	4	64.5	64.6	68.0	3.5	Yes
16-30	B	Residential	1	4	69.5	69.5	72.0	2.5	Yes
16-31	B	Residential	5	4	61.1	61.2	65.4	4.3	
16-32	B	Residential	1	4	69.7	69.8	72.3	2.6	Yes
16-33	B	Residential	1	4	64.4	64.5	68.1	3.7	Yes
16-34	B	Residential	1	4	64.6	64.6	68.3	3.7	Yes
16-35	B	Residential	1	4	69.1	69.2	71.8	2.7	Yes
16-36	B	Residential	1	4	63.4	63.5	67.2	3.8	Yes
16-37	B	Residential	1	4	62.0	62.0	65.0	3.0	
16-38	B	Residential	1	4	60.5	60.6	63.8	3.3	
16-39	B	Residential	1	4	68.3	68.3	71.0	2.7	Yes
16-40	B	Residential	1	4	68.2	68.2	70.2	2.0	Yes
16-41	B	Residential	1	4	63.2	63.3	66.0	2.8	Yes
16-42	B	Residential	1	4	62.2	62.2	64.9	2.7	
16-43	B	Residential	1	4	61.0	61.0	63.6	2.6	
16-44	B	Residential	1	4	66.5	66.5	68.0	1.5	Yes
16-45	B	Residential	1	4	63.2	63.2	65.2	2.0	

16-46	B	Residential	1	4	62.1	62.2	64.2	2.1	
16-47	B	Residential	1	4	61.2	61.2	63.2	2.0	
16-48	B	Residential	1	4	66.4	66.4	67.6	1.2	Yes
16-49	B	Residential	1	4	66.6	66.6	67.6	1.0	Yes
16-50	B	Residential	1	4	67.0	67.1	67.8	0.8	Yes
16-51	B	Residential	2	4	67.3	67.3	67.8	0.5	Yes
16-52	B	Residential	1	4	66.0	66.0	65.0	-1.0	
16-53	B	Residential	1	4	64.8	64.8	63.9	-0.9	
16-54	B	Residential	1	4	65.1	65.1	63.9	-1.2	
16-55	B	Residential	1	4	64.4	64.4	63.2	-1.2	
17-1	B	Residential	1	5	67.8	67.8	67.0	-0.8	Yes
17-2	B	Residential	1	5	66.8	66.8	66.2	-0.6	Yes
17-3	B	Residential	1	5	64.8	64.8	65.5	0.7	
17-4	B	Residential	1	5	63.8	63.8	64.9	1.1	
17-5	B	Residential	3	5	66.2	66.2	67.2	1.0	Yes
17-6	B	Residential	1	5	63.6	63.6	65.3	1.7	
17-7	B	Residential	4	5	63.5	63.6	65.2	1.7	
17-8	B	Residential	1	5	62.0	62.0	63.4	1.4	
17-9	B	Residential	1	5	65.9	65.9	67.1	1.2	Yes
17-10	B	Residential	1	5	65.1	65.1	66.5	1.4	Yes
17-11	B	Residential	1	5	64.0	64.0	65.8	1.8	
17-12	B	Residential	1	5	63.1	63.1	65.2	2.1	
17-13	B	Residential	12	5	62.0	62.0	63.7	1.7	
17-14	B	Residential	1	5	65.9	65.9	67.2	1.3	Yes
17-15	B	Residential	1	5	65.2	65.2	66.6	1.4	Yes
17-16	B	Residential	1	5	64.3	64.4	66.1	1.8	Yes
17-17	B	Residential	1	5	63.5	63.5	65.4	1.9	
17-18	B	Residential	1	5	66.3	66.3	67.8	1.5	Yes
17-19	B	Residential	1	5	64.6	64.6	66.2	1.6	Yes
17-20	B	Residential	4	5	62.3	62.3	64.5	2.2	
17-21	B	Residential	1	5	66.7	66.7	68.1	1.4	Yes
17-22	B	Residential	1	5	67.0	67.0	68.5	1.5	Yes
17-23	B	Residential	1	5	65.2	65.2	66.8	1.6	Yes
17-24	B	Residential	1	5	62.8	62.8	65.4	2.6	
17-25	B	Residential	1	5	67.2	67.2	68.6	1.4	Yes
17-26	B	Residential	1	5	66.7	66.7	68.2	1.5	Yes
17-27	B	Residential	1	5	66.1	66.1	67.7	1.6	Yes
17-28	B	Residential	1	5	65.8	65.8	67.5	1.7	Yes
17-29	B	Residential	1	5	63.1	63.1	66.1	3.0	Yes
17-30	B	Residential	1	5	68.1	68.1	69.4	1.3	Yes
17-31	B	Residential	1	5	68.1	68.1	69.3	1.2	Yes

17-32	B	Residential	1	5	66.9	66.9	68.3	1.4	Yes
17-33	B	Residential	1	5	66.1	66.1	68.6	2.5	Yes
17-34	B	Residential	1	5	63.4	63.4	66.5	3.1	Yes
17-35	B	Residential	1	5	69.4	69.4	70.6	1.2	Yes
17-36	B	Residential	1	5	67.2	67.2	69.8	2.6	Yes
17-37	B	Residential	1	5	63.4	63.4	66.6	3.2	Yes
17-38	B	Residential	1	5	69.8	69.8	70.9	1.1	Yes
17-39	B	Residential	1	5	66.9	66.9	69.6	2.7	Yes
17-40	B	Residential	1	5	63.6	63.6	66.7	3.1	Yes
17-41	B	Residential	1	5	70.7	70.7	71.9	1.2	Yes
17-42	B	Residential	1	5	67.0	67.0	69.8	2.8	Yes
17-43	B	Residential	1	5	63.8	63.8	66.9	3.1	Yes
17-44	B	Residential	1	5	72.4	72.4	73.5	1.1	Yes
17-45	B	Residential	1	5	67.7	67.7	70.4	2.7	Yes
17-46	B	Residential	1	5	64.1	64.1	67	2.9	Yes
17-47	B	Residential	1	5	73.2	73.2	75.1	1.9	Yes
17-48	B	Residential	1	5	70.6	70.6	72.8	2.2	Yes
17-49	B	Residential	1	5	68.7	68.7	71.1	2.4	Yes
17-50	B	Residential	1	5	67.4	67.4	69.9	2.5	Yes
17-51	B	Residential	1	5	64.3	64.3	67.1	2.8	Yes
17-52	B	Residential	1	5	70.8	70.8	72.4	1.6	Yes
17-53	B	Residential	1	5	69.1	69.1	71.3	2.2	Yes
17-54	B	Residential	1	5	67.3	67.4	68.7	1.4	Yes
17-55	B	Residential	1	5	65.0	65.0	67.3	2.3	Yes
17-56	B	Residential	1	5	67.7	67.7	70.1	2.4	Yes
17-57	B	Residential	1	5	65.7	65.7	67.6	1.9	Yes
17-58	B	Residential	1	5	65.3	65.4	67.3	2.0	Yes
17-59	B	Residential	1	5	62.1	62.2	64.0	1.9	
17-60	B	Residential	1	5	64.8	64.9	66.7	1.9	Yes
17-61	B	Residential	1	5	62.5	62.6	64.7	2.2	
18-1	C	Park	1	5	64.6	64.8	66.3	1.7	Yes
18-2	C	Park	1	5	63.9	64.1	66.1	2.2	Yes
18-3	C	Park	1	5	62.8	62.9	65.4	2.6	
18-4	C	Park	1	5	61.3	61.4	64.2	2.9	
18-5	C	Park	1	5	63.7	64.3	65.5	1.8	
18-6	C	Park	1	5	63.9	64.2	65.8	1.9	
18-7	C	Park	1	5	62.6	62.8	65.1	2.5	
18-8	C	Park	1	5	61.5	61.7	64.2	2.7	
18-9	C	Park	1	5	66.4	67.1	66.9	0.5	Yes
18-10	C	Park	1	5	63.8	64.2	64.8	1.0	
18-11	C	Park	1	5	62.3	62.6	63.9	1.6	

18-12	C	Park	1	5	61.2	61.4	63.0	1.8	
18-13	C	Park	1	5	66.8	67.2	66.1	-0.7	Yes
18-14	C	Park	1	5	65.4	65.6	64.7	-0.7	
18-15	C	Park	1	5	64.2	64.3	63.5	-0.7	
18-16	C	Park	1	5	63.2	63.3	62.2	-1.0	
19-1	B	Residential	1	6	68.3	68.3	67.7	-0.6	Yes
19-2	B	Residential	1	6	66.6	66.6	67.0	0.4	Yes
19-3	B	Residential	1	6	67.4	67.4	68.0	0.6	Yes
19-4	B	Residential	1	6	66.3	66.3	67.7	1.4	Yes
19-5	B	Residential	4	6	64.8	64.8	66.2	1.4	Yes
19-6	B	Residential	5	6	63.8	63.8	64.5	0.7	
19-7	B	Residential	1	6	66.2	66.2	67.9	1.7	Yes
19-8	B	Residential	1	6	65.0	65.0	66.9	1.9	Yes
19-9	B	Residential	4	6	62.1	62.1	63.2	1.1	
19-10	B	Residential	1	6	65.8	65.8	67.7	1.9	Yes
19-11	B	Residential	1	6	60.6	60.6	61.8	1.2	
19-12	B	Residential	1	6	66.2	66.2	68.1	1.9	Yes
19-13	B	Residential	1	6	65.8	65.8	68.0	2.2	Yes
19-14	B	Residential	1	6	67.1	67.1	68.8	1.7	Yes
19-15	B	Residential	1	6	65.5	65.5	67.6	2.1	Yes
19-16	B	Residential	1	6	67.4	67.5	69.3	1.9	Yes
19-17	B	Residential	1	6	65.7	65.7	67.7	2.0	Yes
19-18	B	Residential	4	6	60.7	60.7	63.1	2.4	
19-19	B	Residential	1	6	67.8	67.8	69.6	1.8	Yes
19-20	B	Residential	1	6	66.2	66.2	68.4	2.2	Yes
19-21	B	Residential	1	6	65.7	65.7	67.7	2.0	Yes
19-22	B	Residential	1	6	62.1	62.2	64.4	2.3	
19-23	B	Residential	1	6	62.3	62.3	64.7	2.4	
19-24	B	Residential	1	6	67.0	67.0	68.9	1.9	Yes
19-25	B	Residential	3	6	64.7	64.8	67.4	2.7	Yes
19-26	B	Residential	1	6	62.5	62.5	64.9	2.4	
19-27	B	Residential	1	6	61.5	61.5	63.8	2.3	
19-28	B	Residential	1	6	60.3	60.3	62.3	2.0	
19-29	B	Residential	1	6	62.1	62.1	64.8	2.7	
19-30	B	Residential	1	6	62.2	62.2	64.8	2.6	
19-31	B	Residential	1	6	66.9	66.9	68.3	1.4	Yes
19-32	B	Residential	1	6	64.7	64.7	68.0	3.3	Yes
19-33	B	Residential	1	6	62.4	62.4	64.9	2.5	
19-34	B	Residential	1	6	59.0	59.1	60.8	1.8	
19-35	B	Residential	1	6	64.6	64.6	67.8	3.2	Yes
19-36	B	Residential	1	6	62.0	62.0	64.4	2.4	

19-37	B	Residential	1	6	59.5	59.5	61.4	1.9	
19-38	B	Residential	5	6	57.4	57.4	58.7	1.3	
19-39	B	Residential	1	6	65.1	65.1	66.8	1.7	Yes
19-40	B	Residential	1	6	61.9	61.9	64.2	2.3	
19-41	B	Residential	1	6	59.6	59.6	61.3	1.7	
19-42	B	Residential	1	6	64.9	64.9	66.5	1.6	Yes
19-43	B	Residential	1	6	61.7	61.7	63.8	2.1	
19-44	B	Residential	1	6	59.1	59.1	60.7	1.6	
19-45	B	Residential	1	6	65.2	65.2	66.1	0.9	Yes
19.1-1	C	Park	1	6	64.8	64.8	65.8	1.0	
19.1-2	C	Park	1	6	63.2	63.2	64.4	1.2	
19.1-3	C	Park	1	6	61.5	61.5	63.5	2.0	
19.1-4	C	Park	1	6	61.3	61.3	63.0	1.7	
19.1-5	C	Park	1	6	59.9	59.9	61.6	1.7	
19.1-6	C	Park	1	6	58.8	58.9	60.1	1.3	
19.1-7	C	Park	1	6	58.0	58.0	59.2	1.2	
20-1	B	Residential	1	6	66.3	66.3	65.8	-0.5	
20-2	B	Residential	1	6	65.3	65.3	64.6	-0.7	
20-3	B	Residential	1	6	66.6	66.6	67.0	0.4	Yes
20-4	B	Residential	1	6	65.5	65.5	66.3	0.8	Yes
20-5	B	Residential	1	6	64.5	64.6	65.6	1.1	
20-6	B	Residential	2	6	66.8	66.8	67.5	0.7	Yes
20-7	B	Residential	1	6	65.9	65.9	67.1	1.2	Yes
20-8	B	Residential	1	6	64.8	64.8	66.4	1.6	Yes
20-9	B	Residential	1	6	65.9	65.9	67.6	1.7	Yes
20-10	B	Residential	1	6	64.1	64.1	66.2	2.1	Yes
20-11	B	Residential	1	6	67.6	67.6	68.8	1.2	Yes
20-12	B	Residential	1	6	64.3	64.3	66.7	2.4	Yes
20-13	B	Residential	1	6	63.5	63.5	65.7	2.2	
20-14	B	Residential	12	6	61.8	61.8	63.7	1.9	
20-15	B	Residential	1	6	68.5	68.5	69.6	1.1	Yes
20-16	B	Residential	1	6	66.1	66.1	68.4	2.3	Yes
20-17	B	Residential	1	6	68.7	68.7	69.9	1.2	Yes
20-18	B	Residential	1	6	69.5	69.5	71.2	1.7	Yes
20-19	B	Residential	2	6	65.4	65.4	67.6	2.2	Yes
20-20	B	Residential	1	6	63.0	63.0	65.2	2.2	
20-21	B	Residential	1	6	69.5	69.5	71.2	1.7	Yes
20-22	B	Residential	1	6	65.5	65.5	67.6	2.1	Yes
20-23	B	Residential	1	6	62.2	62.2	64.6	2.4	
20-24	B	Residential	1	6	69.7	69.7	71.3	1.6	Yes
20-25	B	Residential	1	6	69.6	69.6	71.2	1.6	Yes

20-26	B	Residential	1	6	69.2	69.2	70.9	1.7	Yes
20-27	B	Residential	1	6	64.7	64.8	66.7	2.0	Yes
20-28	B	Residential	1	6	62.2	62.2	64.3	2.1	
20-29	B	Residential	1	6	62.3	62.3	64.3	2.0	
20-30	B	Residential	1	6	66.7	66.7	68.5	1.8	Yes
20-31	B	Residential	1	6	64.2	64.2	66.0	1.8	Yes
20-32	B	Residential	1	6	66.7	66.7	68.0	1.3	Yes
20-33	B	Residential	1	6	66.7	66.7	68.0	1.3	Yes
20-34	B	Residential	1	6	64.5	64.5	66.3	1.8	Yes
20-35	B	Residential	3	6	62.6	62.6	64.4	1.8	
20-36	B	Residential	1	6	66.5	66.5	68.0	1.5	Yes
20-37	B	Residential	1	6	66.2	66.3	67.6	1.4	Yes
20-38	B	Residential	1	6	64.5	64.6	66.2	1.7	Yes
20-39	B	Residential	1	6	66.1	66.1	67.4	1.3	Yes
20-40	B	Residential	1	6	66.3	66.3	67.5	1.2	Yes
21-1	B	Residential	1	6	63.5	63.5	65.1	1.6	
21-2	B	Residential	1	6	63.7	63.8	65.2	1.5	
21-3	B	Residential	3	6	58.1	58.2	59.6	1.5	
21-4	B	Residential	1	6	61.3	61.4	62.7	1.4	
22-1	D	Place of Worship (Interior)	1	6	33.9	34.0	35.5	1.6	
23-1	C	Recreational Area	1	6	65.0	65	66.9	1.9	Yes
23-2	C	Recreational Area	1	6	64.7	64.7	66.7	2.0	Yes
23-3	C	Recreational Area	1	6	65.3	65.4	66.5	1.2	Yes
23-4	C	Recreational Area	1	6	65.1	65.1	66.5	1.4	Yes
23a-1	B	Residential	1	6	60.2	60.2	60.3	0.1	
23a-2	B	Residential	1	6	63.4	63.4	63.7	0.3	
23a-3	B	Residential	1	6	59.6	59.6	60.2	0.6	
23a-4	B	Residential	1	6	63.6	63.6	64.3	0.7	
23a-5	B	Residential	1	6	58.5	58.5	59.2	0.7	
23a-6	B	Residential	1	6	62.2	62.2	62.9	0.7	
23a-7	B	Residential	1	6	61.3	61.3	63.8	2.5	
23a-8	B	Residential	1	6	65.8	65.8	68.1	2.3	Yes
23a-9	B	Residential	1	6	59.1	59.1	61.4	2.3	
23a-10	B	Residential	1	6	63.0	63.0	65.6	2.6	
23a-11	B	Residential	1	6	58.7	58.7	59.2	0.5	
23a-12	B	Residential	1	6	62.3	62.3	62.9	0.6	
23a-13	B	Residential	1	6	59.0	59.0	59.5	0.5	
23a-14	B	Residential	1	6	63.5	63.5	64	0.5	

23a-15	B	Residential	1	6	57.8	57.8	59.8	2	
23a-16	B	Residential	1	6	62.2	62.2	64.1	1.9	
23a-17	B	Residential	1	6	55.8	55.8	57.3	1.5	
23a-18	B	Residential	1	6	59.7	59.7	61.4	1.7	
23a-19	B	Residential	1	6	58.1	58.1	59.7	1.6	
23a-20	B	Residential	1	6	62.2	62.2	63.9	1.7	
24-1	B	Residential	1	7	63.5	64.0	66.5	3.0	Yes
24-2	B	Residential	1	7	69.3	71.3	71.7	2.4	Yes
24-3	B	Residential	1	7	65.8	66.8	69.1	3.3	Yes
24-4	B	Residential	1	7	64.5	65.0	67.6	3.1	Yes
24-5	B	Residential	1	7	70.2	72.1	72.5	2.3	Yes
24-6	B	Residential	1	7	66.2	67.0	69.3	3.1	Yes
24-7	B	Residential	1	7	64.8	65.3	68	3.2	Yes
24-9	B	Residential	1	7	70.8	71.9	73.8	3.0	Yes
24-8	B	Residential	1	7	63.4	63.8	66.6	3.2	Yes
24-10	B	Residential	1	7	68.0	68.7	71.3	3.3	Yes
24-11	B	Residential	1	7	66.0	66.4	69.2	3.2	Yes
24-12	B	Residential	1	7	64.6	64.9	67.7	3.1	Yes
24-13	B	Residential	1	7	63.5	63.8	66.6	3.1	Yes
24-14	B	Residential	1	7	71.3	71.9	74.5	3.2	Yes
24-15	B	Residential	1	7	65.3	65.5	68.5	3.2	Yes
24-16	B	Residential	1	7	63.5	63.7	66.8	3.3	Yes
24-17	B	Residential	1	7	62.1	62.3	65.3	3.2	
24-18	B	Residential	1	7	72.4	73.1	75.6	3.2	Yes
24-19	B	Residential	1	7	68.2	68.5	71.4	3.2	Yes
24-20	B	Residential	1	7	65.4	65.6	68.6	3.2	Yes
24-21	B	Residential	1	7	63.4	63.7	66.8	3.4	Yes
24-22	B	Residential	1	7	62.0	62.2	65.3	3.3	
24-23	B	Residential	1	7	60.9	61.1	64.2	3.3	
24-24	B	Residential	1	7	57.8	58.2	60.5	2.7	
24-25	B	Residential	1	7	59.4	59.7	62.2	2.8	
24-26	B	Residential	1	7	59.2	59.4	61.9	2.7	
24-27	B	Residential	1	7	57.9	58.2	60.5	2.6	
24-28	B	Residential	1	7	58.7	58.9	61.6	2.9	
24-29	B	Residential	1	7	57.5	57.9	60.4	2.9	
24-30	B	Residential	1	7	59.3	59.5	62.1	2.8	
24-31	B	Residential	1	7	58.6	58.8	61.4	2.8	
24-32	B	Residential	1	7	58.4	58.6	61.2	2.8	
24-33	B	Residential	1	7	58.8	59.1	61.3	2.5	
24-34	B	Residential	1	7	59.2	59.4	61.8	2.6	
24-35	B	Residential	1	7	58.0	58.2	60.6	2.6	

24-36	B	Residential	1	7	57.6	57.8	60.2	2.6	
24-37	B	Residential	1	7	56.5	56.7	58.9	2.4	
24-38	B	Residential	1	7	57.9	58.2	60.3	2.4	
24-39	B	Residential	1	7	59.1	59.4	61.4	2.3	
24-40	B	Residential	1	7	58.9	59.1	61.1	2.2	
24-41	B	Residential	1	7	59.4	59.6	61.5	2.1	
24-42	B	Residential	1	7	57.0	57.2	59.4	2.4	
24-43	B	Residential	1	7	59.2	59.3	60.4	1.2	
24-44	B	Residential	1	7	58.1	58.4	60.6	2.5	
24-45	B	Residential	1	7	58.2	58.4	60.4	2.2	
24-46	B	Residential	1	7	57.5	57.7	59.7	2.2	
24-47	B	Residential	1	7	56.6	56.8	58.8	2.2	
24-48	B	Residential	1	7	56.7	56.8	58.8	2.1	
24-49	B	Residential	1	7	57.3	57.6	59.8	2.5	
24-50	B	Residential	1	7	58.7	58.9	60.8	2.1	
24-51	B	Residential	1	7	58.0	58.2	60.1	2.1	
24-52	B	Residential	1	7	56.4	56.6	58.6	2.2	
24-53	B	Residential	1	7	56.4	56.6	58.6	2.2	
24-54	B	Residential	1	7	56.1	56.2	58.2	2.1	
24-55	B	Residential	1	7	58.3	58.4	60.5	2.2	
24-56	B	Residential	1	7	59.2	59.4	61.3	2.1	
24-57	B	Residential	1	7	58.2	58.3	60.6	2.4	
24-58	B	Residential	1	7	57.9	58.0	59.7	1.8	
24-59	B	Residential	1	7	57.4	57.5	59.4	2.0	
24-60	B	Residential	1	7	57.1	57.2	59.0	1.9	
24-61	B	Residential	1	7	58.1	58.2	60.2	2.1	
24-62	B	Residential	1	7	59.8	59.9	61.6	1.8	
24-63	B	Residential	1	7	59.0	59.0	60.6	1.6	
24-64	B	Residential	1	7	58.5	58.5	60.0	1.5	
24-65	B	Residential	1	7	57.8	57.8	59.6	1.8	
24-66	B	Residential	1	7	59.6	59.6	61.4	1.8	
24-67	B	Residential	1	7	59.0	59.0	60.9	1.9	
24-68	B	Residential	1	7	58.3	58.4	60.2	1.9	
24-69	B	Residential	1	8	63.3	63.3	64.7	1.4	
24-70	B	Residential	1	8	60.9	60.9	62.7	1.8	
24-71	B	Residential	2	8	59.0	59.0	60.9	1.9	
24-72	B	Residential	1	8	62.0	62.0	63.8	1.8	
24-73	B	Residential	1	8	61.3	61.3	63.0	1.7	
24-74	B	Residential	1	8	60.5	60.5	62.5	2.0	
24-75	B	Residential	3	8	59.3	59.3	61.2	1.9	
24-76	B	Residential	1	8	61.1	61.1	62.7	1.6	

24-77	B	Residential	1	8	60.5	60.5	62.5	2.0	
24-78	B	Residential	3	8	59.4	59.5	61.3	1.9	
24-79	B	Residential	1	8	59.9	59.9	61.6	1.7	
24-80	B	Residential	1	8	61.3	61.3	62.9	1.6	
24-81	B	Residential	1	8	60.7	60.7	62.7	2.0	
24-82	B	Residential	1	8	60.0	60.1	61.7	1.7	
24-83	B	Residential	1	8	61.1	61.2	62.9	1.8	
24-84	B	Residential	1	8	61.2	61.2	62.9	1.7	
24-85	B	Residential	1	8	61.1	61.1	62.9	1.8	
24-86	B	Residential	1	8	60.0	60.0	61.7	1.7	
24-87	B	Residential	1	8	60.0	60.0	61.7	1.7	
24-88	B	Residential	1	8	61.2	61.2	63.0	1.8	
24-89	B	Residential	1	8	61.0	61.0	62.8	1.8	
24-90	B	Residential	1	8	59.9	59.9	61.5	1.6	
24-91	B	Residential	1	8	61.2	61.2	63.0	1.8	
24-92	B	Residential	2	8	60.9	60.9	62.7	1.8	
24-93	B	Residential	1	8	60.2	60.2	61.8	1.6	
24-94	B	Residential	1	8	61.0	61.0	62.7	1.7	
24-95	B	Residential	1	8	61.0	61.0	62.8	1.8	
24-96	B	Residential	1	8	59.8	59.8	61.4	1.6	
24-97	B	Residential	1	8	59.9	59.9	61.4	1.5	
24-98	B	Residential	1	8	61.3	61.3	63.0	1.7	
24-99	B	Residential	1	8	60.9	60.9	62.7	1.8	
24-100	B	Residential	1	8	61.2	61.2	63.0	1.8	
24-101	B	Residential	1	8	59.8	59.8	61.5	1.7	
24-102	B	Residential	1	8	59.6	59.6	61.3	1.7	
24-103	B	Residential	1	8	61.3	61.3	63.0	1.7	
24-104	B	Residential	1	8	60.8	60.9	62.8	2.0	
24-105	B	Residential	1	8	59.6	59.6	61.4	1.8	
24-106	B	Residential	1	8	59.9	59.9	61.7	1.8	
24-107	B	Residential	1	8	59.3	59.3	61.0	1.7	
24-108	B	Residential	1	8	61.4	61.4	63.1	1.7	
24-109	B	Residential	1	8	61.7	61.7	63.6	1.9	
24-110	B	Residential	1	8	60.4	60.4	62.3	1.9	
24-111	B	Residential	1	8	62.3	62.3	64.1	1.8	
24-112	B	Residential	1	8	62.6	62.6	64.6	2.0	
24-113	B	Residential	1	8	60.5	60.5	62.4	1.9	
24-114	B	Residential	1	8	63.4	63.4	65.0	1.6	
24-115	B	Residential	1	8	66.6	66.6	67.6	1.0	Yes
24-116	B	Residential	1	8	62.6	62.6	64.5	1.9	
24-117	B	Residential	1	8	62.8	62.8	64.7	1.9	

24-118	B	Residential	1	8	63.5	63.5	65.3	1.8	
24-119	B	Residential	1	8	60.8	60.8	62.7	1.9	
24-120	B	Residential	1	8	60.9	60.9	62.9	2.0	
25-1	B	Residential	1	7	60.6	60.9	63.1	2.5	
25-2	B	Residential	1	7	61.4	61.6	63.9	2.5	
25-3	B	Residential	1	7	62.0	62.2	64.6	2.6	
25-4	B	Residential	1	7	62.0	62.2	64.8	2.8	
25-5	B	Residential	1	7	61.9	62.1	64.8	2.9	
25-6	B	Residential	1	7	60.1	60.4	62.4	2.3	
25-7	B	Residential	1	7	60.6	60.8	63.1	2.5	
25-8	B	Residential	1	7	60.9	61.1	63.4	2.5	
25-9	B	Residential	1	7	60.0	60.2	62.3	2.3	
25-10	B	Residential	1	7	60.1	60.2	62.5	2.4	
25-11	B	Residential	1	7	60.0	60.1	62.5	2.5	
25-12	B	Residential	1	7	59.6	59.8	61.9	2.3	
25-13	B	Residential	1	7	59.8	60.0	61.9	2.1	
25-14	B	Residential	1	7	59.1	59.3	61.4	2.3	
25-15	B	Residential	1	7	59.1	59.3	61.4	2.3	
25-16	B	Residential	1	7	59.1	59.3	61.4	2.3	
25-17	B	Residential	1	7	59.0	59.2	61.4	2.4	
25-18	B	Residential	1	7	59.7	59.9	61.9	2.2	
25-19	B	Residential	1	7	59.7	59.8	61.8	2.1	
25-20	B	Residential	1	7	60.9	61.0	63.1	2.2	
25-21	B	Residential	1	7	58.5	58.7	60.8	2.3	
25-22	B	Residential	1	7	58.3	58.5	60.6	2.3	
25-23	B	Residential	1	7	58.0	58.2	60.4	2.4	
25-24	B	Residential	1	7	59.4	59.5	61.5	2.1	
25-25	B	Residential	1	7	60.8	60.9	63.8	3.0	
25-26	B	Residential	1	7	58.5	58.7	60.4	1.9	
25-27	B	Residential	1	7	59.4	59.5	61.6	2.2	
25-28	B	Residential	1	7	57.3	57.5	59.5	2.2	
25-29	B	Residential	1	7	57.2	57.3	59.4	2.2	
25-30	B	Residential	1	7	59.6	59.7	61.8	2.2	
25-31	B	Residential	2	7	57.9	58.0	60.0	2.1	
25-32	B	Residential	1	7	59.7	59.8	61.9	2.2	
25-33	B	Residential	1	7	57.8	57.9	59.9	2.1	
25-34	B	Residential	1	7	59.9	60.0	62.2	2.3	
25-35	B	Residential	1	7	58.1	58.3	60.3	2.2	
25-36	B	Residential	1	7	59.9	60.0	62.2	2.3	
25-37	B	Residential	1	7	58.5	58.6	60.7	2.2	
25-38	B	Residential	1	7	58.9	59.0	61.2	2.3	

25-39	B	Residential	1	7	59.8	59.9	62.1	2.3	
25-40	B	Residential	1	7	58.9	59.0	61.2	2.3	
25-41	B	Residential	1	7	59.6	59.6	61.8	2.2	
25-42	B	Residential	1	7	58.7	58.7	61.0	2.3	
25-43	B	Residential	1	7	59.3	59.4	61.5	2.2	
25-44	B	Residential	1	7	58.5	58.5	60.9	2.4	
25-45	B	Residential	1	7	59.2	59.3	61.4	2.2	
25-46	B	Residential	2	7	58.8	58.9	61.3	2.5	
25-47	B	Residential	1	7	59.4	59.5	61.6	2.2	
25-48	B	Residential	1	7	58.8	58.9	61.2	2.4	
25-49	B	Residential	1	7	60.2	60.2	62.6	2.4	
25-50	B	Residential	1	7	59.4	59.4	61.8	2.4	
25-51	B	Residential	1	7	58.9	58.9	61.1	2.2	
25-52	B	Residential	5	7	56.8	56.9	58.9	2.1	
25-53	B	Residential	3	7	58.2	58.2	60.3	2.1	
26-1	C	School (Exterior)	1	8	60.3	60.4	62.6	2.3	
26-2	C	School (Exterior)	1	8	59.2	59.2	61.5	2.3	
26-3	C	School (Exterior)	1	8	58.3	58.3	60.4	2.1	
26-4	C	School (Exterior)	1	8	57.3	57.3	59.3	2	
26-5	C	School (Exterior)	1	8	56.9	56.9	58.8	1.9	
26-6	C	School (Exterior)	1	8	60.2	60.2	62.1	1.9	
26-7	C	School (Exterior)	1	8	59.2	59.2	61.2	2	
26-8	C	School (Exterior)	1	8	58.3	58.4	60.3	2	
26-9	C	School (Exterior)	1	8	57.4	57.5	59.4	2.0	
26-10	C	School (Exterior)	1	8	56.8	56.9	58.8	2.0	
26-11	C	School (Exterior)	1	8	60.2	60.2	62.0	1.8	
26-12	C	School (Exterior)	1	8	59.2	59.2	61.0	1.8	
26-13	C	School (Exterior)	1	8	58.4	58.4	60.2	1.8	
26-14	C	School (Exterior)	1	8	57.5	57.5	59.3	1.8	
26-15	C	School (Exterior)	1	8	56.8	56.9	58.7	1.9	
26-16	C	School (Exterior)	1	8	59.9	59.9	61.7	1.8	
26-17	C	School (Exterior)	1	8	59.4	59.4	61.2	1.8	
26-18	C	School (Exterior)	1	8	58.7	58.7	60.5	1.8	

26-19	C	School (Exterior)	1	8	60.1	60.1	61.8	1.7	
26-20	C	School (Exterior)	1	8	59.1	59.1	60.8	1.7	
26-21	C	School (Exterior)	1	8	58.8	58.8	60.5	1.7	
27-1	B	Residential	1	8	59.8	59.8	61.5	1.7	
27-2	B	Residential	1	8	58.0	58.0	59.7	1.7	
27-3	B	Residential	1	8	57.7	57.7	59.4	1.7	
27-4	B	Residential	1	8	56.7	56.8	58.4	1.7	
27-5	B	Residential	1	8	56.0	56.0	57.6	1.6	
27-6	B	Residential	1	8	59.8	59.8	61.4	1.6	
27-7	B	Residential	1	8	58.4	58.4	60.1	1.7	
27-8	B	Residential	1	8	57.0	57.0	58.6	1.6	
27-9	B	Residential	1	8	56.2	56.2	57.8	1.6	
27-10	B	Residential	1	8	56.0	56.0	57.6	1.6	
27-11	B	Residential	1	8	59.9	59.9	61.5	1.6	
27-12	B	Residential	1	8	58.0	58.0	59.5	1.5	
27-13	B	Residential	1	8	57.1	57.1	58.7	1.6	
27-14	B	Residential	1	8	56.5	56.5	58.0	1.5	
27-15	B	Residential	1	8	56.1	56.1	57.6	1.5	
27-16	B	Residential	1	8	60.0	60.0	61.5	1.5	
27-17	B	Residential	1	8	58.8	58.8	60.5	1.7	
27-18	B	Residential	1	8	58.1	58.1	59.4	1.3	
27-19	B	Residential	1	8	56.8	56.8	58.2	1.4	
27-20	B	Residential	1	8	56.7	56.7	58.0	1.3	
27-21	B	Residential	1	8	61.1	61.2	62.1	1.0	
27-22	B	Residential	1	8	59.3	59.3	60.3	1.0	
27-23	B	Residential	1	8	58.0	58.0	59.3	1.3	
27-24	B	Residential	1	8	57.0	57.0	58.3	1.3	
27-25	B	Residential	1	8	56.3	56.3	57.7	1.4	
27-26	B	Residential	1	8	60.5	60.5	62.3	1.8	
27-27	B	Residential	1	8	59.6	59.6	61.2	1.6	
27-28	B	Residential	1	8	58.9	58.9	60.6	1.7	
27-29	B	Residential	1	8	57.9	57.9	59.4	1.5	
27-30	B	Residential	1	8	60.3	60.3	62.1	1.8	
27-31	B	Residential	1	8	59.8	59.8	62.0	2.2	
27-32	B	Residential	1	8	59.9	59.9	62.1	2.2	
27-33	B	Residential	1	8	59.5	59.5	61.2	1.7	
27-34	B	Residential	1	8	58.9	58.9	60.6	1.7	
27-35	B	Residential	1	8	58.5	58.5	60.1	1.6	
27-36	B	Residential	1	8	60.1	60.1	62.2	2.1	
27-37	B	Residential	1	8	59.2	59.2	60.9	1.7	

27-38	B	Residential	1	8	58.8	58.8	60.6	1.8	
27-39	B	Residential	1	8	58.1	58.1	59.7	1.6	
27-40	B	Residential	1	8	60.1	60.2	62.1	2.0	
27-41	B	Residential	1	8	59.8	59.8	61.9	2.1	
27-42	B	Residential	1	8	59.9	59.9	61.9	2.0	
27-43	B	Residential	1	8	58.9	58.9	60.9	2.0	
27-44	B	Residential	1	8	59.4	59.4	61.2	1.8	
27-45	B	Residential	1	8	58.9	58.9	60.6	1.7	
27-46	B	Residential	1	8	58.3	58.3	60.1	1.8	
27-47	B	Residential	1	8	58.0	58.0	59.8	1.8	
27-48	B	Residential	1	8	60.2	60.2	62.2	2.0	
27-49	B	Residential	1	8	59.7	59.7	61.6	1.9	
27-50	B	Residential	1	8	58.0	58.0	59.8	1.8	
27-51	B	Residential	1	8	60.2	60.2	62.1	1.9	
27-52	B	Residential	1	8	60.1	60.1	61.7	1.6	
27-53	B	Residential	1	8	57.7	57.7	59.6	1.9	
27-54	B	Residential	1	8	60.2	60.2	62.2	2.0	
27-55	B	Residential	1	8	59.4	59.5	61.3	1.9	
27-56	B	Residential	1	8	57.5	57.5	59.3	1.8	
27-57	B	Residential	9	8	56.2	56.2	58.0	1.8	
27-58	B	Residential	1	8	60.1	60.2	62.1	2.0	
27-59	B	Residential	1	8	59.4	59.4	61.3	1.9	
27-60	B	Residential	2	8	60.2	60.2	62.2	2.0	
27-61	B	Residential	1	8	58.8	58.8	60.7	1.9	
27-62	B	Residential	1	8	57.8	57.8	59.6	1.8	
27-63	B	Residential	1	8	58.9	58.9	60.9	2.0	
27-64	B	Residential	1	8	57.4	57.4	59.3	1.9	
27-65	B	Residential	1	8	60.5	60.5	62.5	2.0	
27-66	B	Residential	1	8	59.5	59.5	61.5	2.0	
27-67	B	Residential	1	8	57.6	57.6	59.6	2.0	
27-68	B	Residential	1	8	60.7	60.7	62.8	2.1	
27-69	B	Residential	1	8	59.6	59.6	61.8	2.2	
27-70	B	Residential	1	8	57.6	57.6	59.6	2.0	
27-71	B	Residential	1	8	60.9	60.9	63.1	2.2	
27-72	B	Residential	1	8	61.2	61.2	62.7	1.5	
27-73	B	Residential	1	8	58.0	58.0	59.9	1.9	
27-74	B	Residential	3	9	59.7	59.7	62.0	2.3	
27-75	B	Residential	1	9	58.7	58.7	60.9	2.2	
27-76	B	Residential	1	9	56.7	56.7	58.7	2.0	
27-77	B	Residential	1	9	57.1	57.1	59.2	2.1	
27-78	B	Residential	1	9	57.2	57.2	59.4	2.2	

27-79	B	Residential	1	9	57.8	57.8	59.9	2.1	
27-80	B	Residential	1	9	57.3	57.3	59.3	2.0	
27-81	B	Residential	1	9	56.3	56.3	58.3	2.0	
27-82	B	Residential	1	9	57.9	57.9	60.1	2.2	
27-83	B	Residential	1	9	59.5	59.5	61.9	2.4	
27-84	B	Residential	1	9	60.1	60.1	62.5	2.4	
27-85	B	Residential	1	9	60.1	60.1	62.6	2.5	
27-86	B	Residential	1	9	60.5	60.5	63.0	2.5	
27-87	B	Residential	1	9	59.3	59.3	61.7	2.4	
27-88	B	Residential	1	9	59.2	59.2	61.7	2.5	
27-89	B	Residential	1	9	59.6	59.6	62.0	2.4	
27-90	B	Residential	1	9	60.1	60.1	62.6	2.5	
27-91	B	Residential	1	9	60.1	60.2	62.6	2.5	
27-92	B	Residential	1	9	60.5	60.5	62.9	2.4	
27-93	B	Residential	1	9	61.0	61.0	63.5	2.5	
27-94	B	Residential	1	9	61.2	61.2	63.8	2.6	
27-95	B	Residential	1	9	60.1	60.1	62.6	2.5	
28-1	B	Residential	1	8	61.1	61.1	63.1	2.0	
28-2	B	Residential	2	8	59.5	59.5	61.3	1.8	
28-3	B	Residential	1	8	61.0	61.0	63.0	2.0	
28-4	B	Residential	2	8	59.4	59.4	61.2	1.8	
28-5	B	Residential	2	8	59.3	59.3	61.1	1.8	
28-6	B	Residential	2	8	59.1	59.1	60.8	1.7	
28-7	B	Residential	1	8	60.9	60.9	62.5	1.6	
28-8	B	Residential	1	8	60.9	60.9	62.3	1.4	
28-9	B	Residential	1	8	60.4	60.4	61.8	1.4	
28-10	B	Residential	1	8	60.1	60.1	61.5	1.4	
28-11	B	Residential	1	8	59.7	59.7	61.0	1.3	
28-12	B	Residential	1	8	61.5	61.5	63.1	1.6	
28-13	B	Residential	1	8	61.2	61.2	62.6	1.4	
28-14	B	Residential	1	8	58.9	58.9	60.3	1.4	
28-15	B	Residential	1	8	61.3	61.3	62.9	1.6	
28-16	B	Residential	1	8	61.2	61.2	62.8	1.6	
28-17	B	Residential	1	8	60.3	60.3	61.8	1.5	
28-18	B	Residential	1	8	58.6	58.6	60.4	1.8	
28-19	B	Residential	1	8	58.5	58.5	60.4	1.9	
28-20	B	Residential	1	8	61.0	61.0	62.6	1.6	
28-21	B	Residential	1	8	59.3	59.3	60.8	1.5	
28-22	B	Residential	1	8	58.2	58.2	60.1	1.9	
28-23	B	Residential	1	8	60.9	60.9	62.5	1.6	
28-24	B	Residential	1	8	59.9	59.9	61.5	1.6	

28-25	B	Residential	1	8	58.3	58.4	60.0	1.7	
28-26	B	Residential	1	8	60.9	60.9	62.5	1.6	
28-27	B	Residential	1	8	59.6	59.6	61.3	1.7	
28-28	B	Residential	1	8	57.6	57.6	59.3	1.7	
28-29	B	Residential	1	8	60.8	60.8	62.4	1.6	
28-30	B	Residential	1	8	59.0	59.0	60.6	1.6	
28-31	B	Residential	1	8	57.2	57.2	59.0	1.8	
28-32	B	Residential	1	8	60.7	60.7	62.3	1.6	
28-33	B	Residential	1	8	59.6	59.6	61.2	1.6	
28-34	B	Residential	1	8	59.3	59.3	61.0	1.7	
28-35	B	Residential	1	8	58.2	58.2	59.8	1.6	
28-36	B	Residential	1	8	57.2	57.2	58.9	1.7	
28-37	B	Residential	1	9	61.1	61.1	62.6	1.5	
28-38	B	Residential	1	9	59.3	59.3	60.9	1.6	
28-39	B	Residential	1	9	57.2	57.2	58.9	1.7	
28-40	B	Residential	1	9	61.1	61.1	62.7	1.6	
28-41	B	Residential	1	9	59.3	59.3	60.9	1.6	
28-42	B	Residential	1	9	57.2	57.2	58.9	1.7	
28-43	B	Residential	1	9	61.1	61.1	62.7	1.6	
28-44	B	Residential	1	9	59.0	59.0	60.6	1.6	
28-45	B	Residential	1	9	57.1	57.1	58.8	1.7	
28-46	B	Residential	1	9	61.1	61.1	62.7	1.6	
28-47	B	Residential	1	9	59.3	59.3	60.9	1.6	
28-48	B	Residential	1	9	57.6	57.6	59.3	1.7	
28-49	B	Residential	1	9	61.1	61.1	62.8	1.7	
28-50	B	Residential	1	9	59.9	59.9	61.6	1.7	
28-51	B	Residential	1	9	57.9	57.9	59.5	1.6	
28-52	B	Residential	1	9	61.0	61.0	62.6	1.6	
28-53	B	Residential	1	9	59.8	59.8	61.5	1.7	
28-54	B	Residential	1	9	57.8	57.9	59.6	1.8	
28-55	B	Residential	1	9	60.9	60.9	62.5	1.6	
28-56	B	Residential	1	9	59.5	59.5	61.1	1.6	
28-57	B	Residential	1	9	57.2	57.2	59.0	1.8	
28-58	B	Residential	1	9	60.8	60.8	62.4	1.6	
28-59	B	Residential	1	9	59.6	59.6	61.3	1.7	
28-60	B	Residential	1	9	57.2	57.2	58.8	1.6	
28-61	B	Residential	1	9	60.8	60.8	62.4	1.6	
28-62	B	Residential	1	9	59.6	59.6	61.3	1.7	
28-63	B	Residential	1	9	57.0	57.0	58.5	1.5	
28-64	B	Residential	1	9	60.7	60.7	62.3	1.6	
28-65	B	Residential	1	9	58.8	58.8	60.5	1.7	

28-66	B	Residential	1	9	56.6	56.6	58.2	1.6	
28-67	B	Residential	1	9	60.8	60.8	62.4	1.6	
28-68	B	Residential	1	9	58.7	58.7	60.4	1.7	
28-69	B	Residential	1	9	56.5	56.5	58.1	1.6	
28-70	B	Residential	1	9	60.8	60.8	62.4	1.6	
28-71	B	Residential	1	9	58.5	58.5	60.1	1.6	
28-72	B	Residential	1	9	56.6	56.6	58.1	1.5	
28-73	B	Residential	19	9	55.2	55.3	56.8	1.6	
28-74	B	Residential	1	9	60.9	60.9	62.6	1.7	
28-75	B	Residential	1	9	58.7	58.7	60.4	1.7	
28-76	B	Residential	1	9	57.2	57.2	58.9	1.7	
28-77	B	Residential	1	9	60.8	60.8	62.5	1.7	
28-78	B	Residential	1	9	58.6	58.6	60.4	1.8	
28-79	B	Residential	1	9	56.7	56.7	58.4	1.7	
28-80	B	Residential	1	9	61.0	61.0	62.7	1.7	
28-81	B	Residential	1	9	62.6	62.6	64.4	1.8	
28-82	B	Residential	1	9	59.8	59.8	61.4	1.6	
28-83	B	Residential	1	9	56.7	56.7	58.6	1.9	
28-84	B	Residential	1	9	56.8	56.8	58.5	1.7	
28-85	B	Residential	1	9	61.1	61.1	62.9	1.8	
28-86	B	Residential	1	9	58.5	58.5	60.2	1.7	
28-87	B	Residential	1	9	56.7	56.8	58.4	1.7	
28-88	B	Residential	1	9	61.1	61.1	62.8	1.7	
28-89	B	Residential	1	9	58.5	58.5	60.3	1.8	
28-90	B	Residential	1	9	57.4	57.4	58.6	1.2	
28-91	B	Residential	1	9	61.0	61.0	62.7	1.7	
28-92	B	Residential	1	9	58.5	58.5	60.1	1.6	
28-93	B	Residential	1	9	55.9	55.9	57.3	1.4	
28-94	B	Residential	1	9	61.6	61.6	63.3	1.7	
28-95	B	Residential	1	9	60.0	60.0	61.4	1.4	
28-96	B	Residential	1	9	58.9	58.9	60.4	1.5	
28-97	B	Residential	1	9	57.9	57.9	59.4	1.5	
28-98	B	Residential	1	9	57.9	57.9	59.4	1.5	
28-99	B	Residential	1	9	57.5	57.5	59.0	1.5	
28-100	B	Residential	1	9	58.1	58.1	59.8	1.7	
28-101	B	Residential	1	9	58.0	58.0	59.6	1.6	
28-102	B	Residential	1	9	57.2	57.2	59.1	1.9	
28-103	B	Residential	1	9	57.2	57.2	58.6	1.4	
28-104	B	Residential	1	9	55.9	55.9	57.3	1.4	
28-105	B	Residential	1	9	55.8	55.8	57.1	1.3	
28-106	B	Residential	1	9	55.6	55.6	56.9	1.3	

28-107	B	Residential	1	9	55.4	55.4	56.7	1.3	
28-108	B	Residential	1	9	55.2	55.2	56.5	1.3	
28-109	B	Residential	1	9	55.0	55.0	56.3	1.3	
28-110	B	Residential	1	9	54.9	54.9	56.1	1.2	
28-111	B	Residential	1	9	54.8	54.8	56.0	1.2	
28-112	B	Residential	1	9	54.6	54.6	55.8	1.2	
28-113	B	Residential	1	9	54.6	54.6	55.8	1.2	
28-114	B	Residential	1	9	54.5	54.5	55.7	1.2	
28-115	B	Residential	1	9	54.4	54.4	55.5	1.1	
28-116	B	Residential	1	9	59.4	59.4	61.2	1.8	
28-117	B	Residential	1	9	60.1	60.1	61.6	1.5	
28-118	B	Residential	1	9	58.2	58.2	59.6	1.4	
28-119	B	Residential	1	9	57.3	57.3	58.7	1.4	
28-120	B	Residential	1	9	57.0	57.0	58.3	1.3	
28-121	B	Residential	1	9	58.3	58.3	59.8	1.5	
28-122	B	Residential	1	9	60.4	60.4	61.9	1.5	
28-123	B	Residential	1	9	59.1	59.1	60.6	1.5	
28-124	B	Residential	1	9	59.4	59.4	60.9	1.5	
28-125	B	Residential	1	9	61.2	61.2	62.2	1.0	
28-126	B	Residential	1	9	60.1	60.1	61.2	1.1	
28-127	B	Residential	1	9	58.2	58.2	59.3	1.1	
28-128	B	Residential	1	9	59.7	59.7	61.3	1.6	
28-129	B	Residential	1	9	59.6	59.7	61.0	1.4	
28-130	B	Residential	1	9	59.4	59.4	60.9	1.5	
28-131	B	Residential	1	9	63.8	63.8	64.8	1.0	
28-132	B	Residential	1	9	58.9	58.9	60.5	1.6	
28-133	B	Residential	1	9	58.4	58.4	59.5	1.1	
28-134	B	Residential	1	9	58.8	58.8	60.6	1.8	
28-135	B	Residential	1	9	61.3	61.3	62.8	1.5	
28-136	B	Residential	1	9	61.2	61.2	62.3	1.1	
28-137	B	Residential	1	9	59.8	59.9	61.8	2.0	
28-138	B	Residential	1	9	59.0	59.0	60.8	1.8	
28-139	B	Residential	1	9	58.6	58.7	59.4	0.8	
29-1	C	School (Exterior)	1	9	71.0	71.0.	74.6	3.6	Yes
29-2	C	School (Exterior)	1	9	68.1	68.1	74.2	6.1	Yes
29-3	C	School (Exterior)	1	9	670	67.0	74.3	7.3	Yes
29-4	C	School (Exterior)	1	9	64.3	64.3	71.1	6.8	Yes
29-5	C	School (Exterior)	1	9	71.3	71.3	70.5	-0.8	Yes
29-6	C	School (Exterior)	1	9	68.2	68.2	71.0	2.8	Yes

29-7	C	School (Exterior)	1	9	67.2	67.2	68.0	0.8	Yes
29-8	C	School (Exterior)	1	9	64.3	64.3	67.9	3.6	Yes
29-9	C	School (Exterior)	1	9	71.2	71.2	68.6	-2.6	Yes
29-10	C	School (Exterior)	1	9	68.0	68.0	65.6	-2.4	
29-11	C	School (Exterior)	1	9	67.1	67.1	65.6	-1.5	
29-12	C	School (Exterior)	1	9	64.7	64.7	66.9	2.2	Yes
30-1	B	Residential	1	10	66.9	67.1	68.0	1.1	Yes
30-2	B	Residential	1	10	65.9	65.9	66.8	0.9	Yes
30-3	B	Residential	1	10	66.5	66.6	67.7	1.2	Yes
30-4	B	Residential	1	10	69.6	70.7	71.6	2.0	Yes
30-5	B	Residential	1	10	67.5	68.0	69.4	1.9	Yes
30-6	B	Residential	1	10	67.1	67.4	68.5	1.4	Yes
30-7	B	Residential	1	10	64.9	65.1	66.8	1.9	Yes
30-8	B	Residential	4	10	62.6	62.7	65.5	2.9	
30-9	B	Residential	1	10	69.8	70.6	71.4	1.6	Yes
30-10	B	Residential	1	10	66.7	67.1	68.6	1.9	Yes
30-11	B	Residential	1	10	66.5	66.7	68.5	2.0	Yes
30-12	B	Residential	1	10	65.6	65.8	68.0	2.4	Yes
30-13	B	Residential	5	10	62.2	62.3	65.3	3.1	
30-14	B	Residential	1	10	70.8	71.5	73.5	2.7	Yes
30-15	B	Residential	1	10	67.4	67.6	70.5	3.1	Yes
30-16	B	Residential	1	10	65.5	65.7	68.7	3.2	Yes
30-17	B	Residential	1	10	62.0	62.1	65.1	3.1	
30-18	B	Residential	1	10	73.3	73.8	76.3	3.0	Yes
30-19	B	Residential	1	10	70.5	70.8	73.5	3.0	Yes
30-20	B	Residential	1	10	68.4	68.6	71.6	3.2	Yes
30-21	B	Residential	1	10	66.7	66.9	69.9	3.2	Yes
30-22	B	Residential	1	10	64.9	65.0	68.1	3.2	Yes
30-23	B	Residential	1	10	61.7	61.9	64.9	3.2	
30-24	B	Residential	1	10	73.1	73.5	75.9	2.8	Yes
30-25	B	Residential	1	10	69.0	69.2	72.1	3.1	Yes
30-26	B	Residential	1	10	66.8	66.9	70.0	3.2	Yes
30-27	B	Residential	1	10	64.6	64.8	67.8	3.2	Yes
30-28	B	Residential	1	10	61.5	61.6	64.5	3.0	
30-29	B	Residential	1	10	73.6	73.9	76.2	2.6	Yes
30-30	B	Residential	1	10	66.6	66.8	69.7	3.1	Yes
30-31	B	Residential	1	10	640	64.1	67.1	3.1	Yes
30-32	B	Residential	1	10	61.2	61.4	64.2	3.0.	
30-33	B	Residential	1	10	73.4	73.6	73.8	0.4	Yes

30-34	B	Residential	1	10	70.5	70.6	73	2.5	Yes
30-35	B	Residential	1	10	60.0	60.1	62.9	2.9	
30-36	B	Residential	1	10	59.3	59.4	62.2	2.9	
30-37	B	Residential	1	10	64.1	64.2	66.9	2.8	Yes
30-38	B	Residential	1	10	63.6	63.7	66.4	2.8	Yes
30-39	B	Residential	1	10	63.1	63.2	65.8	2.7	
30-40	B	Residential	1	10	61.1	61.2	63.9	2.8	
30-41	B	Residential	1	10	59.0	59.1	61.7	2.7	
30-42	B	Residential	1	10	60.9	61.0	63.5	2.6	
30-43	B	Residential	1	10	60.3	60.4	63.0	2.7	
30-44	B	Residential	1	10	58.6	58.7	61.3	2.7	
30-45	B	Residential	1	10	58.5	58.6	61.1	2.6	
30-46	B	Residential	1	10	58.3	58.4	60.9	2.6	
30-47	B	Residential	1	10	58.3	58.3	60.7	2.4	
30-48	B	Residential	1	10	59.6	59.6	62.0	2.4	
30-49	B	Residential	1	10	60.5	60.6	63.2	2.7	
30-50	B	Residential	1	10	59.9	59.9	62.4	2.5	
30-51	B	Residential	1	10	58.9	58.9	61.1	2.2	
30-52	B	Residential	1	10	58.7	58.7	61.0	2.3	
30-53	B	Residential	1	10	60.3	60.3	62.7	2.4	
30-54	B	Residential	1	10	59.7	59.8	62.1	2.4	
30-55	B	Residential	1	10	60.4	60.5	62.8	2.4	
30-56	B	Residential	1	10	60.2	60.2	62.5	2.3	
30-57	B	Residential	1	10	55.9	56.0	58.3	2.4	
30-58	B	Residential	1	10	60.0	60.0	62.2	2.2	
30-59	B	Residential	1	10	60.6	60.7	63.0	2.4	
30-60	B	Residential	1	10	60.1	60.1	62.4	2.3	
30-61	B	Residential	1	10	59.4	59.4	61.6	2.2	
30-62	B	Residential	1	10	60.5	60.5	62.9	2.4	
30-63	B	Residential	1	10	60.8	60.8	63.1	2.3	
30-64	B	Residential	1	10	60.1	60.1	62.4	2.3	
30-65	B	Residential	1	10	57.1	57.1	59.1	2.0	
30-66	B	Residential	1	10	60.2	60.2	62.7	2.5	
30-67	B	Residential	1	10	61.0	61.0	63.5	2.5	
30-68	B	Residential	1	10	60.9	60.9	63.2	2.3	
30-69	B	Residential	1	10	59.9	59.9	62.1	2.2	
30-70	B	Residential	1	10	59.0	59.0	61.2	2.2	
30-71	B	Residential	1	10	62.9	63.0	65.2	2.3	
30-72	B	Residential	1	10	61.4	61.4	63.7	2.3	
30-73	B	Residential	1	10	60.2	60.2	62.3	2.1	
30-74	B	Residential	1	10	59.1	59.1	61.3	2.2	

31-1	B	Residential	1	10	68.2	68.7	69.9	1.7	Yes
31-2	B	Residential	1	10	66.2	66.3	67.9	1.7	Yes
31-3	B	Residential	1	10	65.4	65.5	66.6	1.2	Yes
31-4	B	Residential	1	10	64.0	64.0	65.1	1.1	
31-5	B	Residential	1	10	62.7	62.8	64.3	1.6	
31-6	B	Residential	1	10	68.1	68.6	70.2	2.1	Yes
31-7	B	Residential	1	10	67.0	67.1	68.2	1.2	Yes
31-8	B	Residential	1	10	65.9	66.0	67.2	1.3	Yes
31-9	B	Residential	1	10	64.8	64.8	66.7	1.9	Yes
31-10	B	Residential	1	10	63.5	63.6	65.7	2.2	
31-11	B	Residential	1	10	62.3	62.3	64.6	2.3	
31-12	B	Residential	1	10	66.0	66.1	67.4	1.4	Yes
31-13	B	Residential	1	10	64.4	64.5	66.8	2.4	Yes
31-14	B	Residential	1	10	62.9	63.0	65.2	2.3	
31-15	B	Residential	1	10	61.1	61.1	63.6	2.5	
31-16	B	Residential	1	10	62.7	62.8	65.2	2.5	
31-17	B	Residential	1	10	62.7	62.8	65.0	2.3	
31-18	B	Residential	1	10	61.6	61.7	64.1	2.5	
31-19	B	Residential	1	10	60.8	60.9	63.2	2.4	
31-20	B	Residential	1	10	62.3	62.4	64.7	2.4	
31-21	B	Residential	1	10	61.1	61.2	63.4	2.3	
31-22	B	Residential	1	10	59.8	59.9	62.2	2.4	
31-23	B	Residential	1	10	59.1	59.2	61.4	2.3	
31-24	B	Residential	1	10	62.3	62.5	64.8	2.5	
31-25	B	Residential	1	10	63.3	63.4	65.3	2.0	
31-26	B	Residential	1	10	60.9	61.0	63.2	2.3	
31-27	B	Residential	1	10	59.0	59.1	61.4	2.4	
31-28	B	Residential	1	10	57.6	57.7	60.2	2.6	
31-29	B	Residential	1	10	56.7	56.8	59.2	2.5	
31-30	B	Residential	1	10	62.5	62.6	65.0	2.5	
31-31	B	Residential	1	10	61.6	61.7	64.2	2.6	
31-32	B	Residential	1	10	61.1	61.2	63.7	2.6	
31-33	B	Residential	1	10	59.7	59.8	62.4	2.7	
31-34	B	Residential	1	10	59.6	59.7	62.3	2.7	
31-35	B	Residential	1	10	58.9	59.0	61.6	2.7	
32-1.1	D	School (Interior)	1	10	41.8	41.8	44.3	2.5	
32-1.2	C	School (Exterior)	1	10	64.9	64.9	67.4	2.5	Yes
32-1.3	C	School (Exterior)	1	10	63.4	63.5	66.0	2.6	Yes
32-1.4	C	School (Exterior)	1	10	62.5	62.6	65.1	2.6	

32-1.5	C	School (Exterior)	1	10	61.6	61.7	64.2	2.6	
32-1.6	C	School (Exterior)	1	10	61.7	61.8	64.3	2.6	
32-1.7	C	School (Exterior)	1	10	60.9	61	63.5	2.6	
32-1.8	C	School (Exterior)	1	10	60.8	60.9	63.5	2.7	
32-1.9	C	School (Exterior)	1	10	60.2	60.2	62.8	2.6	
32-2	D	Medical Facility (Interior)	1	10	38.0	38.0	40.2	2.2	
32-3	D	School (Interior)	1	10	33.6	33.6	35.6	2.0	
33-1	B	Residential	10	10	62.5	62.5	65.1	2.6	
33-2	B	Residential	10	10	66.5	66.5	69.0	2.5	Yes
34-1	B	Residential	1	11	59.0	59.0	62.2	3.2	
34-2	B	Residential	1	11	61.1	61.1	64.1	3	
34-3	B	Residential	1	11	61.0	61.0	63.7	2.7	
34-4	B	Residential	1	11	59.6	59.6	62.1	2.5	
34-5	B	Residential	1	11	57.0	57.0	59.9	2.9	
34-6	B	Residential	1	11	60.6	60.7	63.2	2.6	
34-7	B	Residential	1	11	60.7	60.7	63.1	2.4	
34-8	B	Residential	1	11	60.3	60.3	62.6	2.3	
34-9	B	Residential	1	11	58.6	58.6	60.7	2.1	
34-10	B	Residential	1	11	57.1	57.1	59.6	2.5	
34-11	B	Residential	1	11	60.0	60.0	62.5	2.5	
34-12	B	Residential	1	11	59.0	59.0	61.0	2.0	
34-13	B	Residential	1	11	58.1	58.1	60.1	2.0	
34-14	B	Residential	1	11	58.0	58.1	60.4	2.4	
34-15	B	Residential	1	11	60.0	60.0	62.5	2.5	
34-16	B	Residential	1	11	59.3	59.4	61.6	2.3	
34-17	B	Residential	1	11	57.7	57.7	59.6	1.9	
34-18	B	Residential	1	11	59.7	59.7	61.9	2.2	
34-19	B	Residential	1	11	59.9	59.9	62.3	2.4	
34-20	B	Residential	1	11	59.9	60.0	62.4	2.5	
34-21	B	Residential	1	11	59.3	59.3	61.7	2.4	
34-22	B	Residential	1	11	58.9	58.9	61.1	2.2	
34-23	B	Residential	1	11	58.3	58.3	60.4	2.1	
34-24	B	Residential	1	11	57.9	57.9	59.9	2.0	
34-25	B	Residential	1	11	58.5	58.5	60.8	2.3	
34-26	B	Residential	1	11	57.9	57.9	60.2	2.3	
34-27	B	Residential	1	11	57.3	57.3	59.6	2.3	
34-28	B	Residential	1	11	56.8	56.8	59.2	2.4	

34-29	B	Residential	1	11	59.1	59.2	61.5	2.4	
34-30	B	Residential	1	11	60.3	60.4	62.7	2.4	
34-31	B	Residential	1	11	59.8	59.8	62.2	2.4	
34-32	B	Residential	1	11	59.3	59.3	61.7	2.4	
34-33	B	Residential	1	11	58.3	58.3	60.8	2.5	
34-34	B	Residential	1	11	59.0	59.1	61.4	2.4	
34-35	B	Residential	1	11	60.5	60.5	62.7	2.2	
34-36	B	Residential	1	11	58.5	58.5	60.9	2.4	
34-37	B	Residential	1	11	58.5	58.5	60.9	2.4	
34-38	B	Residential	1	11	60.5	60.6	62.7	2.2	
34-39	B	Residential	1	11	59.6	59.7	61.9	2.3	
34-40	B	Residential	4	11	57.8	57.9	60.2	2.4	
34-41	B	Residential	1	11	60.2	60.3	62.5	2.3	
34-42	B	Residential	1	11	61.3	61.4	63.7	2.4	
34-43	B	Residential	1	11	60.8	60.8	63.1	2.3	
34-44	B	Residential	1	11	58.3	58.4	60.7	2.4	
34-45	B	Residential	1	11	62.0	62.1	64.6	2.6	
34-46	B	Residential	1	11	62.1	62.1	64.5	2.4	
34-47	B	Residential	1	11	61.4	61.5	63.9	2.5	
34-48	B	Residential	1	11	62.6	62.7	65.3	2.7	
34-49	B	Residential	1	11	61.1	61.2	63.8	2.7	
34-50	B	Residential	1	11	61.3	61.4	64.0	2.7	
34-51	B	Residential	1	11	59.3	59.4	61.8	2.5	
34-52	B	Residential	1	11	60.7	60.8	63.3	2.6	
34-53	B	Residential	7	11	59.6	59.6	62.0	2.4	
34-54	B	Residential	1	11	57.5	57.6	57.7	0.2	
34-55	B	Residential	1	11	58.2	58.3	58.7	0.5	
35-1	D	Place of Worship (Interior)	1	11	33.9	33.9	36.3	2.4	
36-1	E	Hotel Pool	1	11	66.6	66.7	69.5	2.9	
36-2	E	Hotel Pool	1	11	63.9	64.0	66.2	2.3	
37-1	D	Place of Worship (Interior)	1	11	33.3	33.3	34.7	1.4	
38-1	B	Residential	1	11	61.7	61.7	61.1	-0.6	
38-2	B	Residential	1	11	61.6	61.6	61.5	-0.1	
38-3	B	Residential	1	11	59.9	59.9	61.2	1.3	
38-4	B	Residential	1	11	60.0	60.0	61.1	1.1	
38-5	B	Residential	1	11	59.7	59.7	61.3	1.6	
38-6	B	Residential	1	11	59.2	59.2	60.9	1.7	
38-7	B	Residential	1	11	58.3	58.3	59.9	1.6	
38-8	B	Residential	1	11	59.6	59.6	61.2	1.6	

38-9	B	Residential	1	11	58.8	58.8	60.6	1.8	
38-10	B	Residential	1	11	58.9	58.9	60.6	1.7	
38-11	B	Residential	1	11	58.3	58.3	60.0	1.7	
38-12	B	Residential	1	11	57.5	57.5	59.2	1.7	
38-13	B	Residential	1	11	59.6	59.6	61.3	1.7	
38-14	B	Residential	1	11	59.6	59.6	61.3	1.7	
38-15	B	Residential	1	11	59.6	59.6	61.3	1.7	
38-16	B	Residential	1	11	59.7	59.7	61.5	1.8	
38-17	B	Residential	1	11	59.1	59.1	61.0	1.9	
38-18	B	Residential	1	11	58.2	58.2	60.1	1.9	
38-19	B	Residential	1	11	57.6	57.6	59.4	1.8	
38-20	B	Residential	1	11	60.0	60.0	61.9	1.9	
38-21	B	Residential	1	11	58.5	58.5	60.4	1.9	
38-22	B	Residential	1	11	58.0	57.9	59.9	1.9	
38-23	B	Residential	1	11	57.6	57.5	59.4	1.8	
38-24	B	Residential	1	11	60.0	60.0	62.0	2.0	
38-25	B	Residential	1	11	59.5	59.5	61.2	1.7	
38-26	B	Residential	1	11	58.3	58.4	60.2	1.9	
38-27	B	Residential	1	11	57.7	57.7	59.5	1.8	
38-28	B	Residential	1	11	60.1	60.1	62.1	2.0	
38-29	B	Residential	1	11	62.4	62.5	64.1	1.7	
38-30	B	Residential	1	11	61.7	61.8	63.0	1.3	
38-31	B	Residential	1	11	58.6	58.7	60.2	1.6	
38-32	B	Residential	1	11	58.7	58.5	60.0	1.3	
38-33	B	Residential	1	11	60.3	60.4	62.3	2.0	
38-34	B	Residential	1	11	60.8	60.8	62.8	2.0	
38-35	B	Residential	1	11	60.2	60.2	62.3	2.1	
38-36	B	Residential	1	11	59.6	59.5	61.7	2.1	
38-37	B	Residential	1	11	61.1	61.1	63.2	2.1	
38-38	B	Residential	1	11	61.3	61.3	63.5	2.2	
38-39	B	Residential	1	11	60.3	60.3	62.5	2.2	
38-40	B	Residential	1	11	63.4	63.5	65.8	2.4	
38-41	B	Residential	1	11	62.6	62.6	64.8	2.2	
38-42	B	Residential	1	11	61.5	61.4	63.7	2.2	
39-1	E	Hotel Pool	1	11	68.4	68.8	67.8	-0.6	
39-2	E	Hotel Pool	1	11	67.4	67.7	67.2	-0.2	
40-1	B	Residential	1	12	64.4	64.4	63.1	-1.3	
40-2	B	Residential	1	12	61.2	61.3	62.0	0.8	
40-3	B	Residential	1	12	62.2	62.3	62.9	0.7	
40-4	B	Residential	1	12	61.3	61.3	61.7	0.4	
40-5	B	Residential	1	12	60.7	60.7	60.7	0.0	

40-6	B	Residential	4	12	60.3	60.4	61.8	1.5	
40-7	B	Residential	1	12	61.2	61.3	62.4	1.2	
40-8	B	Residential	1	12	60.4	60.5	62.0	1.6	
40-9	B	Residential	4	12	60.3	60.4	62.0	1.7	
40-10	B	Residential	1	12	59.9	60.0	61.0	1.1	
40-11	B	Residential	1	12	58.9	59.0	59.8	0.9	
40-12	B	Residential	1	12	59.2	59.3	61.0	1.8	
40-13	B	Residential	1	12	59.8	59.9	61.7	1.9	
40-14	B	Residential	1	12	59.0	59.1	60.6	1.6	
40-15	B	Residential	1	12	58.6	58.6	60.1	1.5	
40-16	B	Residential	4	12	57.9	58.1	60.0	2.1	
40-17	B	Residential	1	12	59.9	60.0	62.0	2.1	
40-18	B	Residential	1	12	59.7	59.8	61.8	2.1	
40-19	B	Residential	1	12	58.7	58.7	60.7	2.0	
40-20	B	Residential	4	12	60.1	60.2	62.4	2.3	
40-21	B	Residential	4	12	60.3	60.4	62.5	2.2	
40-22	B	Residential	1	12	59.5	59.6	61.8	2.3	
40-23	B	Residential	1	12	58.3	58.4	60.6	2.3	
40-24	B	Residential	1	12	57.6	57.7	59.9	2.3	
40-25	B	Residential	1	12	60.8	60.9	63.2	2.4	
40-26	B	Residential	2	12	60.7	60.8	63.1	2.4	
40-27	B	Residential	1	12	60.0	60.1	62.5	2.5	
40-28	B	Residential	1	12	57.7	57.9	60.0	2.3	
40-29	B	Residential	1	12	61.2	61.3	63.7	2.5	
40-30	B	Residential	1	12	60.5	60.6	63.0	2.5	
40-31	B	Residential	1	12	60.3	60.4	62.9	2.6	
40-32	B	Residential	1	12	59.5	59.7	61.9	2.4	
40-33	B	Residential	1	12	61.6	61.6	64.1	2.5	
40-34	B	Residential	1	12	57.8	58.0	60.2	2.4	
40-35	B	Residential	1	12	58.5	58.6	61.0	2.5	
40-36	B	Residential	1	12	62.4	62.5	65.0	2.6	
40-37	B	Residential	1	12	58.8	58.9	61.4	2.6	
40-38	B	Residential	1	12	63.1	63.1	65.8	2.7	
40-39	B	Residential	1	12	61.7	61.8	64.5	2.8	
40-40	B	Residential	1	12	60.2	60.3	63.0	2.8	
40-41	B	Residential	1	12	63.9	64.0	66.7	2.8	Yes
40-42	B	Residential	1	12	62.0	62.1	64.8	2.8	
40-43	B	Residential	1	12	62.4	62.5	65.4	3.0	
40-44	B	Residential	1	12	70.3	70.4	73.2	2.9	Yes
41-1	D	Place of Worship (Interior)	1	12	43.1	43.1	46.3	3.2	

41-2.1	C	Recreational Area	1	12	74.0	74.0	75.8	1.8	Yes
41-2.2	C	Recreational Area	1	12	73.9	73.9	76.2	2.3	Yes
41-2.3	C	Recreational Area	1	12	72.7	72.7	75.4	2.7	Yes
41-2.4	C	Recreational Area	1	12	69.5	69.5	71.5	2.0	Yes
41-2.5	C	Recreational Area	1	12	69.1	69.1	71.2	2.1	Yes
41-2.6	C	Recreational Area	1	12	67.8	67.8	70.1	2.3	Yes
41-2.7	C	Recreational Area	1	12	66.0	66.0	68.2	2.2	Yes
41-2.8	C	Recreational Area	1	12	65.5	65.5	67.7	2.2	Yes
41-2.9	C	Recreational Area	1	12	64.4	64.4	66.5	2.1	Yes
41-2.10	C	Recreational Area	1	12	62.7	62.7	65.0	2.3	
41-2.11	C	Recreational Area	1	12	62.4	62.4	64.7	2.3	
41-2.12	C	Recreational Area	1	12	61.9	61.9	64.3	2.4	
41-2.13	C	Recreational Area	1	12	59.8	59.8	62.5	2.7	
41-2.14	C	Recreational Area	1	12	59.9	59.9	62.3	2.4	
41-2.15	C	Recreational Area	1	12	59.4	59.5	62.0	2.6	
42-1	B	Residential	1	12	62.8	62.8	65.2	2.4	
42-2	B	Residential	1	12	64.3	64.3	66.5	2.2	Yes
42-3	B	Residential	1	12	63.3	63.3	65.5	2.2	
42-4	B	Residential	1	12	62.0	62.0	64.3	2.3	
42-5	B	Residential	1	12	60.7	60.7	63.1	2.4	
42-6	B	Residential	1	12	62.1	62.1	64.8	2.7	
42-7	B	Residential	1	12	62.8	62.8	65.2	2.4	
42-8	B	Residential	1	12	61.9	61.9	64.3	2.4	
42-9	B	Residential	1	12	60.8	60.8	63.2	2.4	
42-10	B	Residential	1	12	59.8	59.8	62.3	2.5	
43-1	B	Residential	1	12	67.6	67.6	69.9	2.3	Yes
43-2	B	Residential	1	12	64.4	64.5	66.9	2.5	Yes
43-3	B	Residential	1	12	62.8	62.9	65.2	2.4	
43-4	B	Residential	1	12	61.5	61.5	63.9	2.4	
43-5	B	Residential	1	12	59.8	59.8	61.9	2.1	
43-6	B	Residential	1	12	68.6	68.7	69.0	0.4	Yes
43-7	B	Residential	1	12	65.7	65.8	67.9	2.2	Yes
43-8	B	Residential	1	12	63.8	63.9	66.1	2.3	Yes
43-9	B	Residential	1	12	62.3	62.4	64.8	2.5	
43-10	B	Residential	1	12	60.5	60.5	62.8	2.3	

43-11	B	Residential	1	12	59.0	59.1	61.2	2.2	
43-12	B	Residential	4	12	67.0	67.1	69.7	2.7	Yes
43-13	B	Residential	4	12	66.9	67.0	69.5	2.6	Yes
43-14	B	Residential	4	12	62.9	62.9	65.9	3.0	
43-15	B	Residential	4	12	62.7	62.7	65.8	3.1	
43-16	B	Residential	4	12	69.1	69.2	71.8	2.7	Yes
43-17	B	Residential	4	12	68.6	68.6	71.2	2.6	Yes
43-18	B	Residential	4	12	63.9	64.0	66.7	2.8	Yes
43-19	B	Residential	4	12	61.8	61.8	64.8	3.0	
43-20	B	Residential	4	12	59.6	59.6	62.6	3.0	
43-21	B	Residential	4	12	57.9	58.0	60.8	2.9	
43-22	B	Residential	1	12	67.9	68.0	70.6	2.7	Yes
44-1	D	Place of Worship (Interior)	1	12	39.6	39.6	43	3.4	
44-2	C	Place of Worship (Exterior)	1	12	61.6	61.6	65.1	3.5	
45-1	B	Residential	1	12	68.8	68.8	71.5	2.7	Yes
45-2	B	Residential	1	12	66.5	66.5	69.4	2.9	Yes
45-3	B	Residential	1	12	63.9	63.9	67.2	3.3	Yes
45-4	B	Residential	1	12	61.1	61.1	64.2	3.1	
45-5	B	Residential	1	12	59.1	59.1	62.0	2.9	
45-6	B	Residential	1	12	58.1	58.1	60.9	2.8	
45-7	B	Residential	1	12	68.8	68.8	71.5	2.7	Yes
45-8	B	Residential	1	12	65.3	65.3	68.2	2.9	Yes
45-9	B	Residential	1	12	62.9	62.9	66.1	3.2	Yes
45-10	B	Residential	1	12	60.6	60.7	63.7	3.1	
45-11	B	Residential	1	12	58.9	58.9	61.7	2.8	
45-12	B	Residential	1	12	57.3	57.3	60.0	2.7	
45-13	B	Residential	1	12	67.8	67.8	70.2	2.4	Yes
45-14	B	Residential	1	12	64.3	64.3	66.6	2.3	Yes
45-15	B	Residential	1	12	61.8	61.8	64.2	2.4	
45-16	B	Residential	1	12	60.0	60.0	62.4	2.4	
45-17	B	Residential	1	12	57.6	57.6	59.9	2.3	
45-18	B	Residential	1	12	67.8	67.8	68.7	0.9	Yes
45-19	B	Residential	1	12	63.4	63.4	64.3	0.9	
45-20	B	Residential	1	12	59.0	59.0	60.9	1.9	
45-21	B	Residential	1	12	57.5	57.5	59.7	2.2	
45-22	B	Residential	1	12	64.0	64.0	65.1	1.1	
45-23	B	Residential	1	12	62.1	62.1	63.4	1.3	
45-24	B	Residential	1	12	61.0	61.0	62.6	1.6	
45-25	B	Residential	1	12	59.4	59.4	60.9	1.5	

45-26	B	Residential	1	12	72.5	72.5	72.0	-0.5	Yes
45-27	B	Residential	1	12	69.2	69.2	69.4	0.2	Yes
45-28	B	Residential	1	12	65.4	65.4	65.9	0.5	
45-29	B	Residential	1	12	63.5	63.6	64.3	0.8	
45-30	B	Residential	1	12	61.4	61.5	62.5	1.1	
45-31	B	Residential	1	12	60.1	60.1	61.5	1.4	
45-32	B	Residential	1	12	58.4	58.4	60.1	1.7	
46-1	B	Residential	4	13	61.8	61.8	64.7	2.9	
46-2	B	Residential	4	13	61.2	61.2	64.2	3	
46-3	B	Residential	4	13	59.8	59.8	62.6	2.8	
46-4	B	Residential	4	13	58.4	58.4	61.1	2.7	
46-5	B	Residential	4	13	57.4	57.4	60.1	2.7	
46-6	B	Residential	4	13	55.7	55.7	58.4	2.7	
46-7	B	Residential	4	13	56.9	56.9	59.6	2.7	
46-8	B	Residential	4	13	56.1	56.1	58.8	2.7	
46-9	B	Residential	1	13	60.7	60.7	63.3	2.6	
46-10	B	Residential	1	13	61.7	61.7	64.1	2.4	
46-11	B	Residential	1	13	59.5	59.5	62.3	2.8	
46-12	B	Residential	1	13	61.8	61.8	64.0	2.2	
46-13	B	Residential	1	13	61.4	61.4	63.8	2.4	
46-14	B	Residential	1	13	60.7	60.8	63.3	2.6	
46-15	B	Residential	1	13	60.4	60.4	63.0	2.6	
46-16	B	Residential	1	13	59.7	59.8	62.5	2.8	
46-17	B	Residential	1	13	59.3	59.3	62.1	2.8	
46-18	B	Residential	1	13	61.7	61.7	64.0	2.3	
46-19	B	Residential	1	13	61.8	61.8	64.4	2.6	
46-20	B	Residential	1	13	61.4	61.4	64.0	2.6	
46-21	B	Residential	1	13	61.2	61.2	63.8	2.6	
46-22	B	Residential	1	13	60.7	60.7	63.3	2.6	
46-23	B	Residential	1	13	60.1	60.1	62.8	2.7	
46-24	B	Residential	1	13	62.4	62.4	65.0	2.6	
46-25	B	Residential	1	13	62.4	62.4	65.0	2.6	
46-26	B	Residential	1	13	62.1	62.1	64.9	2.8	
46-27	B	Residential	1	13	61.5	61.5	64.2	2.7	
46-28	B	Residential	1	13	61.1	61.1	63.9	2.8	
46-29	B	Residential	1	13	66.0	66.0	68.7	2.7	Yes
46-30	B	Residential	1	13	64.3	64.3	66.8	2.5	Yes
46-31	B	Residential	1	13	61.9	61.9	64.5	2.6	
46-32	B	Residential	1	13	60.1	60.1	62.9	2.8	
46-33	B	Residential	1	13	58.2	58.2	61.0	2.8	
46-34	B	Residential	1	13	56.8	56.8	59.5	2.7	

47-1	B	Residential	1	13	59.1	59.2	63.3	4.2	
47-2	B	Residential	1	13	56.0	56.0	59.9	3.9	
47-3	B	Residential	1	13	59.5	59.5	63.6	4.1	
47-4	B	Residential	1	13	57.7	57.7	61.8	4.1	
47-5	B	Residential	1	13	56.2	56.2	60.1	3.9	
47-6	B	Residential	1	13	72.3	72.3	76.0	3.7	Yes
47-7	B	Residential	1	13	67.9	67.9	71.0	3.1	Yes
47-8	B	Residential	1	13	60.7	60.7	64.2	3.5	
47-9	B	Residential	1	13	57.0	57.0	60.6	3.6	
47-10	B	Residential	1	13	57.3	57.3	60.6	3.3	
47-11	B	Residential	1	13	57.3	57.3	60.4	3.1	
47-12	B	Residential	1	13	57.0	57.0	60.0	3.0	
47-13	B	Residential	1	13	56.0	56.0	58.8	2.8	
47-14	B	Residential	1	13	66.7	66.7	67.3	0.6	Yes
47-15	B	Residential	1	13	67.2	67.3	67.6	0.4	Yes
47-16	B	Residential	1	13	64.2	64.2	65.5	1.3	
47-17	B	Residential	1	13	67.1	67.1	67.5	0.4	Yes
47-18	B	Residential	1	13	67.2	67.2	67.9	0.7	Yes
47-19	B	Residential	1	13	67.5	67.5	68.5	1.0	Yes
47-20	B	Residential	1	13	64.0	64.0	65.4	1.4	
47-21	B	Residential	1	13	67.5	67.5	68.6	1.1	Yes
47-22	B	Residential	1	13	64.0	64.0	65.6	1.6	
47-23	B	Residential	1	13	67.7	67.7	68.6	0.9	Yes
47-24	B	Residential	1	13	64.3	64.3	66.0	1.7	Yes
47-25	B	Residential	1	13	67.7	67.7	68.0	0.3	Yes
47-26	B	Residential	1	13	64.4	64.4	66.0	1.6	Yes
47-27	B	Residential	1	13	62.1	62.1	63.9	1.8	
47-28	B	Residential	1	13	67.6	67.6	67.6	0.0	Yes
47-29	B	Residential	1	13	64.8	64.8	66.5	1.7	Yes
47-30	B	Residential	1	13	67.6	67.6	67.3	-0.3	Yes
47-31	B	Residential	1	13	64.8	64.8	66.1	1.3	Yes
47-32	B	Residential	1	13	64.4	64.4	65.4	1.0	
47-33	B	Residential	1	13	67.5	67.5	67.0	-0.5	Yes
47-34	B	Residential	1	13	64.2	64.2	64.9	0.7	
47-35	B	Residential	1	13	67.1	67.1	66.9	-0.2	Yes
47-36	B	Residential	1	13	64.3	64.3	64.8	0.5	
47-37	B	Residential	1	13	64.3	64.3	64.3	0.0	
48-1	D	Place of Worship (Interior)	1	13	43.4	43.4	45.4	2.0	
48-2	D	Place of Worship (Interior)	1	13	41.9	41.9	42	0.1	

49-1	B	Residential	1	14	73.6	73.6	77.3	3.7	Yes
49-2	B	Residential	1	14	69.4	69.4	72.1	2.7	Yes
49-3	B	Residential	1	14	64.0	64.0	67.8	3.8	Yes
49-4	B	Residential	1	14	62.3	62.3	66.3	4.0	Yes
49-5	B	Residential	1	14	60.7	60.8	64.7	4.0	
50-1	B	Residential	1	14	59.0	59.3	61.3	2.3	
50-2	B	Residential	1	14	59.7	60.0	61.8	2.1	
50-3	B	Residential	1	14	59.6	59.8	61.7	2.1	
50-4	B	Residential	1	14	59.7	60.0	62.1	2.4	
50-5	B	Residential	1	14	60.1	60.4	62.1	2.0	
50-6	B	Residential	1	14	60.2	60.4	62.4	2.2	
50-7	B	Residential	1	14	59.0	59.3	61.1	2.1	
50-8	B	Residential	1	14	58.7	58.9	60.8	2.1	
50-9	B	Residential	1	14	59.2	59.4	61.3	2.1	
50-10	B	Residential	1	14	60.1	60.4	62.4	2.3	
50-11	B	Residential	1	14	58.5	58.8	60.7	2.2	
50-12	B	Residential	1	14	58.3	58.6	60.4	2.1	
50-13	B	Residential	1	14	58.0	58.2	60.1	2.1	
50-14	B	Residential	1	14	59.6	59.9	61.9	2.3	
50-15	B	Residential	1	14	57.9	58.2	60.4	2.5	
50-16	B	Residential	1	14	59.5	59.8	61.9	2.4	
50-17	B	Residential	1	14	57.9	58.1	60.3	2.4	
50-18	B	Residential	1	14	59.5	59.8	61.9	2.4	
50-19	B	Residential	1	14	57.7	57.9	60.2	2.5	
50-20	B	Residential	1	14	59.7	60.0	62.2	2.5	
50-21	B	Residential	1	14	57.6	57.8	60.1	2.5	
50-22	B	Residential	1	14	59.4	59.6	61.9	2.5	
50-23	B	Residential	1	14	57.5	57.7	60.1	2.6	
50-24	B	Residential	1	14	59.4	59.6	61.9	2.5	
50-25	B	Residential	1	14	57.5	57.6	60.1	2.6	
50-26	B	Residential	1	14	56.4	56.6	58.9	2.5	
50-27	B	Residential	1	14	59.3	59.5	61.9	2.6	
50-28	B	Residential	1	14	57.4	57.5	60.0	2.6	
50-29	B	Residential	1	14	57.3	57.5	60.0	2.7	
50-30	B	Residential	1	14	59.6	59.7	62.2	2.6	
50-31	B	Residential	1	14	57.3	57.4	59.9	2.6	
50-32	B	Residential	1	14	59.3	59.4	61.9	2.6	
50-33	B	Residential	1	14	57.1	57.3	59.9	2.8	
50-34	B	Residential	1	14	59.4	59.5	62.0	2.6	
50-35	B	Residential	1	14	57.0	57.1	59.8	2.8	
50-36	B	Residential	1	14	59.5	59.5	62.0	2.5	

50-37	B	Residential	1	14	57.1	57.2	59.8	2.7	
50-38	B	Residential	1	14	59.4	59.5	62.0	2.6	
50-39	B	Residential	1	14	59.4	59.4	62.0	2.6	
50-40	B	Residential	1	14	57.0	57.1	59.7	2.7	
50-41	B	Residential	1	14	56.7	56.8	59.4	2.7	
50-42	B	Residential	1	14	56.3	56.4	58.9	2.6	
50-43	B	Residential	1	14	59.4	59.4	61.9	2.5	
50-44	B	Residential	1	14	57.3	57.4	60.1	2.8	
50-45	B	Residential	1	14	59.3	59.3	61.9	2.6	
50-46	B	Residential	1	14	59.3	59.3	61.9	2.6	
50-47	B	Residential	1	14	57.5	57.6	60.3	2.8	
50-48	B	Residential	1	14	57.2	57.3	59.8	2.6	
50-49	B	Residential	1	14	58.9	59.0	61.6	2.7	
50-50	B	Residential	1	14	58.6	58.7	61.3	2.7	
50-51	B	Residential	1	14	57.8	57.9	60.7	2.9	
50-52	B	Residential	1	14	57.6	57.7	60.4	2.8	
50-53	B	Residential	1	14	57.2	57.3	59.9	2.7	
50-54	B	Residential	1	14	58.6	58.6	61.6	3.0	
50-55	B	Residential	1	14	57.9	57.9	60.7	2.8	
50-56	B	Residential	1	14	58.2	58.2	61.1	2.9	
50-57	B	Residential	1	14	59.4	59.4	62.2	2.8	
50-58	B	Residential	1	14	58.9	58.9	61.7	2.8	
50-59	B	Residential	1	14	60.0	60.1	63.0	3.0	
50-60	B	Residential	1	14	59.2	59.2	62.1	2.9	
50-61	B	Residential	1	14	58.7	58.8	61.6	2.9	
50-62	B	Residential	1	14	58.2	58.2	61.1	2.9	
50-63	B	Residential	1	14	60.2	60.2	63.2	3.0	
50-64	B	Residential	1	14	59.5	59.5	62.3	2.8	
50-65	B	Residential	1	14	59.0	59.1	62	3.0	
50-66	B	Residential	1	14	58.4	58.4	61.3	2.9	
50-67	B	Residential	1	14	60.5	60.5	63.5	3.0	
50-68	B	Residential	1	14	60.6	60.6	63.5	2.9	
50-69	B	Residential	1	14	59.2	59.3	62.1	2.9	
50-70	B	Residential	1	14	58.7	58.7	61.6	2.9	
50-71	B	Residential	1	14	58.1	58.1	60.9	2.8	
50-72	B	Residential	1	14	60.5	60.5	63.3	2.8	
50-73	B	Residential	1	14	60.5	60.6	63.3	2.8	
50-74	B	Residential	1	14	59.2	59.2	62.1	2.9	
50-75	B	Residential	1	14	60.3	60.3	63.1	2.8	
50-76	B	Residential	1	14	58.4	58.4	64.1	5.7	
51-1	B	Residential	1	15	60.9	60.9	63.5	2.6	

51-2	B	Residential	1	15	60.3	60.3	63.5	3.2	
51-3	B	Residential	1	15	59.2	59.2	62.5	3.3	
51-4	B	Residential	1	15	60.8	60.8	64.4	3.6	
51-5	B	Residential	1	15	61.4	61.4	65.2	3.8	
51-6	B	Residential	1	15	61.7	61.7	65.7	4.0	
51-7	B	Residential	1	15	60.0	60.0	62.9	2.9	
51-8	B	Residential	1	15	59.7	59.7	62.4	2.7	
51-9	B	Residential	1	15	58.6	58.6	61.1	2.5	
51-10	B	Residential	1	15	59.5	59.5	61.9	2.4	