Traffic Noise Study Report

Spessard Holland East-West Expressway (SR 408): Westbound Capacity Improvements from I-4 to Goldenrod Road

Project Development and Environment (PD&E) Study
Orange County, Florida
CFX Project No: 408-175

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

CFX is conducting a Project Development and Environment (PD&E) Study for capacity improvements to westbound (WB) SR 408 between Interstate 4 (I-4) and Goldenrod Road.

More than 164,000 vehicles per day travel on SR 408 with a significant portion traveling westbound in the morning from east Orlando to reach downtown and I-4. As such, the SR 408 WB lanes near downtown Orlando become congested and experience delays. Within the study area, the WB direction provides four lanes from I-4 to Bumby Avenue, five lanes from Bumby Avenue to SR 436 (Semoran Boulevard), and four lanes from SR 436 to Goldenrod Road.

The PD&E Study is evaluating the addition of one westbound lane from I-4 to Bumby Avenue and from SR 436 to Goldenrod Road, matching previous improvements between Bumby Avenue and SR 436. The study area runs along the vicinity of Binion Road and Boy Scout Road at SR 429. The project study area is illustrated in **Figure 1.**

The general objective of the PD&E Study is to provide documented information necessary for CFX to reach a decision on the type, design, and location of the proposed improvement within the project limits. The PD&E Study includes the evaluation and documentation of the physical, natural, social, and cultural environment within the corridor and the potential impacts associated with the various mobility alternatives. This analysis also addresses economic and engineering feasibility, mobility capacity and levels of service, conceptual geometry, drainage, and structures.

The goals of the project include:

- Enhance mobility of the area's growing population and economy by providing additional transportation infrastructure
- Reduce congestion and delay and increase safety
- Provide consistency with local plans and policies
- Promote regional connectivity

1.1 Build Alternative

The PD&E's preferred build alternative is illustrated in **Appendix A** and **Appendix D**. Additional engineering detail can be found in the project's associated engineering documentation.

1.2 No-Build Alternative

Consistent with FDOT guidelines, this analysis also considers an alternative that assesses what would happen to the environment in the future if this proposed project was not built. This

Alternative, called the No-Build Alternative, consists of the existing roadways within the study area, programmed improvements to existing facilities, and routine maintenance improvements to these facilities. While the No-Build Alternative does not meet project needs, it provides a baseline condition to compare and measure the proposed project's effects.

1.3 Study Objective

The objective of this report is to summarize the traffic noise analysis conducted for CFX Project #408-175. The analysis identifies the noise sensitive receptors within the study corridor, evaluates the noise levels predicted to occur due to the proposed project, and analyzes potential abatement options where noise impacts are predicted to occur.

The proposed build alternative does not include improvements in the eastbound direction. Thus, this study evaluated the noise sensitive sites south of SR 408 for impacts but did not evaluate additional abatement options beyond the existing noise walls, many of which are already at the maximum allowed heights.

Sites and communities not specifically identified in **Appendix D** are 1) not within the project limits, or 2) are located too far from the roadway to be considered noise sensitive.

Figure 1: Project Location Map

2.0 METHODOLOGY

The traffic noise study conducted for this project is consistent with *Code of Federal Regulations* (C.F.R.), Title 23, § 772; Chapter 335, Section 335.17, *Florida Statutes*; Part II, Chapter 18 of the Florida Department of Transportation's (FDOT) *Project Development and Environment Manual*; and Federal Highway Administration's (FHWA) traffic noise analysis guidelines contained in *FHWA-HEP-10-025*. The FHWA Traffic Noise Model (TNM) - version 2.5 was used to predict traffic noise levels for this project. The analysis evaluated noise levels for the existing condition and the 2045 No-Build and Build Alternatives.

Noise receptor coordinates used in the TNM are located in exterior areas where frequent human use may occur, usually at the edge of the residential structure closest to the project roadways, unless the analyst's professional judgment determines otherwise.

Project engineering design files were used to determine the design alternative's location for input into TNM. Roadway elevation data for the study was obtained from the project engineering team. Data for the noise receptors and cross streets were obtained from the United States Geological Survey digital elevation models[1].

2.1 NOISE METRICS

Sound levels for this analysis are expressed in decibels (dB) using an "A"-scale weighting, expressed as dB(A). This scale most closely approximates the response characteristics of the human ear to typical traffic sound levels. All reported sound levels are hourly equivalent noise levels [$L_{eq(h)}$]. The $L_{eq(h)}$ is defined as the equivalent steady-state sound level that, in a given hourly period, contains the same acoustic energy as the time-varying sound level for the same hourly period.

2.2 TRAFFIC DATA

Traffic noise is heavily dependent on traffic volume and speed, with the amount of noise generated by traffic increasing as the vehicle speed and number of vehicles increase. Characteristics contributing to the 2045 Design Year's highest traffic noise levels were used to predict project noise levels. Worst-case noise conditions occur with the maximum traffic traveling at the posted speed and represent a Level of Service (LOS) C operating condition. However, if the traffic analysis indicates the roadway will operate below LOS C, the project's Demand peak-hour

[1] USGS, https://apps.nationalmap.gov/lidar-explorer/#/

directional traffic volumes are used per Chapter 18 of the FDOT PD&E Manual. Traffic volumes and speeds used in the analysis are included in **Appendix B**.

2.3 NOISE ABATEMENT CRITERIA

Land use plays an important role in traffic noise analyses. To determine which land uses are "noise sensitive," this noise impact analysis used the FHWA Noise Abatement Criteria (NAC). **Table 1** shows these criteria are divided into individual land use activity categories. The FDOT has established noise levels at which noise abatement must be considered for each of these categories, referred to in this report as the FDOT NAC. Another criterion for determining project impacts that warrant abatement consideration occurs when project noise levels are below the NAC but show a substantial increase (15.0 dB(A) or more) over existing levels.

Table 1: Noise Abatement Criteria

Hourly A-Weighted Sound Level-decibels (dB(A))				Description of Activity Category
Activity Category	Activity Leq(h) [1]		Evaluation Location	
	FHWA	FDOT		
A	57.0	56.0	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need; and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67.0	66.0	Exterior	Residential.
C[2]	67.0	66.0	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, golf courses, places of worship, playgrounds, public meeting rooms, public/nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52.0	51.0	Interior	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public/nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[2]	72.0	71.0	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	-	-	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	-	-	-	Undeveloped lands that are not permitted.

(Based on Table 1 of 23 CFR Part 772)

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

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

An illustration of typical exterior and interior noises and their corresponding sound level is presented in **Table 2**. This table gives the reader a better understanding of the noise levels discussed herein. In Florida, noise levels that reach 66.0 dB(A) at Activity Category B and C land use require noise abatement consideration. A 71.0 dB(A) noise level is required for an Activity Category E land use to be impacted by traffic noise.

Table 2: Comparative Sound Levels

Common Outdoor Activity	dB(A)	Inside Activity
Jet Flyover at 1,000 ft. Gas Lawn Mower at 3 ft.	--110-- --100--	Rock Band
Diesel Truck at 50 ft. (at50 mph) Busy Urban Area Daytime	--90-- --80--	Food Blender at 3 ft. Garbage Disposal at 3 ft.
Gas Mower at 100 ft. Commercial Area Heavy Traffic at 300 ft.	--70-- --60--	Vacuum Cleaner at 10 ft. Normal Speech at 3 ft. Large Business Office
Quiet Urban Daytime Quiet Urban Nighttime Quiet Suburban Nighttime	--50-- --40--	Dishwasher Next Room Theater, Large Conference Room (Background)
Quiet Rural Nighttime	--30-- --20--	Library Bedroom at Night
Lowest Threshold of Human Hearing	--10-- --0--	Lowest Threshold of Human Hearing
Source: *California Dept. of Transportation Technical Noise Supplement, Oct. 1998, Pg. 18*		

2.4 Noise Abatement Measures

When traffic noise impacts are identified, noise abatement must be considered. The potential abatement alternatives include traffic management techniques, alternative roadway alignments, buffer zones, and noise barriers. The most common type of noise abatement measure is the

construction of a noise barrier that reduces traffic noise by blocking the sound path between the roadway and the adjacent noise receptor.

Consistent with the FDOT PD&E Manual – Chapter 18, the following factors must be evaluated to determine if a noise barrier is considered feasible and reasonable:

- To be considered acoustically feasible, the barrier must reduce traffic-related noise levels by at least 5.0 dB(A) for at least two impacted receptors. Receptors that receive the 5.0 dB(A) reduction, or higher, are defined as "benefited" by FDOT. Consequently, noise barriers are not evaluated for isolated and single receptors.
- To be considered acoustically reasonable, the noise barrier must achieve the FDOT noise reduction design goal of 7.0 dB(A) for at least one benefited receptor.
- The cost per benefited receptor (CBPR) is calculated by multiplying the barrier's total square footage by $30. Per Chapter 18, $30 per/ft^2 is the statewide average used to determine cost reasonableness regardless of barrier type (shoulder/traffic railing mounted, right-of-way post/panel, etc.) To be considered cost reasonable, the total cost of a barrier that meets all acoustical criteria should not exceed the cost of $42,000 per benefited receptor.

In some locations, noise barriers may provide a benefit to non-impacted residences. Due to design considerations or aesthetics, CFX may propose noise barriers exceeding cost reasonableness limits. An example would be extending a noise barrier to maintain community continuity (i.e., avoiding terminating a noise barrier in the middle of a community).

Consistent with the FDOT Design Manual, Section 264[2], noise barrier heights are limited as follows:

- Noise barriers on bridge and retaining wall structures are limited to a maximum height of 8 feet; unless otherwise specified;
- Shoulder-mounted noise barriers at the edge of shoulder pavement are limited to a maximum height of 14 feet; and
- Non-shoulder mounted noise barriers (i.e., post and panel) located outside the clear recovery zone are limited to a maximum height of 22 feet. If a non-shoulder barrier is placed within the clear recovery zone, it must be shielded.

Other factors must also be considered when evaluating a barrier's feasibility, including accessibility, sight distance, and aesthetics. Accessibility refers to the ingress and egress to

[2] FDOT, *FDOT Design Manual*

properties that would be affected by the construction of a noise barrier. Sight distance is a safety issue related to drivers' ability to see far enough in each direction to enter the roadway safely. Aesthetics refers to the noise barrier's physical appearance from both the highway and affected property sides.

3.0 TRAFFIC NOISE ANALYSIS

3.1 Identification of Noise Sensitive Sites

Using **Table 1** as a guide, the noise sensitive land uses analyzed within the study corridor fall under Activity Categories B [residential], C, D, and E. The Category C land uses associated with Cherokee School, Greenwood Urban Wetlands Park playground, Greenwood Cemetery, Merriday School daycare, Discover Academy daycare, Englewood Park, Community Christian Church, and the Iglesia Bautista De La Garcia Church. The Category D land use is associated with the WFTV Channel 9 building. The Category E site is the Aloft hotel pool.

No land uses in the study corridor warrant an Activity Category A analysis. A search of building permits for potentially noise sensitive Category G (undeveloped) and non-noise-sensitive Category F lands within the study area did not identify any active permits for future buildings that would be considered noise sensitive. Another search will be conducted during the final design process. Any noise sensitive land permitted between the time of this report and the approval of the Project Environmental Impact Report will be analyzed for project noise impacts if warranted.

3.2 Model Validation

Existing noise levels are measured in the project corridor to confirm if traffic is the primary noise source. These field measurements are also required to verify the accuracy of the TNM before it can be used to predict noise levels. A series of three 10-minute measurements were taken on October 18, 2022, using an Extech Instruments Model 407780 Type 2 Integrating Sound Level Meter. The sound level meter, calibrated at 114.0 dB(A) with an Extech Instruments Model 407766 calibrator, was adjusted to the A-weighted frequency scale, which approximates the frequency sensitivity of the human ear. Traffic data, including vehicle volumes, speeds by type, and meteorological conditions, were recorded during each measurement session. The data collection effort also recorded the travel speed for each type of vehicle using a Bushnell Speedster handheld radar gun.

One location within the study corridor was selected to undergo a series of three 10-minute measurements. The validation site, illustrated in **Appendix D – Page D-4**, was selected for measurement because it presented a clear view of free-flow traffic conditions on SR 408. No unusual noise events occurred during this location's three 10-minute monitoring sessions. The

weather during the monitoring session was 77°, 85% humidity, under clear skies with a mild breeze ranging from 3 to 6 m.p.h.

Validation of TNM occurs when the model-predicted noise levels are within three decibels of the field-measured levels. Since all noise levels in this analysis are based on one hour, each of the 10-minute sessions field-recorded traffic volumes was adjusted upward by a factor of "6" to reflect hourly traffic flow. Once adjusted, these volumes were input into the noise prediction model. As shown in **Table 3**, TNM predicted within the 3.0-decibel acceptance range for each 10-minute session. Consequently, the model is acceptable for predicting noise levels for this project.

Table 3: Field Measurement Data and TNM Validation Results

FIELD TRAFFIC COUNT: 10/18/2022										
Session #1: 12:46 PM										
SR 408	**Cars**		**Medium Trucks**		**Heavy Trucks**		**Buses**		**Motorcycles**	
	Volume	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**
EB	794	69	27	67	21	66	1	0	0	68
WB	772	70	35	67	34	66	1	65	1	70
Anderson	73	35	4	35	0	0	0	0	0	0
Field Measurement (dB(A)):					70.8					
TNM Prediction (dB(A)):					68.1					
Variance:					-2.7					
Session #2: 12:58 PM										
SR 408	**Cars**		**Medium Trucks**		**Heavy Trucks**		**Buses**		**Motorcycles**	
	Volume	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**
EB	711	68	34	67	26	66	0	0	3	68
WB	758	68	45	67	28	66	1	65	0	0
Anderson	67	35	2	35	0	0	0	0	0	0
Field Measurement (dB(A)):					70.7					
TNM Prediction (dB(A)):					67.9					
Variance:					-2.8					
Session #3: 1:10 PM										
SR 408	**Cars**		**Medium Trucks**		**Heavy Trucks**		**Buses**		**Motorcycles**	
	Volume	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**	**Volume**	**Avg. Speed**
EB	805	69	24	67	26	67	2	65	2	68
WB	803	70	32	67	43	66	1	65	1	70
Anderson	57	35	3	35	0	0	0	0	0	0
Field Measurement (dB(A)):					70.1					
TNM Prediction (dB(A)):					68.1					
Variance:					-2.0					

3.3 Predicted Noise Levels

Traffic on SR 408 is the dominant noise source within the project's evaluation area. For this project, 725 sites (716 Category B, seven Category C, one Category D, and one Category E) were analyzed for project-related impacts. The noise analysis divided the project corridor into three Noise Study Areas (NSA).

The 2022 existing condition and 2045 No-Build and Build Alternative noise analysis results discussed in this section are also presented in a noise impact comparison matrix in **Appendix C.** A summary of the results is provided in **Table 3**.

Eighty-five Category B receptors and three special use sites (two Category C and one Category E) currently experience noise levels that meet or exceed their respective FDOT NAC. Predicted noise levels for the No-Build Alternative meet or exceed the NAC at 87 Category B and three special use sites (two Category C and one Category E). By comparison, the Build Alternative is predicted to meet or exceed the NAC at 179 residential receptors and four special use sites (three Category C and one Category E), with an average 1.1 dB(A) increase in noise over the existing condition. The greatest increase over existing is 8.3 dB(A); thus, none of the noise increases are considered substantial (defined as 15 dB(A) or higher).

When discussing noise level increases, the general rule that applies to perception is:

- A 3 dB(A) increase is barely perceptible to most people.
- A 5 dB(A) increase is noticeable to most people.
- A 10 dB(A) increase is perceived as twice as loud and considered a doubling noise.

A discussion of each NSA and the corresponding impact and abatement analysis is provided in the following sections. A set of project aerials illustrating the NSA's and analyzed sites is included in **Appendix D**.

3.3.1 Noise Study Area 1

NSA 1 comprises the area SR 408 between I-4 and Margaret Court. Because there are no noise sensitive sites, this area was not analyzed for noise impacts. This NSA is illustrated in **Appendix D: Page D-1**.

3.3.2 Noise Study Area 2

Across from NSA 1, north of SR 408, is NSA 2, which consists of residences in the multi-story Grande Downtown Condominiums (receptors 2-1 through 2-8), the Aloft Hotel pool (SLU2-1), and the WFTV Channel 9 building (SLU2-2) special use sites. The residences are part of the multi-story and are represented by receptors 2-1 through 2-8. The condominium buildings have seven floors, with each unit having individual balconies. The noise analysis assigned a specific letter to indicate the floor on which a unit is located. The letter "a" represents ground-floor units, "b" represents 2nd-floor units, "c" represents 3rd-floor units, etc. Receptors 2-1 through 2-4 have balconies facing the interior courtyard, while receptors 2-5 through 2-8 have balconies facing SR 408. This NSA is illustrated in **Appendix D: Pages D-2 through D-4**.

Currently, the average noise level for all NSA 2 receptors is 60.4 dB(A), with the highest noise level being 75.7 dB(A) at receptors 2-6c and 2-6d. Twenty-four condo units represented by receptors 2-5a through 2-7f currently meet or exceed the 66.0 dB(A) FDOT NAC and continue to do so under the No-Build Alternative. Once the project is built, 23 sites are predicted to exceed the impact criterion.

Likewise, Receptor SLU2-1 currently has a noise level that exceeds the Category E 71.0 dB(A) NAC and continues to do so under the No-Build Alternative. Once the project is built, this receptor is predicted to have a project-related noise level of 71.7 dB(A); thus, it is considered impacted because it exceeds the impact criterion.

The Channel 9 building (SLU2-2) does not have an area of frequent exterior use. However, because it is a television studio, it was evaluated as an Activity Category D site. Using the metrics outlined in the PD&E Manual – Chapter 18, a Category D analysis accounts for the type of construction (i.e., light frame vs. masonry) and window type/condition, but does not account for additional interior soundproofing that may be in place. The interior sound level is calculated by subtracting 35 dB(A) (masonry and no windows) from the predicted exterior noise level. Currently, the exterior noise level is 65.8 dB(A); therefore, the existing interior noise level is 30.8 dB(A) and below the Category D 51.0 dB(A) NAC. The predicted interior noise level under the No-Build Alternative is also below the NAC at 30.9 dB(A). The Channel 9 site is predicted to have an interior noise level of 32.0 dB(A) with the build condition. Because the noise level is below the NAC, the Channel 9 building is not considered impacted.

The overall traffic noise levels in this NSA increase by an average of 0.3 dB(A), with the average project-related noise level predicted to be 60.7 dB(A). Receptor 2-6e has the highest build-related noise level, 76.4 dB(A), which is a 1.0 dB(A) increase over the existing condition. None of the increases over existing are considered substantial.

Because the predicted noise levels exceed NAC for the 23 residences and the hotel pool, they are considered impacted. Noise abatement was considered to mitigate these impacts, as summarized in **Section 3.4.1** and **Section 3.4.2**

3.3.3 Noise Study Area 3

NSA 3 is south of SR 408 from Margaret Court to Mills Avenue. Within this NSA, existing noise barriers are either along the eastbound shoulder edge of pavement (EOP) or offset from the EOP. The project does not involve improvements to the eastbound side; thus, the project does not affect the existing noise walls that currently provide effective noise reduction to most of the receptors within this NSA. Eighty-seven residences represented by receptors 3-1 through 3-52, and one Category C special use site (SLU3-1) were analyzed for project noise impacts. Receptor SLU3-1 represents the Orange County School Board's Cherokee School courtyard and playground area. The playground area is located on the interior courtyard side of the structure. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Pages D-2 through D-4**.

Currently, the average noise level for NSA 3 is 63.8 dB(A), with the highest noise level being 67.4 dB(A) at receptor 3-33. Currently, seven sites represented by receptors 3-1, 3-24, and 3-32 through 3-34 are affected by traffic noise and are predicted to be impacted by the No-Build Alternative. Once the project is built, the overall traffic noise levels increase by an average of 0.3 dB(A), with the average project-related noise level predicted to be 64.0 dB(A). Eight sites are predicted to meet or exceed the FDOT NAC. Receptor 3-33 has the highest predicted build noise level (67.9 dB(A)). None of the increases over existing are considered substantial.

Because the predicted noise levels meet or exceed the 66.0 dB(A) FDOT NAC at eight residential receptors, they are considered impacted. However, since the project is not proposing improvements in the eastbound direction, and the existing noise walls were constructed at or near the maximum allowed heights, additional abatement consideration was not warranted.

3.3.4 Noise Study Area 4

NSA 4 is north of SR 408 across from NSA 3 from Summerlin Avenue to Mills Avenue. Within this NSA, existing noise barriers are either along the eastbound shoulder edge of pavement (EOP) or offset from the EOP. The proposed improvements involve expanding the SR 408 footprint width; thus, the portions of the existing barrier will be removed as part of the project. Thirty-five residential sites, represented by receptors 4-1 through 4-18, were evaluated for project noise

impacts. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Pages D-3 and D-4**.

Currently, the average noise level for NSA 4 is 62.0 dB(A), with the highest noise level being 65.0 dB(A) at receptor 4-3. No sites are currently affected by traffic noise, nor are any impacted under the No-Build Alternative. Once the project is built, the overall traffic noise levels increase by an average of 3.3 dB(A), with the average project-related noise level predicted to be 65.4 dB(A). Five sites represented by receptors 4-3, 4-9, and 4-12 through 4-14 are predicted to exceed the 66.0 dB(A) impact criterion. Receptor 4-9 has the highest predicted build noise level (68.1 dB(A)). None of the increases over existing are considered substantial.

Because the predicted noise levels exceed NAC for the five residences, they are considered impacted. Noise abatement was considered to mitigate these impacts, as summarized in **Section 3.4.3**.

3.3.5 Noise Study Area 5

NSA 5 is south of SR 408 from Mills Avenue to Bumby Avenue. Within this NSA, existing noise barriers are along the eastbound shoulder edge of pavement (EOP). The project does not involve improvements to the eastbound side; thus, the project does not affect the existing noise walls that currently provide effective noise reduction to most of the receptors within this NSA. Thirty-nine residential sites, represented by receptors 5-1 through 5-30, and two Category C special use sites (SLU 5-1 and SLU 5-2) were analyzed for project noise impacts. Receptor SLU5-1 represents the Greenwood Urban Wetland Park playground, and receptors SLU5-2 and SLU5-2.1 represent approximately 5 acres of the nearly 70-acre Greenwood Cemetery.

This NSA and its associated receptors and existing barriers are illustrated in **Appendix D: Pages D-4 and D-5**

Currently, the average noise level for all NSA 5 receptors is 63.7 dB(A), with the highest noise level being 68.4 dB(A) at residential receptor 5-11. Eight residential sites and the cemetery are currently affected by traffic noise and will continue to do so under the No-Build Alternative. Once the project is built, the overall traffic noise levels increase by an average of 0.3 dB(A), with the average project-related noise level predicted to be 64.0 dB(A). The same nine sites that meet or exceed the NAC under No-Build Alternative are also predicted to be impacted by the Build Alternative. Receptor 5-11 has the highest predicted build noise level (68.7 dB(A)). None of the increases over existing are considered substantial.

Because the predicted noise levels for the nine sites meet or exceed the 66.0 dB(A) FDOT NAC, they are considered impacted. However, since the project is not proposing improvements in the

eastbound direction and the existing noise walls are at the maximum allowed height, additional abatement consideration was not warranted.

3.3.6 Noise Study Area 6

NSA 6 is north of SR 408, across from NSA 5, and contains 104 residences that were evaluated for project noise impacts (receptors 6-1 through 6-44). Within this NSA, existing noise barriers are either along the eastbound shoulder edge of pavement (EOP) or offset from the EOP. The proposed improvements involve expanding the SR 408 footprint width; thus, a substantial portion of the existing barrier will be removed as part of the project. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Pages D-4 and D-5**.

Currently, the average noise level is 65.0 dB(A), with the highest noise level being 68.7 dB(A) at receptor 6-30. Twenty-six sites are currently affected by traffic noise and will continue to be affected under the No-Build Alternative. Once the project is built and the existing noise barrier is removed, the overall traffic noise levels increase by an average of 4.6 dB(A), with the average project-related noise level predicted to be 69.6 dB(A). Ninety-eight sites are predicted to exceed the 66.0 dB(A) impact criterion because of the project and removal of the existing wall. Receptor 6-24 has the highest predicted build noise level (75.7 dB(A)). None of the increases over existing are considered substantial.

Because the predicted noise levels exceed NAC for the 98 residences, they are considered impacted. Replacement of the existing noise wall was considered to mitigate these impacts, as summarized in **Section 3.4.3**.

3.3.7 Noise Study Area 7

NSA 7 is south of SR 408 from Bumby Avenue to Crystal Lake Drive. Within this NSA, existing noise barriers are along the eastbound shoulder edge of pavement (EOP). The project does not involve improvements to the eastbound side; thus, the project does not affect the existing noise walls that currently provide effective noise reduction to most of the receptors within this NSA. Fifty-six residences, represented by receptors 7-1 through 7-36, were evaluated for noise impacts. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Pages D-5 and D-6**.

Currently, the average noise level in this NSA is 63.6 dB(A), with the highest noise level being 65.8 dB(A) at receptor 7-7. None of the sites are affected by traffic noise, nor are they predicted to be impacted by the No-Build or Build Alternatives. The average project-related noise increase over existing conditions is 0.1 dB(A), with the highest increase being 0.2 dB(A). None of the increases over existing are considered substantial.

3.3.8 Noise Study Area 8

NSA 8 is north of SR 408, across from NSA 7. Within this NSA, existing noise barriers are either along the eastbound shoulder edge of pavement (EOP). The proposed improvements involve expanding the SR 408 footprint width; thus, a large portion of the existing barrier will be removed as part of the project. Twelve residential sites (receptors 8-1 through 8-5) and two Category C special use sites (SLU8-1 and SLU8-2) were analyzed for noise impacts. Receptors SLU8-1 and SLU8-2 represent the Category C Merriday School daycare and Discover Academy daycare, respectively. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Pages D-5 and D-6**.

Currently, the average noise level for 14 analyzed sites in NSA 8 is 63.8 dB(A), with the highest noise level being 66.9 dB(A) at receptor SLU8-2. SLU8-2 is currently the only receptor affected by traffic noise and will continue to be affected under the No-Build Alternative. Once the project is built and the portion of the existing noise barrier is removed, the overall traffic noise levels increase by an average of 2.1 dB(A), with the average project-related noise level predicted to be 65.9 dB(A). Ten sites (eight residential and two daycare buildings) are predicted to exceed the 66.0 dB(A) impact criterion because of the project and removal of the existing wall. Receptor 8-2 has the highest predicted build noise level (67.0 dB(A)). None of the increases over existing are considered substantial.

Because the predicted noise levels exceed NAC for the ten receptors, they are considered impacted. Replacement of the existing noise wall was considered to mitigate these impacts, as summarized in **Section 3.4.4**.

3.3.9 Noise Study Area 9

NSA 9 is south of SR 408 from SR 436 (Semoran Boulevard) to Oxalis Avenue. Fifty-eight residential sites (receptors 9-1a through 9-15) and the Category C special land use Englewood Park (SLU9-1) were analyzed for noise impacts. Within this NSA, existing noise barriers are along the eastbound shoulder edge of pavement (EOP). The project does not involve improvements to the eastbound side; thus, the project does not affect the existing noise walls that currently provide effective noise reduction to the 59 analyzed receptors within this NSA. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Pages D-7 and D-8**.

Currently, the average noise level for all NSA 9 receptors is 62.2 dB(A), with the highest noise level being 65.2 dB(A) at receptor 9-1b in the Lake Underhill Gardens apartments. Currently, none of the analyzed sites are affected by traffic noise, nor are they predicted to be impacted by the No-Build or Build Alternatives. After the project is built, the average noise level is predicted to be 62.4 dB(A), with the highest noise level being 65.4 at receptor 9-1b. The average project-related

noise increase over existing conditions is 0.2 dB(A), with the highest increase being 0.3 dB(A). None of the increases over existing are considered substantial.

3.3.10 Noise Study Area 10

NSA 10 is north of SR 408, across from NSA 9. Forty-four residences, represented by receptors 10-1 through 10-30, were evaluated for noise impacts. Within this NSA, existing noise barriers are along the eastbound shoulder edge of pavement (EOP). The proposed improvements involve expanding the SR 408 footprint width between the Yucatan Drive overpass and the exit ramp toll facility, and widening the bridge structure over Oxalis Avenue. Because of this change, portions of the existing noise barrier will be removed as part of the project. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Pages D-7 and D-8**.

Currently, the average noise level for 44 analyzed sites in NSA 10 is 62.3 dB(A), with the highest noise level being 67.1 dB(A) at receptor 10-15. Receptor 10-15 is currently affected by traffic noise and will continue to be affected under the No-Build Alternative. The main source of noise for receptor 10-15 is SR 436, not SR 408. Once the project is built and the portion of the existing noise barrier is removed, the overall traffic noise levels increase by an average of 1.6 dB(A), with the average project-related noise level predicted to be 63.9 dB(A). Eight sites are predicted to exceed the 66.0 dB(A) impact criterion because the project removes the existing wall. The lone exception is for receptor 10-15, which is impacted due to its proximity to SR 436, not SR 408. Receptor 10-15 has the highest predicted build noise level (67.6 dB(A)), and the next highest level is 67.0 for receptor 10-1. None of the increases over existing are considered substantial.

Because the predicted noise levels exceed NAC for the seven impacted receptors adjacent to SR 408, they are considered impacted. Replacement of the existing noise wall was considered to mitigate these impacts, as summarized in **Section 3.4.5**.

3.3.11 Noise Study Area 11

NSA 11 is south of SR 408 from Oxalis Avenue to the overhead powerline that traverses SR 408. Within this NSA, existing noise barriers are along the eastbound shoulder edge of pavement (EOP). The project does not involve improvements to the eastbound side; thus, the project does not affect the existing noise walls that currently provide effective noise reduction to most of the receptors within this NSA. Forty residences, represented by receptors 11-1 through 11-19) were analyzed for noise impacts. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Page D-8**.

None of the 40 analyzed sites are currently affected by traffic noise, nor are they predicted to be impacted by the No-Build or Build Alternatives. Currently, the average noise level for all NSA 11

receptors is 63.3 dB(A), with the highest noise level being 65.2 dB(A) at receptor 11-13. After the project is built, the average noise level is predicted to be 63.5, with the highest noise level being 65.3 at receptor 11-13. The average project-related noise increase over existing conditions is 0.2 dB(A), with the highest increase being 0.3 dB(A). None of the increases over existing are considered substantial.

3.3.12 Noise Study Area 12

NSA 12 is north of SR 408, across from NSA 11. Within this NSA, existing noise barriers are either along the eastbound shoulder edge of pavement (EOP) or offset from the EOP. The proposed improvements include expanding the bridge structure over Oxalis Avenue. Because of this change, portions of the existing barrier will be removed as part of the project. Eighteen residences, represented by receptors 12-1 through 12-10, were analyzed for noise impacts. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Page D-8**.

Currently, the average noise level for 18 analyzed sites in NSA 12 is 62.0 dB(A), with the highest noise level being 63.9 dB(A) at receptor 12-7. None of the sites are currently affected by traffic noise, nor are they predicted to be impacted by the No-Build Alternative. Once the project is built and the portion of the existing noise barrier over Oxalis Avenue is removed, the overall traffic noise levels increase by an average of 1.6 dB(A), with the average project-related noise level predicted to be 63.5 dB(A). Receptor 12-1 is the only site predicted to exceed the 66.0 dB(A) impact criterion because the project removes the existing wall. Receptor 12-1 also has the highest predicted build noise level (67.8 dB(A)). None of the increases over existing are considered substantial.

Because the predicted noise levels exceed NAC for the impacted receptor, it is considered impacted. Replacement of the existing noise wall was considered to mitigate this impact, as summarized in **Section 3.4.5**.

3.3.13 Noise Study Area 13

NSA 13 is south of SR 408 from the overhead powerline to Goldenrod Road. Within this NSA, existing noise barriers are along the eastbound shoulder edge of pavement (EOP) and end east of the Cosmos Drive overpass. The project does not involve improvements to the eastbound side; thus, the project does not affect the existing noise walls that currently provide effective noise reduction to most of the receptors within this NSA. Thirteen residences, represented by receptors 13-1 through 13-6, and two Category C special land uses (SLU13-1 and SLU13-2) were analyzed for noise impacts. Receptors SLU13-1 and SLU13-2 represent the Community Christian Church and the Iglesia Bautista De La Garcia Church, respectively. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Page D-9**.

Nine of the 13 analyzed residential sites are currently affected by traffic noise and are predicted to be impacted by the No-Build and Build Alternatives. The two churches are not impacted. Currently, the average noise level for all NSA 13 receptors is 66.4 dB(A), with the highest noise level being 69.0 dB(A) at receptor 13-3. After the project is built, the average noise level is predicted to be 66.5 dB(A), with the highest noise level being 69.1 at receptor 13-3. The average project-related noise increase over existing conditions is 0.1 dB(A), with the highest increase being 0.1 dB(A). None of the increases over existing are considered substantial.

Because the predicted noise levels for the nine sites meet or exceed the 66.0 dB(A) FDOT NAC, they are considered impacted. However, since the project is not proposing improvements in the eastbound direction and the existing walls are at the maximum allowed height, additional abatement consideration was not warranted.

3.3.14 Noise Study Area 14

NSA 14 is north of SR 408, across from NSA 13. Within this NSA, existing noise barriers are either along the eastbound shoulder edge of pavement (EOP) or offset from the EOP. The proposed improvements are within the current footprint and include restriping; thus, the existing noise barrier adjacent to NSA 14 will not be affected. Seventy-eight residences, represented by receptors 14-1 through 14-26d, were analyzed for noise impacts. This NSA, its associated receptors, and existing barriers are illustrated in **Appendix D: Page D-9**.

Currently, the average noise level for 78 analyzed sites in NSA 14 is 64.7 dB(A), with the highest noise level being 72.5 dB(A) at receptor 14-25d. Ten sites are currently affected by traffic noise, while 11 sites are predicted to be impacted by the No-Build and Build Alternatives. Once the project is built, the overall traffic noise levels increase by an average of 1.6 dB(A), with the average project-related noise level predicted to be 64.8 dB(A). Receptor 14-25d has the highest predicted build noise level (72.6 dB(A)). None of the increases over existing are considered substantial.

Because the predicted noise levels for the 11 sites meet or exceed the 66.0 dB(A) FDOT NAC, they are considered impacted. Except for the Oasis at Crosstown apartments receptors 14-25a/b/c/d and 14-26a/b/c/d, the impacted receptors are included in the barrier analysis conducted for NSAs 10 and 12, as summarized in **Section 3.4.5**. The project does not propose any improvements to the westbound entry ramps, mainline, or structure over Goldenrod Road in the vicinity of apartment receptors; therefore, abatement consideration for the apartments is not warranted.

3.4 Barrier Analysis

Four noise barriers were evaluated to mitigate the impacts resulting from the project.

3.4.1 Noise Barrier WB-A1

The Aloft hotel pool, represented by receptor SLU2-1, is an exterior area where people may congregate; thus, it is considered a special use site which requires a two-phased approach to determine feasibility and reasonableness. The first phase determines feasibility. If the barrier meets feasibility requirements, it will undergo a special use cost reasonableness analysis.

Barrier WB-A1, illustrated in **Appendix E - Page E-2,** was evaluated parallel to the westbound SR 408 to eastbound I-4 flyover ramp and placed at the EOP. As shown in **Table 4**, at the maximum height of 8 feet and length of 1,218, the barrier provides only 0.6 dB(A) of noise reduction to the pool; thus, it cannot meet the minimum 5.0 dB(A) noise reduction requirement. Barrier WB-A1 is not considered feasible and has been removed from further consideration during the final design process.

Table 4: Noise Barrier WB-A1 Evaluation Summary

NSA 2: Barrier WB-A1 Evaluation Summary													
Evaluated Barrier Options				Number of Impacted Sites	Number of Impacted Sites Within a Noise Reduction Range			Number of Benefited Sites *1				Total Estimated Cost *4	Recommended for further consideration in final design?
Option	Barrier Type/Location	Height (feet)*6	Length (feet)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Avg / Max Reduction dB(A)		
Option 1	Ramp/Flyover Shoulder	8	1,218	1 Special Use Site	0	0	0	0	0	0	0.6 / 0.6	$ 292,320	No*1

*1 = Minimum of 5.0 dB(A) required to be considered benefited by noise barrier.
*2 = FDOT Noise Reduction Design Goal is 7.0 dB(A) at a minimum of 1 benefited receptor.
*3 = Refers to non-impacted noise-sensitive sites.
*4 = Based on FDOT Statewide average of $30 per square foot.
*5 = FDOT Reasonable Cost Guideline is $42,000.
*6 = 8-ft max on MSE/Bridge; 14-ft max on shoulder; 22-ft max at ROW or offset from shoulder.

3.4.2 Noise Barrier WB1

To abate for impacts to the 23 Grande Downtown condominiums in NSA 2, Barrier WB1 was evaluated parallel to westbound SR 408 and placed at the EOP on top of the MSE wall and bridge structure. As shown in **Table 5**, the 8-foot tall [maximum allowed height] and 545-foot long barrier meets all FDOT acoustic and cost criteria and benefits six impacted residences, all on the second and third floors. No barrier scenarios are available to provide meaningful noise reduction to the balconies on floors four through seven. Barrier WB1, as illustrated in **Appendix E – Page 3**, is recommended for further consideration during the project's final design phase.

Table 5: Noise Barrier WB1 Evaluation Summary

NSA 2: Barrier WB1 Evaluation Summary														
Evaluated Barrier Options				Number of Impacted Residential Sites	Number of Impacted Sites Within a Noise Reduction Range			Number of Benefited Sites *1				Total Estimated Cost *4	Cost per Benefited Receptor *5	Recommended for further consideration in final design?
Option	Barrier Type/Location	Height (feet) *6	Length (feet)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Avg / Max Reduction dB(A)			
Option 1	MSE/Shoulder	8	545	23	4	1	1	6	0	6	6.2 / 8.2	$ 130,800	$ 21,800	Yes

*1 = Minimum of 5.0 dB(A) required to be considered benefited by noise barrier.
*2 = FDOT Noise Reduction Design Goal is 7.0 dB(A) at a minimum of 1 benefited receptor.
*3 = Refers to non-impacted noise-sensitive sites.
*4 = Based on FDOT Statewide average of $30 per square foot.
*5 = FDOT Reasonable Cost Guideline is $42,000.
*6 = 8-ft max on MSE/Bridge; 14-ft max on shoulder; 22-ft max at ROW or offset from shoulder.

3.4.3 Noise Barrier WB2

To abate for impacts to the 111 residences in NSAs 4, 6, and 8, Barrier WB2 was evaluated parallel to westbound SR 408 to replace portions of the 8-foot tall barrier removed by the build alternative. The barrier heights in the reconstruction area are limited to 8 feet due to the MSE wall and bridge structure. The cost per benefited receptor calculations accounted only for the lengths of replacement barrier but used the benefits gained by the entire barrier system/length. As shown in **Table 6**, the barrier replacement option meets acoustic feasibility and cost criteria while benefiting 37 impacted residences. Barrier WB2, as illustrated in **Appendix E – Page 4,** is recommended for further consideration during the project's final design phase.

Table 6: Noise Barrier WB2 Evaluation Summary

NSAs 4, 6, and 8: Barrier WB3 Evaluation Summary														
Evaluated Barrier Options				Number of Impacted Residential Sites	Number of Impacted Sites Within a Noise Reduction Range			Number of Benefited Sites *1				Total Estimated Cost *4	Cost per Benefited Receptor *5,7	Recommended for further consideration in final design?
Option	Barrier Type/Location	Height (feet) *6	Length (feet)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Avg / Max Reduction dB(A)			
Option 1	MSE/Shoulder (replacement)	8	5,324	111	22	15	0	37	0	37	5.6 / 6.5	$ 1,277,760	$ 34,534	Yes

*1 = Minimum of 5.0 dB(A) required to be considered benefited by noise barrier.
*2 = FDOT Noise Reduction Design Goal is 7.0 dB(A) at a minimum of 1 benefited receptor.
*3 = Refers to non-impacted noise-sensitive sites.
*4 = Based on FDOT Statewide average of $30 per square foot.
*5 = FDOT Reasonable Cost Guideline is $42,000.
*6 = 8-ft max on MSE/Bridge; 14-ft max on shoulder; 22-ft max at ROW or offset from shoulder.
*7 = CPBR calculated using only the replacment barrier length but all receptors benefited by the entire barrier system.

3.4.4 Noise Barrier WB3

To abate for impacts to the 13 residences in NSAs 10, 12, and 14, Barrier WB3 was evaluated as parallel to westbound SR 408 to replace portions of the 8-foot tall barrier removed by the build alternative. The barrier heights in the reconstruction area are limited to 8 feet due to the MSE wall and bridge structure. The cost per benefited receptor calculations accounted only for the lengths of replacement barrier but used the benefits gained by the entire barrier system/length. As shown in **Table 7**, the barrier replacement option meets all acoustic and cost criteria while benefiting 87 residences (three impacted and 84 non-impacted). Barrier WB3, as illustrated in **Appendix E – Page 4,** is recommended for further consideration during the project's final design phase.

Table 7: Noise Barrier WB3 Evaluation Summary

NSAs 10, 12, & 14: Barrier WB3 Evaluation Summary														
Evaluated Barrier Options				Number of Impacted Residential Sites	Number of Impacted Sites Within a Noise Reduction Range			Number of Benefited Sites *1				Total Estimated Cost *4	Cost per Benefited Receptor *5,7	Recommended for further consideration in final design?
Option	Barrier Type/Location	Height (feet)*6	Length (feet)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Avg / Max Reduction dB(A)			
Option 1	MSE/Shoulder (replacement)	8	1,313	13	0	0	3	3	84	87	7.1 / 10.0	$ 315,120	$ 3,622	Yes

*1 = Minimum of 5.0 dB(A) required to be considered benefited by noise barrier.
*2 = FDOT Noise Reduction Design Goal is 7.0 dB(A) at a minimum of 1 benefited receptor.
*3 = Refers to non-impacted noise-sensitive sites.
*4 = Based on FDOT Statewide average of $30 per square foot.
*5 = FDOT Reasonable Cost Guideline is $42,000.
*6 = 8-ft max on MSE/Bridge; 14-ft max on shoulder; 22-ft max at ROW or offset from shoulder.
*7 = CPBR calculated using only the replacment barrier length but all receptors benefited by the entire barrier system.

4.0 CONCLUSION

Of the 725 analyzed sites, 88 (85 residential, two Category C, and one Category E) are currently affected by traffic noise. The noise levels associated with the 2045 No-Build Alternative are predicted to meet or exceed the FDOT NAC at 90 sites (87 residential, two Category C, and one Category E).

The analysis concluded that once the project is built, the overall traffic noise levels will increase by an average of 1.1 dB(A), with the average project-related noise level predicted to be 64.3 dB(A). The 2045 Build Alternative's noise levels are predicted to meet or exceed the applicable NAC at 183 sites (179 residential, three Category C, and one Category E). The greatest noise level increase is predicted to be 8.3 dB(A) in NSA 6. Most of the impacts result from the roadway footprint expansion, which necessitates removing existing noise barriers. None of the increases are considered substantial (i.e., 15 dB(A) or more over existing levels).

As required, noise abatement consideration was given to all 183 impacted sites. The 26 impacts (25 residential and cemetery) in NSAs 3, 5, 7, 9, 11, and 13 cannot be mitigated due to 1) no project improvements on the eastbound side and 2) the existing noise barriers being at the maximum allowed heights.

For the westbound side, Noise Barriers WB-A1, WB1, WB 2, and WB3 were evaluated to abate project impacts to the remaining 157 sites (154 residential, two daycares, and one hotel pool). Noise barrier WB-A1 was determined not to meet feasibility requirements. As described in **Table 8**, noise barriers WB1, WB2, and WB 3 meet acoustic and cost reasonableness criteria and are recommended for further consideration during the final design process.

Table 8: CFX Project #408-175 PD&E Noise Barrier Recommendations

Noise Study Area	Barrier ID	Barrier Height (ft) *2	Barrier Length (ft)	Barrier Location	Estimated Barrier Cost *1	Recommended for Further Evaluation?
NSA 2	WB-A1	8	1,218	Ramp/Flyover Shoulder (new)	$292,320	No
NSA 2	WB1	8	545	MSE/Shoulder (new)	$130,800	Yes
NSAs 4, 6, and 8	WB2	8	5,324	MSE/Shoulder (replacement)	$1,277,760	Yes
NSAs 10, 12, and 14	WB3	8	1,313	MSE/Shoulder (replacement)	$315,120	Yes

**1 = Based on FDOT Statewide average of $30 per square foot.*

**2 = 8-ft max on MSE/Bridge; 14-ft max on shoulder; 22-ft max at ROW or offset from shoulder.*

4.1 Statement of Likelihood

The PD&E analyzed the alternative depicted in Appendix A and Appendix D; however, further coordination with FDOT as the project progresses will determine the final limit of capacity improvements at the western terminus fo the project, near I-4. No changes to the conclusions/recommendations of this PD&E noise analysis are anticipated.

The Central Florida Expressway Authority is committed to the construction of feasible and reasonable noise abatement measures identified in **Table 8,** contingent upon the following conditions:

- Final recommendations on the construction of abatement measures are determined during the project's final design and through the public involvement process.
- Detailed noise analyses during the final design process support the need, feasibility, and reasonableness of providing abatement.
- Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion.
- Community input supporting types, heights, and locations of the noise barrier(s) is provided to CFX.

- Safety and engineering aspects as related to the roadway user and the adjacent property owner have been reviewed, and any conflicts or issues resolved.

5.0 CONSTRUCTION NOISE AND VIBRATION IMPACTS

Construction of the proposed roadway improvements is not expected to have significant vibration or construction noise impacts. Applying the FDOT Standard Specifications for Road and Bridge Construction is anticipated to minimize or eliminate most of the potential short-term noise and vibration impacts.

Should any construction noise or vibration issues arise during construction, the Project Engineer, in concert with the CFX Noise Specialist and the Contractor, will investigate additional methods of controlling these impacts.

6.0 COMMUNITY COORDINATION

6.1 Noise Impact Contours

To aid in promoting land use compatibility, this report, which provides information that can be used to protect future land development from becoming incompatible with anticipated traffic noise levels, can be used by Orange County and City of Orlando officials. In addition, generalized noise impact contours for the Build Alternative have been developed, identifying the distances between the Build Alternative and the location where traffic noise levels approach the NAC for Activity Categories A, B, C, and E. The contour distances provided in **Table 9** do not account for any reduction in noise levels that may be provided by berms, privacy walls, or intervening structures. These distances also do not account for any increase in noise levels caused by local roads not included in the modeling, variation in the noise path, increased roadway elevation, or increased elevation of a noise sensitive site (e.g., second-floor patio). To minimize the potential for incompatible land use, future noise sensitive land uses should be located beyond these distances.

Table 9: Critical Distance Impact Contours

Impact Contours			
Activity Category *1	Corresponding Noise Abatement Criterion	Distance to EOP*2	
		SR 408: I-4 to Crystal Lake Dr.	SR 408: SR 436 to Goldenrod Rd.
Category A	56 dB(A)	1,050 ft	1100 ft
Category B and C	66 dB(A)	285 ft	315 ft
Category E	71 dB(A)	100 ft	75 ft

*1 Activity Categories as defined in 23 CFR 772.
*2 Distance to the nearest edge of pavement.

6.2 Public Meetings

A public meeting was held for this project on February 27, 2023. Any comments received during the public meeting comment period about the PD&E Study in general, as well as those pertinent to the noise analysis, will be documented under separate cover.

During the final design process, CFX will hold a meeting in which the proposed noise barrier and other pertinent project construction-related information will be presented to the public. To aid in the decision-making process, CFX will directly solicit the opinions of the property owners and renters found to benefit (e.g., receive a minimum 5 dB(A) reduction in noise) from the proposed noise barrier. The solicitation of viewpoints will be conducted as part of the meeting and mailed survey. The CFX decision-making process and survey results for this project will be documented under separate cover.

7.0 REFERENCES

FHWA. *Code of Federal Regulations*, Title 23 Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise." July 13, 2010.

FHWA. *Highway Traffic Noise: Analysis and Abatement Guidance, FHWA-HEP-10-025.* December 2011.

FHWA. *Recommended Best Practices for the Use of the FHWA Traffic Noise Model (TNM*. December 8, 2015.

FDOT. A+ Plus Aerial Photo Look-Up System. 2022.

FDOT. *FDOT Design Manual*

FDOT. *Project Development and Environment Manual:* Part II, Chapter 18. Effective July 1, 2020.

FDOT. *Standard Specifications for Road and Bridge Construction*.

FDOT. *Traffic Noise Modeling and Analysis Practitioners Handbook*. December 2018.

Google Earth, @2022 Google. Imagery and elevation data.

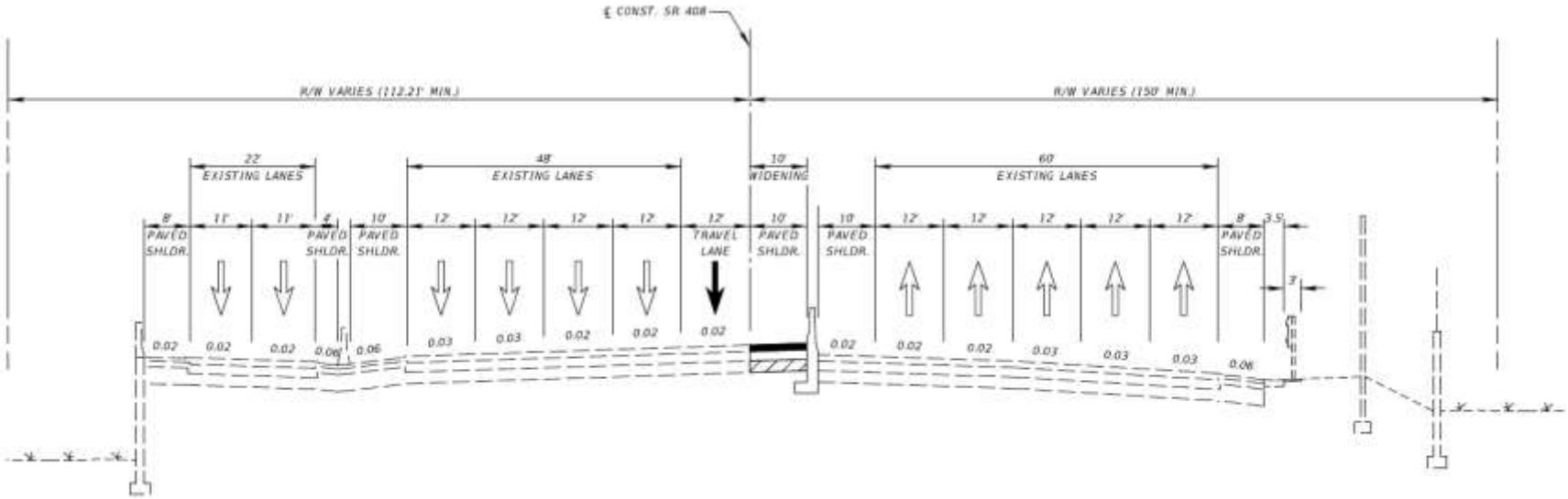
Section 335.17, *Florida Statutes. State Highway Construction; Means of Noise Abatement.* 2012.

USGS. National Map 2022; https://apps.nationalmap.gov/lidar-explorer/#/.

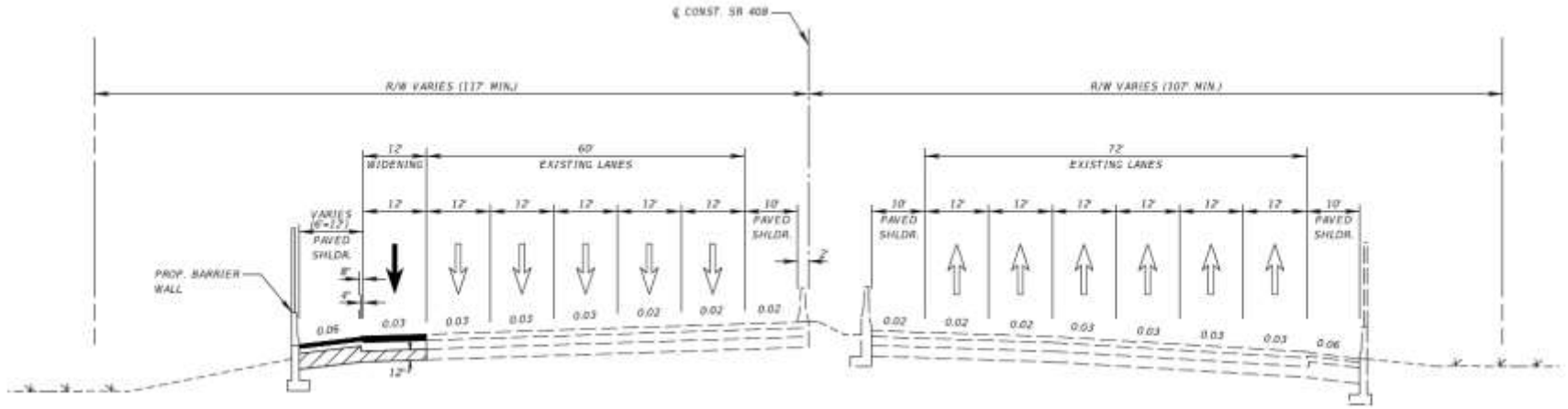
Appendix A:

Typical Sections

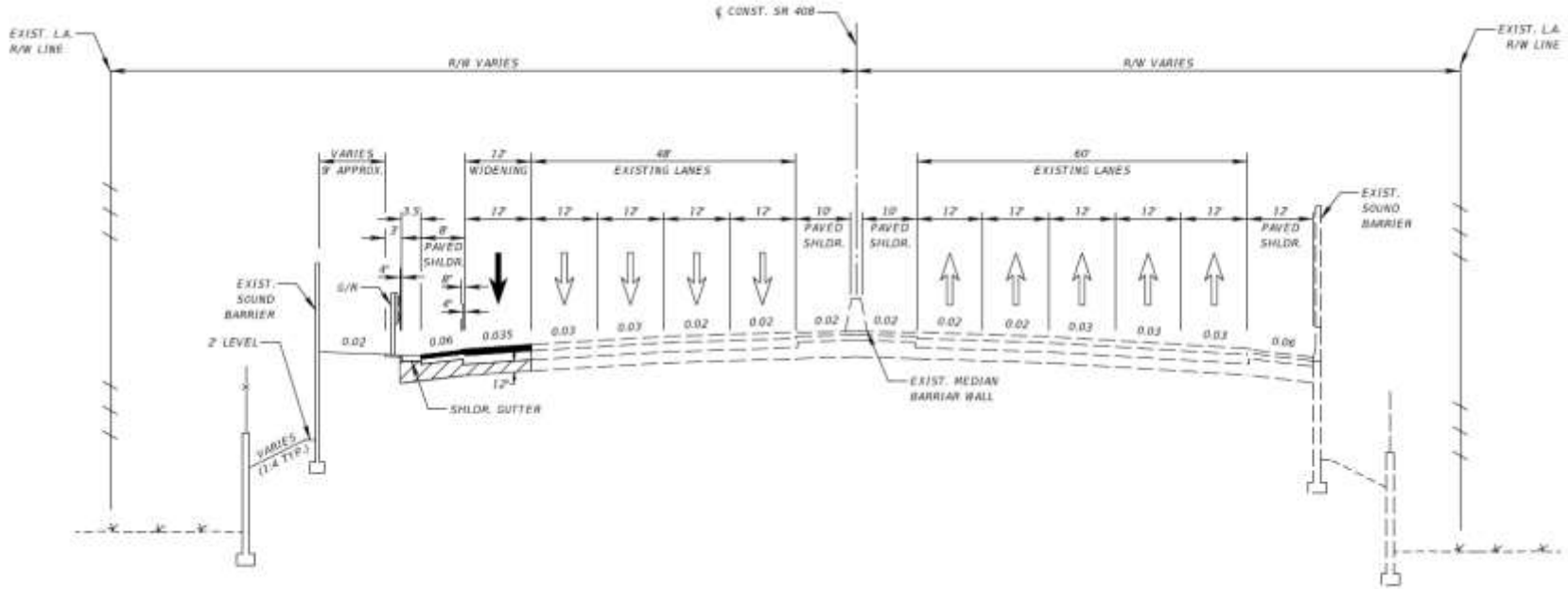
Typical Section – Adjacent to Rosalind Ave.



Typical Section – Bumby to Mills



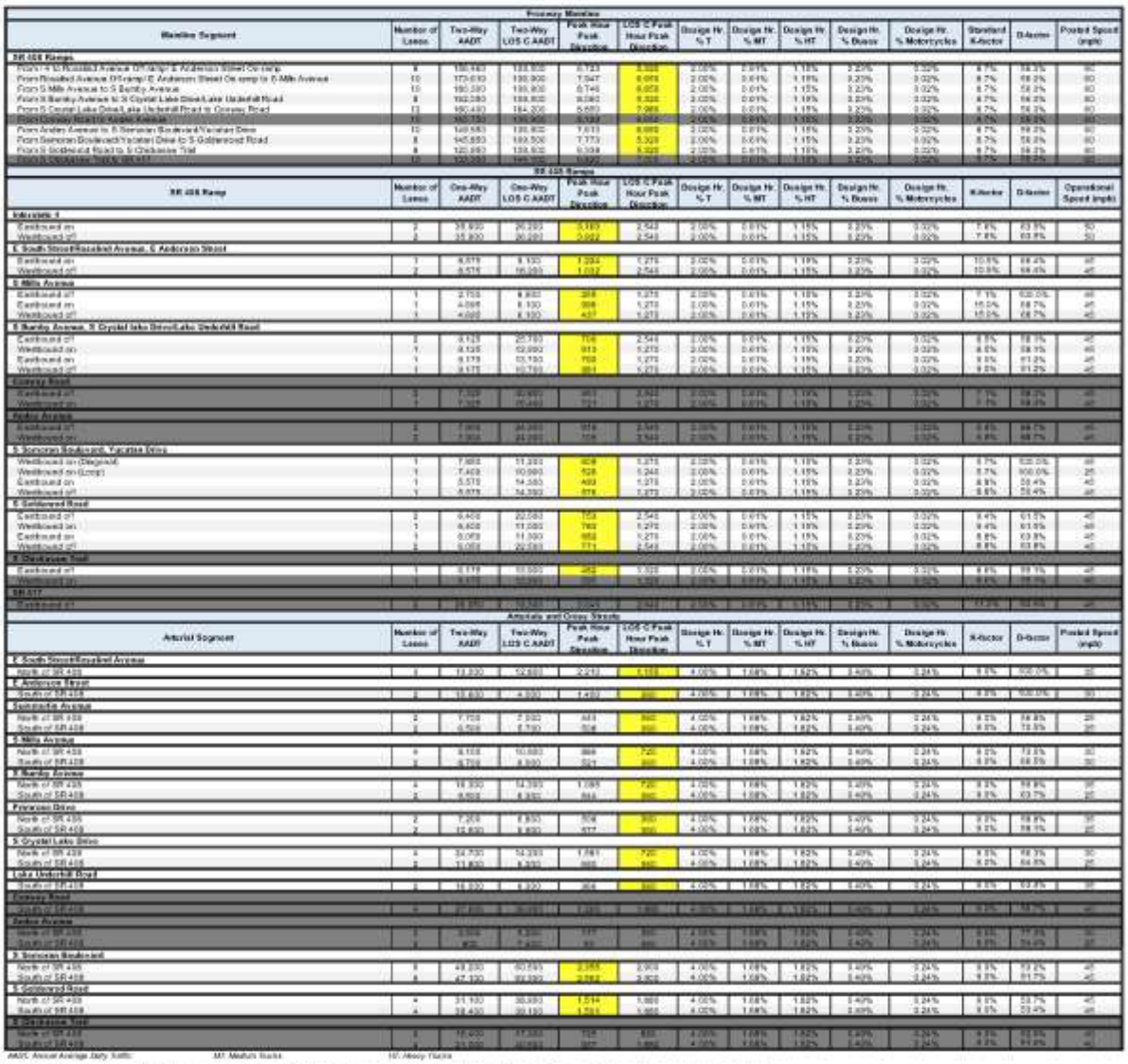
Typical Section – SR 436 to Goldenrod



Appendix B:

Noise Study Traffic Data

Noise Analysis Traffic Data - SR 408, from I-4 to SR 417
2021 Existing Conditions



Mainline Segment	Number of Lanes	Two-Way AADT	Two-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	Standard K-factor	D-factor	Posted Speed (mph)
SR 408 Ramps													
From I-4 to Rosalind Avenue Off-Ramp/ E. Anderson Street On-ramp	8	186,400	188,800	8,723	8,888	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From Rosalind Avenue Off-ramp/ E. Anderson Street On-ramp to S Mills Avenue	10	173,600	189,900	7,947	8,088	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From S Mills Avenue to S Bumby Avenue	10	180,080	189,800	8,746	8,888	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From S Bumby Avenue to N Crystal Lake Drive/Lake Underhill Road	8	162,080	188,800	8,080	8,888	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From S Crystal Lake Drive/Lake Underhill Road to Conway Road	8	160,480	184,200	5,683	7,988	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From Conway Road to Andes Avenue	10	140,080	188,800	6,888	8,888	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From Andes Avenue to N Semoran Boulevard/Narcoossee Drive	10	148,680	188,800	7,610	8,888	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From Semoran Boulevard/Narcoossee Drive to S Goldenrod Road	8	145,880	188,500	7,773	8,328	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From S Goldenrod Road to S Chickasaw Trail	8	120,880	188,800	6,338	8,328	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60
From S Chickasaw Trail to SR 417	10	120,080	188,800	6,080	8,888	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	58.3%	60

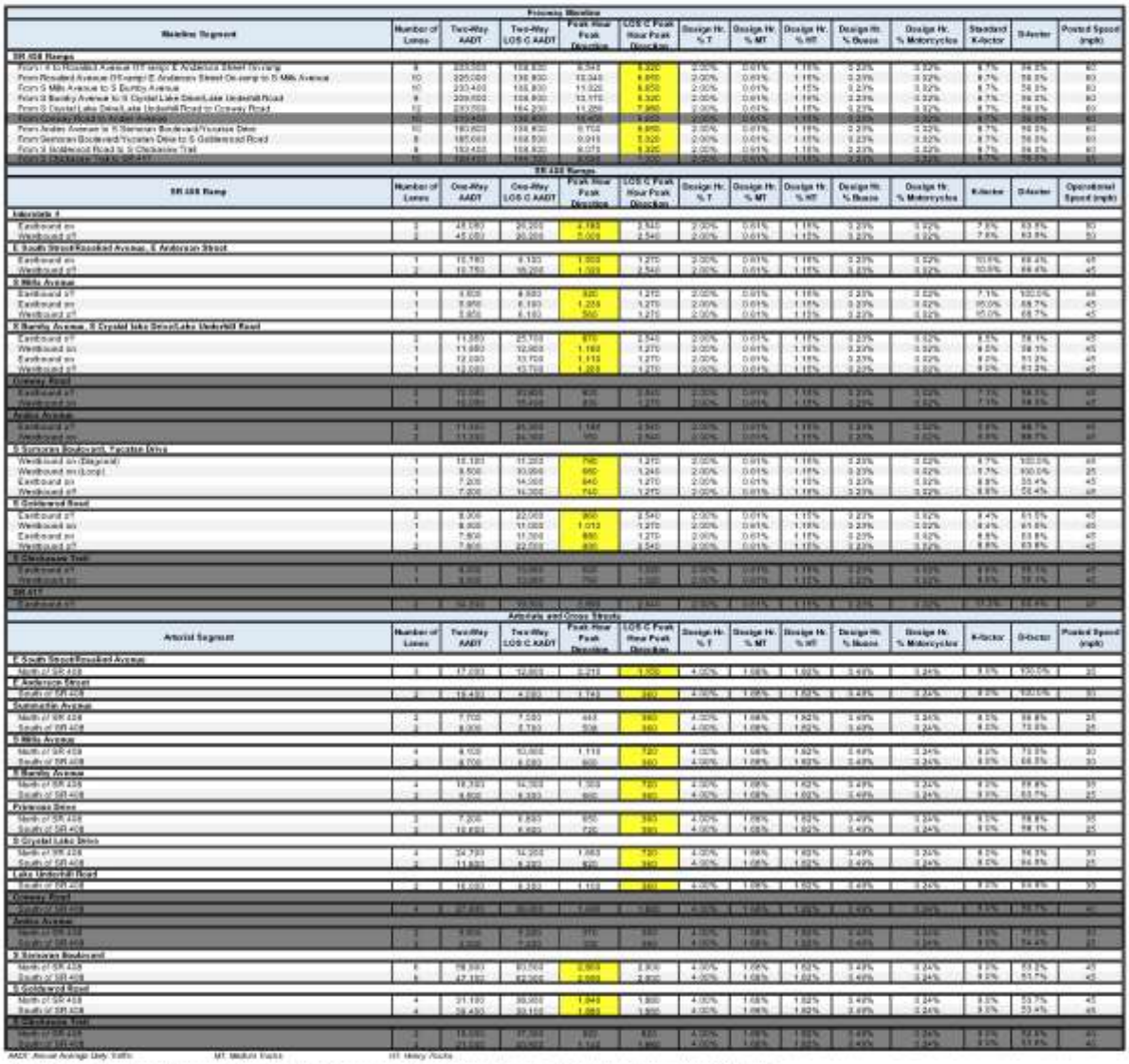
SR 408 Ramp	Number of Lanes	One-Way AADT	One-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	K-factor	D-factor	Operational Speed (mph)
SR 408 Ramps													
Interstate 4													
Eastbound on	2	38,800	20,200	3,183	2,543	2.00%	0.61%	1.15%	2.23%	0.02%	7.8%	63.9%	50
Westbound off	2	35,800	20,200	2,982	2,543	2.00%	0.61%	1.15%	2.23%	0.02%	7.8%	63.8%	50
E. South Street/Rosalind Avenue, E. Anderson Street													
Eastbound on	1	8,878	8,100	1,284	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	10.8%	68.4%	40
Westbound off	2	8,878	16,200	1,032	2,548	2.00%	0.61%	1.15%	2.23%	0.02%	10.8%	68.4%	40
S Mills Avenue													
Eastbound off	1	2,700	8,800	208	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	7.1%	100.0%	30
Eastbound on	1	4,098	8,100	304	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	10.0%	68.7%	40
Westbound off	1	4,098	8,100	437	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	10.0%	68.7%	40
S Bumby Avenue, N Crystal Lake Drive/Lake Underhill Road													
Eastbound off	2	8,123	20,700	704	2,548	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	58.1%	40
Westbound on	1	8,128	12,960	913	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	58.1%	40
Eastbound on	1	8,178	13,100	708	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	9.8%	61.2%	40
Westbound off	1	8,178	10,700	884	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	9.8%	61.2%	40
Conway Road													
Eastbound off	2	7,308	20,900	463	2,548	2.00%	0.61%	1.15%	2.23%	0.02%	7.7%	58.2%	40
Westbound on	1	7,308	12,960	721	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	7.7%	58.2%	40
Andes Avenue													
Eastbound off	2	7,908	20,900	618	2,548	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	58.7%	40
Westbound on	2	7,908	20,900	108	2,548	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	58.7%	40
N Semoran Boulevard, Narcoossee Drive													
Westbound on (Diagonal)	1	7,988	11,200	408	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	100.0%	30
Westbound on (Loop)	1	7,408	10,900	528	1,248	2.00%	0.61%	1.15%	2.23%	0.02%	8.7%	100.0%	25
Eastbound on	1	5,578	14,580	488	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	8.9%	59.4%	40
Westbound off	1	8,878	14,200	878	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	59.4%	40
S Goldenrod Road													
Eastbound off	2	8,408	20,580	703	2,548	2.00%	0.61%	1.15%	2.23%	0.02%	8.4%	61.5%	40
Westbound on	1	8,408	11,080	760	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	8.4%	61.5%	40
Eastbound on	1	8,083	11,300	958	1,278	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	63.8%	40
Westbound off	2	8,083	20,580	771	2,548	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	63.8%	40
N Chickasaw Trail													
Eastbound off	1	8,178	11,000	982	1,328	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	59.1%	40
Westbound on	1	8,178	10,900	982	1,248	2.00%	0.61%	1.15%	2.23%	0.02%	8.8%	59.1%	40
SR 417													
Eastbound off	3	28,200	30,300	2,820	3,828	2.00%	0.61%	1.15%	2.23%	0.02%	10.0%	62.8%	40

Arterial Segment	Number of Lanes	Two-Way AADT	Two-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	K-factor	D-factor	Posted Speed (mph)
Arterials and Cross Streets													
E. South Street/Rosalind Avenue													
North of SR 408	4	13,200	12,600	2,210	3,168	4.00%	1.08%	1.82%	3.40%	0.24%	9.8%	100.0%	30
E. Anderson Street													
South of SR 408	6	18,400	8,300	1,402	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.8%	100.0%	30
Summerlin Avenue													
North of SR 408	2	7,700	7,000	643	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	58.8%	25
South of SR 408	2	6,500	6,700	504	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	72.5%	30
S Mills Avenue													
North of SR 408	4	8,100	10,800	866	720	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	72.5%	30
South of SR 408	3	6,700	8,300	521	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	58.3%	30
S Bumby Avenue													
North of SR 408	3	10,300	12,300	1,088	720	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	58.8%	30
South of SR 408	3	8,900	8,300	868	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	63.7%	30
Primrose Drive													
North of SR 408	2	7,200	6,800	708	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	58.8%	30
South of SR 408	2	12,800	8,800	877	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	58.1%	30
N Crystal Lake Drive													
North of SR 408	4	34,700	12,200	1,881	720	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	58.3%	30
South of SR 408	3	11,800	8,300	900	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	64.5%	30
Lake Underhill Road													
South of SR 408	4	18,800	8,300	904	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	63.8%	30
Conway Road													
South of SR 408	4	17,400	8,300	1,400	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	58.7%	30
Andes Avenue													
North of SR 408	2	3,000	6,800	177	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	77.8%	30
South of SR 408	4	800	7,400	61	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	74.4%	30
N Semoran Boulevard													
North of SR 408	8	48,200	50,500	2,988	2,908	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	62.8%	45
South of SR 408	8	47,100	50,500	2,782	2,908	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	61.7%	45
S Goldenrod Road													
North of SR 408	4	31,100	30,900	1,514	1,980	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	53.7%	45
South of SR 408	4	28,400	30,100	1,781	1,980	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	53.4%	45
N Chickasaw Trail													
North of SR 408	3	12,000	11,000	707	800	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	53.8%	40
South of SR 408	3	11,000	10,900	887	1,980	4.00%	1.08%	1.82%	3.40%	0.24%	9.1%	51.4%	40

AADT: Annual Average Daily Traffic MT: Medium Trucks HT: Heavy Trucks

(1) Number of lanes are obtained from field observations and aerial maps. Number of lanes shown are based on direction with fewer lanes. Noise analysis to consider correct lanage per guidelines.
(2) Traffic data is obtained from the operational analysis and PD&E study.
(3) Peak hour demand and LOS C peak hour maximum service volumes are provided directionally.
(4) LOS C targets are based on the FDOT 2020 Quality/Level of Service Handbook tables, and adjusted for local conditions.
(5) LOS C AADTs are estimated using K and D factors and the design hour peak direction LOS C maximum service volumes.
(6) The vehicle classification factors are obtained from Florida Traffic Online.
(7) Posted speed data are obtained by field observations.

Noise Analysis Traffic Data - SR 408, from I-4 to SR 417
2045 No Build Conditions



Mainline Segment	Number of Lanes	Two-Way AADT	Two-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	Standard K-factor	D-factor	Posted Speed (mph)
SR 408 Ramps													
From I-4 to Rosalind Avenue (I-4 ramps & Anderson Street ramps)	8	225,000	158,800	8,340	8,340	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From Rosalind Avenue (Orange) E Anderson Street On-ramp to S Mills Avenue	10	295,000	198,800	10,340	6,850	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From S Mills Avenue to S Bumby Avenue	10	293,400	198,800	11,020	6,850	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From S Bumby Avenue to S Crystal Lake Drive/Lake Underhill Road	8	229,000	158,800	10,110	6,320	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From S Crystal Lake Drive/Lake Underhill Road to Conway Road	10	230,000	164,200	11,200	7,900	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From Conway Road to Andes Avenue	10	210,400	158,800	10,400	6,900	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From Andes Avenue to N Semoran Boulevard/Princeton Drive	10	180,600	158,800	9,700	6,850	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From Semoran Boulevard/Princeton Drive to S Goldenrod Road	8	185,000	158,800	9,010	6,320	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From S Goldenrod Road to S Chickasaw Trail	8	152,400	158,800	8,070	6,320	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60
From S Chickasaw Trail to SR 417	10	190,400	198,800	9,040	7,900	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	56.5%	60

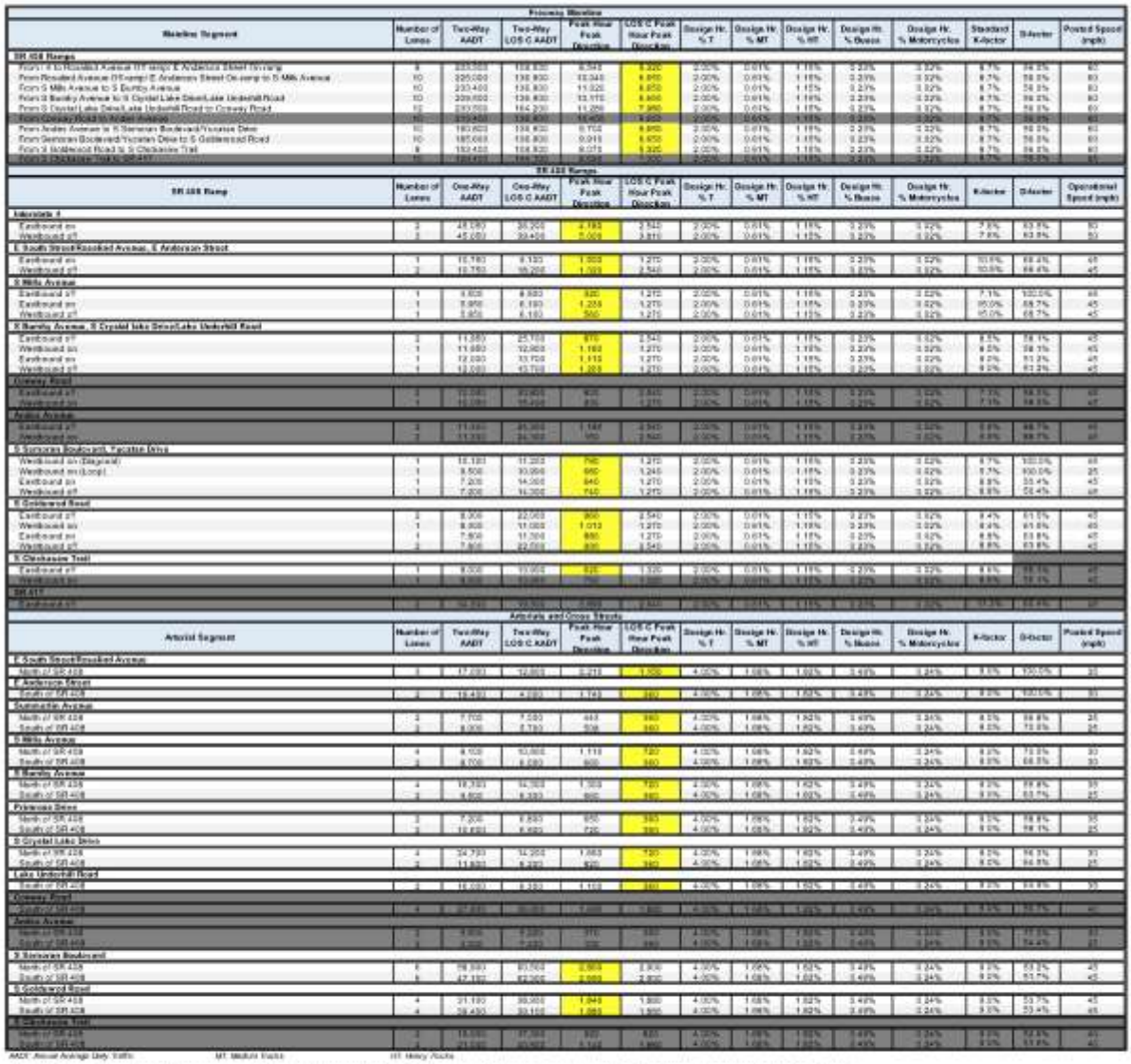
SR 408 Ramp	Number of Lanes	One-Way AADT	One-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	K-factor	D-factor	Operational Speed (mph)
Interstate 4													
Eastbound on	2	48,000	39,200	2,180	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	7.8%	63.8%	60
Westbound off	2	45,000	39,200	2,000	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	7.8%	63.8%	60
E South Street/Rosalind Avenue, E Anderson Street													
Eastbound on	1	10,780	8,100	1,000	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	10.6%	68.4%	45
Westbound off	2	19,780	16,200	1,000	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	10.6%	68.4%	45
S Mills Avenue													
Eastbound off	1	5,800	8,800	820	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	7.1%	100.0%	45
Eastbound on	1	5,950	8,100	1,220	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	95.0%	68.7%	45
Westbound off	1	5,800	8,100	560	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	95.0%	68.7%	45
S Bumby Avenue, S Crystal Lake Drive/Lake Underhill Road													
Eastbound off	2	11,380	25,700	970	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	8.5%	78.1%	45
Westbound on	1	11,680	12,900	1,160	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.5%	68.7%	45
Eastbound on	1	12,000	13,700	1,115	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.5%	91.2%	45
Westbound off	1	12,080	13,700	1,300	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.5%	91.2%	45
Conway Road													
Eastbound off	2	11,080	25,400	900	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	7.1%	68.5%	45
Westbound on	1	11,080	12,700	870	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	7.1%	68.5%	45
Andes Avenue													
Eastbound off	2	11,000	25,400	1,147	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	8.8%	68.7%	45
Westbound on	1	11,230	12,700	970	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.8%	68.7%	45
S Semoran Boulevard, Princeton Drive													
Westbound on (Diagonal)	1	10,180	11,200	740	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	100.0%	45
Westbound on (Long)	1	9,500	10,000	680	1,240	2.00%	0.61%	1.15%	0.23%	0.02%	8.7%	100.0%	25
Eastbound on	1	7,200	14,000	640	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.8%	55.4%	45
Westbound off	1	7,000	14,200	740	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.8%	58.4%	45
S Goldenrod Road													
Eastbound off	2	8,000	22,000	900	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	9.4%	61.5%	45
Westbound on	1	9,800	11,000	1,012	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	9.4%	61.5%	45
Eastbound on	1	7,800	11,200	880	1,270	2.00%	0.61%	1.15%	0.23%	0.02%	8.8%	63.8%	45
Westbound off	2	7,800	22,000	830	2,540	2.00%	0.61%	1.15%	0.23%	0.02%	8.8%	63.8%	45
S Chickasaw Trail													
Eastbound off	1	8,000	10,000	800	1,000	2.00%	0.61%	1.15%	0.23%	0.02%	8.5%	58.1%	45
Westbound on	1	8,000	10,000	750	1,000	2.00%	0.61%	1.15%	0.23%	0.02%	8.5%	58.1%	45
SR 417													
Eastbound on	2	18,000	20,000	1,800	2,000	2.00%	0.61%	1.15%	0.23%	0.02%	10.5%	60.4%	60

Arterial Segment	Number of Lanes	Two-Way AADT	Two-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	K-factor	D-factor	Posted Speed (mph)
Arterials and Cross Streets													
E South Street/Rosalind Avenue													
North of SR 408	3	17,000	12,000	1,215	1,500	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	100.0%	35
E Anderson Street													
South of SR 408	2	19,400	4,000	1,740	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	100.0%	30
Summerlin Avenue													
North of SR 408	2	7,700	7,000	443	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	59.8%	25
South of SR 408	2	8,000	5,700	508	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	72.5%	25
S Mills Avenue													
North of SR 408	4	9,100	10,000	1,110	720	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	72.5%	30
South of SR 408	2	8,700	5,000	800	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	68.5%	30
S Bumby Avenue													
North of SR 408	4	10,300	14,000	1,300	720	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	59.8%	35
South of SR 408	2	9,800	5,000	900	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	53.7%	35
Princess Drive													
North of SR 408	3	7,200	8,800	650	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	59.8%	35
South of SR 408	2	10,600	5,000	720	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	59.1%	35
S Crystal Lake Drive													
North of SR 408	4	14,700	14,000	1,660	720	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	56.3%	30
South of SR 408	2	11,800	5,000	920	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	56.3%	25
Lake Underhill Road													
South of SR 408	2	10,000	5,000	1,110	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	59.8%	35
Conway Road													
North of SR 408	4	17,000	14,000	1,700	720	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	59.8%	40
Andes Avenue													
North of SR 408	3	9,800	8,800	970	540	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	67.5%	35
South of SR 408	2	8,000	5,000	700	360	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	74.4%	35
S Semoran Boulevard													
North of SR 408	6	58,000	60,000	5,800	5,800	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	53.3%	45
South of SR 408	6	47,000	42,000	4,900	4,800	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	53.7%	45
S Goldenrod Road													
North of SR 408	4	31,100	30,000	1,940	1,800	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	53.7%	45
South of SR 408	4	29,400	33,100	1,880	1,800	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	53.4%	45
S Chickasaw Trail													
North of SR 408	3	18,000	17,000	900	820	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	52.8%	40
South of SR 408	3	21,000	20,000	1,140	1,000	4.00%	1.08%	1.92%	0.48%	0.04%	9.5%	53.8%	40

AADT: Annual Average Daily Traffic MT: Medium Trucks HT: Heavy Trucks

(1) Number of lanes are obtained from field observations and aerial maps. Number of lanes shown are based on direction with fewer lanes. Noise analysis to consider correct lanage per guidelines.
(2) Traffic data is obtained from the operational analysis and PD&E study.
(3) Peak hour demand and LOS C peak hour maximum service volumes are provided electronically.
(4) LOS C targets are based on the FDOT 2020 Quality/Level of Service Handbook tables, and adjusted for local conditions.
(5) LOS C AADTs are estimated using K and D factors and the design hour peak direction LOS C maximum service volumes.
(6) The vehicle classification factors are obtained from Florida Traffic Online.
(7) Posted speed data are obtained by field observations.

Noise Analysis Traffic Data - SR 408, from I-4 to SR 417
2045 Build Conditions



Mainline Segment	Number of Lanes	Two-Way AADT	Two-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	Standard K-factor	D-factor	Posted Speed (mph)
SR 408 Ramps													
From E N Hoagland Avenue (Off-ramp) E Anderson Street On-ramp to S Mills Avenue	8	225,000	135,800	8,548	5,220	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From Rouse Avenue (Off-ramp) E Anderson Street On-ramp to S Mills Avenue	10	295,000	139,800	10,340	6,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From S Mills Avenue to S Bumby Avenue	10	293,400	139,800	11,325	6,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From S Bumby Avenue to S Crystal Lake Drive/Lake Underhill Road	10	309,600	139,800	13,175	6,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From S Crystal Lake Drive/Lake Underhill Road to Conway Road	10	293,000	164,200	11,250	7,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From Conway Road to Andes Avenue	10	232,400	139,800	10,400	6,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From Andes Avenue to N Semoran Boulevard/Vicksburg Drive	10	180,600	139,800	8,702	6,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From Semoran Boulevard/Vicksburg Drive to S Goldenrod Road	10	185,000	139,800	9,015	6,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From S Goldenrod Road to S Chickasaw Trail	8	152,400	104,800	8,075	5,220	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60
From S Chickasaw Trail to SR 417/Econlockhatchee Trail	10	190,400	164,200	9,000	7,950	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	56.5%	60

SR 408 Ramp	Number of Lanes	One-Way AADT	One-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	K-factor	D-factor	Operational Speed (mph)
Interstate 4													
Eastbound on	3	48,000	38,200	2,160	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	7.8%	63.8%	60
Westbound off	3	45,000	39,400	2,000	2,810	2.00%	0.61%	1.15%	0.23%	0.32%	7.8%	63.8%	60
E South Street/Rosalind Avenue, E Anderson Street													
Eastbound on	1	10,180	8,100	1,000	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	10.8%	68.4%	45
Westbound off	2	19,780	16,200	1,700	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	10.8%	68.4%	45
S Mills Avenue													
Eastbound off	1	5,600	4,600	520	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	7.1%	100.0%	45
Eastbound on	1	5,950	6,150	1,255	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	95.0%	68.7%	45
Westbound off	1	5,900	6,150	560	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	95.0%	68.7%	45
S Bumby Avenue, S Crystal Lake Drive/Lake Underhill Road													
Eastbound off	2	11,980	25,700	810	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	8.5%	58.1%	45
Westbound on	1	11,980	12,900	1,160	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.5%	58.1%	45
Eastbound on	1	12,030	13,700	1,115	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.5%	61.2%	45
Westbound off	1	12,080	13,700	1,200	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.5%	61.2%	45
Conway Road													
Eastbound off	2	10,040	10,400	900	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	7.1%	58.5%	45
Westbound on	1	11,080	11,200	830	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	7.1%	58.5%	45
Andes Avenue													
Eastbound off	2	11,000	21,300	1,100	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	8.8%	58.7%	45
Westbound on	2	11,000	21,300	950	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	8.8%	58.7%	45
S Semoran Boulevard, Vicksburg Drive													
Westbound on (Diagonal)	1	10,100	11,200	740	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	100.0%	45
Westbound on (Loop)	1	8,500	10,000	660	1,240	2.00%	0.61%	1.15%	0.23%	0.32%	8.7%	100.0%	25
Eastbound on	1	7,200	14,000	640	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.8%	58.4%	45
Westbound off	1	7,000	14,000	740	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.8%	58.4%	45
S Goldenrod Road													
Eastbound off	2	8,000	22,000	900	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	8.4%	61.5%	45
Westbound on	1	8,000	11,000	1,013	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.4%	61.5%	45
Eastbound on	1	7,800	11,300	880	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.8%	63.8%	45
Westbound off	2	7,800	22,000	830	2,540	2.00%	0.61%	1.15%	0.23%	0.32%	8.8%	63.8%	45
S Chickasaw Trail													
Eastbound off	1	9,000	10,000	820	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.6%	58.5%	45
Westbound on	1	8,000	11,000	740	1,270	2.00%	0.61%	1.15%	0.23%	0.32%	8.6%	58.5%	45
SR 417													
Eastbound off	3	32,000	33,000	2,800	3,810	2.00%	0.61%	1.15%	0.23%	0.32%	8.1%	58.4%	60

Arterial Segment	Number of Lanes	Two-Way AADT	Two-Way LOS C AADT	Peak Hour Peak Direction	LOS C Peak Hour Peak Direction	Design Hr. % T	Design Hr. % MT	Design Hr. % HT	Design Hr. % Buses	Design Hr. % Motorcycles	K-factor	D-factor	Posted Speed (mph)
Arterials and Cross Streets													
E South Street/Rosalind Avenue													
North of SR 408	3	17,000	12,800	1,215	1,500	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	100.0%	30
E Anderson Street													
South of SR 408	3	19,400	4,600	1,745	540	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	100.0%	30
Summerlin Avenue													
North of SR 408	3	7,700	7,500	443	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	69.8%	25
South of SR 408	3	8,000	5,700	508	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	72.8%	25
S Mills Avenue													
North of SR 408	4	8,100	10,000	1,110	720	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	72.8%	30
South of SR 408	3	8,700	8,000	900	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	68.8%	30
S Bumby Avenue													
North of SR 408	4	18,300	14,000	1,300	720	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	69.8%	35
South of SR 408	3	8,800	8,300	900	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	63.7%	35
Primrose Drive													
North of SR 408	3	7,300	8,800	850	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	68.8%	35
South of SR 408	3	10,600	8,800	720	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	68.1%	35
S Crystal Lake Drive													
North of SR 408	4	24,700	14,200	1,660	720	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	68.3%	35
South of SR 408	3	11,800	8,300	820	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	64.8%	35
Lake Underhill Road													
South of SR 408	3	16,000	8,300	1,110	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	69.8%	30
Conway Road													
South of SR 408	4	21,000	10,000	1,400	720	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	68.3%	40
Andes Avenue													
North of SR 408	3	9,000	9,200	910	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	67.5%	35
South of SR 408	3	8,000	7,200	770	960	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	64.8%	35
S Semoran Boulevard													
North of SR 408	6	58,000	60,700	2,900	2,800	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	63.2%	45
South of SR 408	6	47,100	52,000	2,000	2,800	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	63.7%	45
S Goldenrod Road													
North of SR 408	4	31,100	30,000	1,840	1,800	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	53.7%	45
South of SR 408	4	28,400	30,100	1,660	1,800	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	53.4%	45
S Chickasaw Trail													
North of SR 408	3	15,000	17,000	900	820	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	62.8%	45
South of SR 408	3	21,000	20,000	1,100	1,800	4.00%	1.08%	1.92%	0.38%	0.24%	8.5%	63.8%	45

AADT: Annual Average Daily Traffic MT: Medium Trucks HT: Heavy Trucks

(1) Number of lanes are obtained from field observations, aerial maps and proposed concept. Number of lanes shown are based on direction with fewer lanes. Noise analysis to consider correct lanage per guidelines.
(2) Traffic data is obtained from the operational analysis and PD&E study.
(3) Peak hour demand and LOS C peak hour maximum service volumes are provided directionally.
(4) LOS C targets are based on the FDOT 2020 Quality/Level of Service Handbook tables, and adjusted for local conditions.
(5) LOS C AADTs are estimated using K and D factors and the design hour peak direction LOS C maximum service volumes.
(6) The vehicle classification factors are obtained from Florida Traffic Online.
(7) Posted speed data are obtained by field observations.

Appendix C:

Noise Impact Comparison Matrix

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
NSA 1: South of SR 408 from I-4 to Margaret Ct - Illustrated on Page D-2 - Appendix D							
No noise sensitive sites							
NSA 2: North of SR 408 from I-4 to Summerlin Ave. - Illustrated on Page D-2 through D-4 - Appendix D							
2-1a	3	66.0	48.6	48.8	49.3	0.7	-
2-1b	3	66.0	50.2	50.4	50.8	0.6	-
2-1c	3	66.0	50.3	50.5	50.9	0.6	-
2-1d	3	66.0	51.1	51.3	51.6	0.5	-
2-1e	3	66.0	52.9	53.1	53.4	0.5	-
2-1f	3	66.0	55.1	55.3	55.6	0.5	-
2-2a	4	66.0	49.2	49.3	49.7	0.5	-
2-2b	4	66.0	49.6	49.8	50.1	0.5	-
2-2c	4	66.0	50.2	50.3	50.7	0.5	-
2-2d	4	66.0	51.6	51.8	52.1	0.5	-
2-2e	4	66.0	52.3	52.5	52.8	0.5	-
2-2f	4	66.0	54.7	54.9	55.1	0.4	-
2-3a	3	66.0	49.1	49.3	49.6	0.5	-
2-3b	3	66.0	48.3	48.5	48.7	0.4	-
2-3c	3	66.0	50.5	50.7	50.9	0.4	-
2-3d	3	66.0	50.4	50.5	50.7	0.3	-
2-3e	3	66.0	51.8	52.0	52.2	0.4	-
2-3f	3	66.0	53.6	53.8	53.9	0.3	-
2-4a	6	66.0	49.2	49.4	49.6	0.4	-
2-4b	6	66.0	47.9	48.1	48.3	0.4	-
2-4c	6	66.0	50.3	50.5	50.8	0.5	-
2-4d	6	66.0	50.5	50.7	50.9	0.4	-
2-4e	6	66.0	51.6	51.8	51.9	0.3	-
2-4f	6	66.0	53.6	53.7	53.9	0.3	-
2-5a	1	66.0	***67.4***	***67.5***	65.8	-1.6	-
2-5b	1	66.0	***73.7***	***73.7***	***70.8***	-2.9	***Yes***
2-5c	1	66.0	***74.6***	***74.6***	***74.7***	0.1	***Yes***
2-5d	1	66.0	***75.0***	***75.0***	***75.6***	0.6	***Yes***
2-5e	1	66.0	***74.7***	***74.7***	***75.6***	0.9	***Yes***
2-5f	1	66.0	***74.5***	***74.6***	***75.5***	1.0	***Yes***

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
2-6a	1	66.0	***69.1***	***69.1***	***67.7***	-1.4	***Yes***
2-6b	1	66.0	***75.2***	***75.2***	***73.3***	-1.9	***Yes***
2-6c	1	66.0	***75.7***	***75.7***	***75.9***	0.2	***Yes***
2-6d	1	66.0	***75.7***	***75.7***	***76.2***	0.5	***Yes***
2-6e	1	66.0	***75.4***	***75.5***	***76.4***	1.0	***Yes***
2-6f	1	66.0	***75.3***	***75.3***	***76.3***	1.0	***Yes***
2-7a	2	66.0	***66.6***	***66.7***	***66.0***	-0.6	***Yes***
2-7b	2	66.0	***72.4***	***72.4***	***70.5***	-1.9	***Yes***
2-7c	2	66.0	***73.1***	***73.1***	***72.7***	-0.4	***Yes***
2-7d	2	66.0	***73.2***	***73.2***	***73.6***	0.4	***Yes***
2-7e	2	66.0	***73.1***	***73.2***	***73.7***	0.6	***Yes***
2-7f	2	66.0	***73.0***	***73.0***	***73.6***	0.6	***Yes***
2-8a	2	66.0	59.5	59.7	59.9	0.4	-
2-8b	2	66.0	62.4	62.6	63.1	0.7	-
2-8c	2	66.0	63.5	63.7	64.2	0.7	-
2-8d	2	66.0	63.9	64.1	64.7	0.8	-
2-8e	2	66.0	64.1	64.3	64.9	0.8	-
2-8f	2	66.0	64.3	64.5	65.0	0.7	-
SLU2-1	1	71.0	***71.4***	***71.7***	***71.7***	0.3	***Yes***
SLU2-2	1	51.0	30.8	30.9	32.0	1.2	-
NSA Summary	***134***		***60.4***	***60.5***	***60.7***	***0.3***	***23***
NSA 3: South of SR 408 from Margaret Ct. Mills Ave. - Illustrated on Pages D-2 through D-4 - Appendix D							
3-1	1	66.0	***66.3***	***66.5***	***66.6***	0.3	***Yes***
3-2	1	66.0	65.8	***66.0***	***66.1***	0.3	***Yes***
3-3	1	66.0	65.3	65.4	65.6	0.3	-
3-4	1	66.0	64.7	64.8	64.9	0.2	-
3-5	1	66.0	65.3	65.4	65.5	0.2	-
3-6	1	66.0	64.9	65.0	65.2	0.3	-
3-7	1	66.0	63.6	63.7	63.9	0.3	-
3-8	1	66.0	63.8	63.9	64.1	0.3	-
3-9	1	66.0	62.7	62.8	63.0	0.3	-
3-10	7	66.0	63.7	63.7	63.9	0.2	-
3-11	1	66.0	62.0	62.0	62.3	0.3	-

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
3-12	2	66.0	61.1	61.2	61.5	0.4	-
3-13	4	66.0	60.6	60.6	61.0	0.4	-
3-14	6	66.0	62.9	62.9	63.1	0.2	-
3-15	2	66.0	60.9	60.9	61.2	0.3	-
3-16	1	66.0	63.7	63.8	63.9	0.2	-
3-17	1	66.0	63.6	63.7	63.8	0.2	-
3-18	1	66.0	63.5	63.5	63.7	0.2	-
3-19	1	66.0	65.0	65.0	65.2	0.2	-
3-20	1	66.0	65.4	65.4	65.6	0.2	-
3-21	1	66.0	61.9	61.9	62.1	0.2	-
3-22	1	66.0	61.2	61.3	61.5	0.3	-
3-23	1	66.0	63.4	63.5	63.7	0.3	-
3-24	1	66.0	***66.1***	***66.1***	***66.4***	0.3	***Yes***
3-25	1	66.0	65.0	65.0	65.2	0.2	-
3-26	1	66.0	65.1	65.1	65.3	0.2	-
3-27	1	66.0	64.5	64.5	64.8	0.3	-
3-28	8	66.0	64.2	64.2	64.5	0.3	-
3-29	1	66.0	64.7	64.7	65.0	0.3	-
3-30	1	66.0	63.4	63.5	63.8	0.4	-
3-31	1	66.0	63.6	63.6	63.9	0.3	-
3-32	3	66.0	***66.9***	***66.9***	***67.1***	0.2	***Yes***
3-33	1	66.0	***67.7***	***67.7***	***67.9***	0.2	***Yes***
3-34	1	66.0	***67.4***	***67.4***	***67.6***	0.2	***Yes***
3-35	2	66.0	64.6	64.6	64.9	0.3	-
3-36	1	66.0	64.6	64.6	64.9	0.3	-
3-37	1	66.0	64.1	64.1	64.4	0.3	-
3-38	1	66.0	63.6	63.6	63.9	0.3	-
3-39	1	66.0	63.1	63.2	63.5	0.4	-
3-40	1	66.0	65.7	65.8	65.9	0.2	-
3-41	1	66.0	65.0	65.0	65.2	0.2	-
3-42	1	66.0	64.4	64.4	64.6	0.2	-
3-43	1	66.0	63.9	64.0	64.1	0.2	-
3-44	1	66.0	63.3	63.3	63.5	0.2	-

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
3-45	1	66.0	63.4	63.4	63.6	0.2	-
3-46	2	66.0	63.3	63.4	63.5	0.2	-
3-47	1	66.0	62.3	62.3	62.6	0.3	-
3-48	1	66.0	64.2	64.2	64.4	0.2	-
3-49	1	66.0	65.2	65.2	65.5	0.3	-
3-50	1	66.0	63.8	63.8	64.1	0.3	-
3-51	9	66.0	62.4	62.4	62.7	0.3	-
3-52	1	66.0	62.9	63.0	63.3	0.4	-
SLU3-1	1	66.0	50.2	50.2	50.6	0.4	-
NSA Summary	***88***		***63.8***	***63.8***	***64.0***	***0.3***	***8***
NSA 4: North of SR 408 from Summerlin Ave. to Mills Ave.- Illustrated on Pages D-3 and D-4 - Appendix D							
4-1	1	66.0	61.1	61.3	64.8	3.7	-
4-2	1	66.0	61.1	61.2	65.0	3.9	-
4-3	1	66.0	65.0	65.0	***66.8***	1.8	***Yes***
4-4	1	66.0	61.1	61.2	64.7	3.6	-
4-5	4	66.0	61.6	61.6	64.5	2.9	-
4-6	1	66.0	60.1	60.2	63.1	3.0	-
4-7	1	66.0	61.9	62.0	65.6	3.7	-
4-8	1	66.0	61.9	62.1	65.4	3.5	-
4-9	1	66.0	63.9	63.9	***68.1***	4.2	***Yes***
4-10	1	66.0	61.8	61.9	65.1	3.3	-
4-11	1	66.0	61.6	61.7	64.9	3.3	-
4-12	1	66.0	62.8	62.9	***66.3***	3.5	***Yes***
4-13	1	66.0	62.4	62.5	***66.3***	3.9	***Yes***
4-14	1	66.0	64.0	64.0	***67.7***	3.7	***Yes***
4-15	6	66.0	61.4	61.5	64.6	3.2	-
4-16	2	66.0	61.1	61.1	63.9	2.8	-
4-17	8	66.0	61.3	61.3	64.0	2.7	-
4-18	2	66.0	62.2	62.2	65.7	3.5	-
NSA Summary	***35***		***62.0***	***62.1***	***65.4***	***3.3***	***5***
NSA 5: South of SR 408 from Mills Ave. to Bumby Ave.- Illustrated on Pages D-4 and D-5 - Appendix D							
5-1	1	66.0	64.7	64.7	65.0	0.3	-

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
5-2	1	66.0	63.6	63.7	63.9	0.3	-
5-3	1	66.0	62.4	62.5	62.8	0.4	-
5-4	1	66.0	61.6	61.7	61.9	0.3	-
5-5	1	66.0	62.8	62.9	63.2	0.4	-
5-6	1	66.0	62.3	62.3	62.6	0.3	-
5-7	1	66.0	61.4	61.4	61.7	0.3	-
5-8	1	66.0	60.6	60.6	61.0	0.4	-
5-9	1	66.0	60.2	60.3	60.6	0.4	-
5-10	1	66.0	60.0	60.1	60.4	0.4	-
5-11	1	66.0	***68.4***	***68.5***	***68.7***	0.3	***Yes***
5-12	1	66.0	***67.4***	***67.4***	***67.7***	0.3	***Yes***
5-13	1	66.0	***66.9***	***67.0***	***67.3***	0.4	***Yes***
5-14	1	66.0	65.4	65.4	65.8	0.4	-
5-15	3	66.0	***66.9***	***67.0***	***67.2***	0.3	***Yes***
5-16	1	66.0	***66.2***	***66.2***	***66.4***	0.2	***Yes***
5-17	1	66.0	65.4	65.5	65.7	0.3	-
5-18	1	66.0	64.5	64.5	64.8	0.3	-
5-19	1	66.0	62.8	62.9	63.1	0.3	-
5-20	1	66.0	62.5	62.5	62.8	0.3	-
5-21	1	66.0	62.2	62.3	62.5	0.3	-
5-22	3	66.0	62.7	62.8	63.0	0.3	-
5-23	1	66.0	***66.2***	***66.4***	***66.5***	0.3	***Yes***
5-24	1	66.0	62.2	62.3	62.5	0.3	-
5-25	1	66.0	62.6	62.7	62.9	0.3	-
5-26	1	66.0	63.0	63.1	63.2	0.2	-
5-27	1	66.0	63.3	63.4	63.6	0.3	-
5-28	1	66.0	64.0	64.1	64.2	0.2	-
5-29	2	66.0	65.2	65.4	65.5	0.3	-
5-30	4	66.0	62.0	62.1	62.3	0.3	-
SLU5-1	1	66.0	60.5	60.6	60.8	0.3	
SLU5-2	1	66.0	***66.8***	***66.8***	***67.4***	0.6	***Yes***
SLU5-2.1			*65.7*	*65.7*	***66.0***	*0.3*	
NSA Summary	***40***		***63.7***	***63.8***	***64.0***	***0.3***	***8***

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
NSA 6: North of SR 408 from Mills Ave. to Bumby Ave. - Illustrated on Pages D-4 and D-5 - Appendix D							
6-1	3	66.0	***67.8***	***67.9***	***68.3***	0.5	***Yes***
6-2	3	66.0	64.6	64.6	65.3	0.7	-
6-3	1	66.0	63.3	63.4	64.2	0.9	-
6-4	4	66.0	***67.6***	***67.7***	***68.3***	0.7	***Yes***
6-5	2	66.0	***66.0***	***66.0***	***67.0***	1.0	***Yes***
6-6	2	66.0	65.5	65.6	***66.8***	1.3	***Yes***
6-7	2	66.0	64.9	65.0	***66.2***	1.3	***Yes***
6-8	2	66.0	64.2	64.3	65.8	1.6	***Yes***
6-9	10	66.0	64.6	64.6	***66.0***	1.4	***Yes***
6-10	1	66.0	65.1	65.2	***67.9***	2.8	***Yes***
6-11	1	66.0	***66.2***	***66.2***	***70.9***	4.7	***Yes***
6-12	2	66.0	64.4	64.4	***68.7***	4.3	***Yes***
6-13	1	66.0	63.8	63.9	***66.6***	2.8	***Yes***
6-14	2	66.0	63.5	63.5	***67.7***	4.2	***Yes***
6-15	4	66.0	62.5	62.5	***66.8***	4.3	***Yes***
6-16	1	66.0	***67.4***	***67.4***	***73.8***	6.4	***Yes***
6-17	1	66.0	64.5	64.5	***70.6***	6.1	***Yes***
6-18	1	66.0	63.8	63.9	***69.9***	6.1	***Yes***
6-19	2	66.0	64.9	64.9	***72.0***	7.1	***Yes***
6-20	2	66.0	63.4	63.4	***69.7***	6.3	***Yes***
6-21	4	66.0	63.1	63.1	***70.4***	7.3	***Yes***
6-22	4	66.0	61.8	61.8	***67.8***	6.0	***Yes***
6-23	6	66.0	64.7	64.8	***73.0***	8.3	***Yes***
6-24	4	66.0	***67.7***	***67.7***	***75.7***	8.0	***Yes***
6-25	1	66.0	65.4	65.4	***73.6***	8.2	***Yes***
6-26	2	66.0	64.0	64.0	***70.6***	6.6	***Yes***
6-27	4	66.0	63.2	63.2	***70.5***	7.3	***Yes***
6-28	4	66.0	62.4	62.4	***68.9***	6.5	***Yes***
6-29	3	66.0	65.7	65.7	***72.5***	6.8	***Yes***
6-30	4	66.0	***68.7***	***68.8***	***74.8***	6.1	***Yes***
6-31	2	66.0	64.7	64.8	***69.5***	4.8	***Yes***
6-32	2	66.0	63.5	63.5	***68.2***	4.7	***Yes***

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
6-33	4	66.0	***68.3***	***68.3***	***74.4***	6.1	***Yes***
6-34	2	66.0	65.2	65.2	***70.3***	5.1	***Yes***
6-35	2	66.0	63.8	63.9	***68.3***	4.5	***Yes***
6-36	1	66.0	***68.3***	***68.3***	***74.2***	5.9	***Yes***
6-37	1	66.0	64.9	65.0	***69.9***	5.0	***Yes***
6-38	1	66.0	63.7	63.8	***68.2***	4.5	***Yes***
6-39	1	66.0	***68.1***	***68.3***	***71.6***	3.5	***Yes***
6-40	1	66.0	***66.7***	***66.8***	***71.0***	4.3	***Yes***
6-41	1	66.0	65.6	65.8	***69.9***	4.3	***Yes***
6-42	1	66.0	64.6	64.7	***69.5***	4.9	***Yes***
6-43	1	66.0	64.1	64.3	***68.6***	4.5	***Yes***
6-44	1	66.0	63.3	63.4	***68.3***	5.0	***Yes***
NSA Summary	***104***		***65.0***	***65.0***	***69.6***	***4.6***	***98***
NSA 7: South of SR 408 from Bumby Ave. to Crystal Lake Dr.- Illustrated on Pages D-5 and D-6 - Appendix D							
7-1	2	66.0	64.5	64.5	64.6	0.1	-
7-2	1	66.0	63.8	63.8	64.0	0.2	-
7-3	1	66.0	63.2	63.2	63.3	0.1	-
7-4	1	66.0	62.5	62.5	62.7	0.2	-
7-5	2	66.0	62.0	62.0	62.2	0.2	-
7-6	1	66.0	62.2	62.2	62.4	0.2	-
7-7	4	66.0	65.8	65.8	65.9	0.1	-
7-8	3	66.0	64.1	64.1	64.2	0.1	-
7-9	3	66.0	63.2	63.2	63.4	0.2	-
7-10	1	66.0	62.6	62.6	62.8	0.2	-
7-11	1	66.0	62.2	62.3	62.4	0.2	-
7-12	1	66.0	63.9	63.9	63.9	0.0	-
7-13	1	66.0	63.7	63.7	63.7	0.0	-
7-14	1	66.0	62.6	62.6	62.7	0.1	-
7-15	1	66.0	62.7	62.7	62.8	0.1	-
7-16	3	66.0	61.9	61.9	62.0	0.1	-
7-17	1	66.0	64.4	64.4	64.4	0.0	-
7-18	1	66.0	64.4	64.4	64.4	0.0	-
7-19	3	66.0	64.8	64.8	64.8	0.0	-

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
7-20	1	66.0	64.7	64.7	64.7	0.0	-
7-21	1	66.0	62.6	62.6	62.7	0.1	-
7-22	3	66.0	62.8	62.8	62.8	0.0	-
7-23	1	66.0	62.2	62.2	62.3	0.1	-
7-24	1	66.0	62.0	62.0	62.1	0.1	-
7-25	2	66.0	62.6	62.6	62.6	0.0	-
7-26	1	66.0	65.8	65.8	65.9	0.1	-
7-27	1	66.0	65.2	65.2	65.2	0.0	-
7-28	3	66.0	65.4	65.4	65.4	0.0	-
7-29	1	66.0	64.9	64.9	64.9	0.0	-
7-30	1	66.0	64.8	64.8	64.8	0.0	-
7-31	2	66.0	64.1	64.1	64.1	0.0	-
7-32	1	66.0	63.6	63.6	63.6	0.0	-
7-33	1	66.0	63.8	63.8	63.8	0.0	-
7-34	2	66.0	63.2	63.2	63.2	0.0	-
7-35	1	66.0	63.2	63.2	63.2	0.0	-
7-36	1	66.0	63.0	63.0	63.0	0.0	-
NSA Summary	***56***		***63.6***	***63.6***	***63.6***	***0.1***	***0***
NSA 8: North of SR 408 from Bumby Ave. to Crystal Lake Dr. - Illustrated on Pages D-5 and D-6 - Appendix D							
8-1	1	66.0	62.2	62.2	***66.7***	4.5	***Yes***
8-2	7	66.0	62.8	62.8	***67.2***	4.4	***Yes***
8-3	1	66.0	62.4	62.4	64.5	2.1	-
8-4	1	66.0	65.4	65.4	65.4	0.0	-
8-5	2	66.0	64.7	64.7	64.7	0.0	-
SLU8-1	1	66.0	62.5	62.5	***66.0***	3.5	***Yes***
SLU8-2	1	66.0	***66.9***	***66.9***	***67.0***	0.1	***Yes***
NSA Summary	***14***		***63.8***	***63.8***	***65.9***	***2.1***	***8***
NSA 9: South of SR 408 from SR 436 to Oxalis Ave. - Illustrated on Pages D-7 and D-8 - Appendix D							
9-1a	4	66.0	63.3	63.3	63.4	0.1	-
9-1b	4	66.0	65.2	65.3	65.4	0.2	-
9-2a	4	66.0	60.1	60.1	60.2	0.1	-
9-2b	4	66.0	61.9	62.0	62.0	0.1	-

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
9-3a	4	66.0	58.5	58.6	58.7	0.2	-
9-3b	4	66.0	60.5	60.5	60.7	0.2	-
9-4a	9	66.0	57.9	58.0	58.0	0.1	-
9-4b	9	66.0	59.1	59.2	59.2	0.1	-
9-5	1	66.0	63.9	64.2	64.0	0.1	-
9-6	1	66.0	61.6	61.9	61.8	0.2	-
9-7	1	66.0	64.1	64.5	64.2	0.1	-
9-8	1	66.0	63.8	64.2	64.0	0.2	-
9-9	1	66.0	63.5	63.8	63.7	0.2	-
9-10	1	66.0	63.2	63.6	63.5	0.3	-
9-11	1	66.0	63.5	63.8	63.8	0.3	-
9-12	6	66.0	64.3	64.4	64.6	0.3	-
9-13	1	66.0	61.8	62.1	62.0	0.2	-
9-14	1	66.0	61.6	61.9	61.8	0.2	-
9-15	1	66.0	62.2	62.4	62.5	0.3	-
SLU9-1	1	66.0	64.2	64.1	64.3	0.1	-
NSA Summary	***59***		***62.2***	***62.4***	***62.4***	***0.2***	***0***
NSA 10: North of SR 408 from SR 436 to Oxalis Ave.- Illustrated on Pages D-7 and D-8 - Appendix D							
10-1	3	66.0	62.8	62.9	***67.0***	4.2	***Yes***
10-2	1	66.0	62.8	62.9	***66.9***	4.1	***Yes***
10-3	1	66.0	62.8	62.8	***66.6***	3.8	***Yes***
10-4	1	66.0	63.8	62.8	***66.0***	2.2	***Yes***
10-5	1	66.0	64.2	64.5	64.9	0.7	-
10-6	1	66.0	63.5	63.6	64.9	1.4	-
10-7	6	66.0	62.2	62.2	65.3	3.1	-
10-8	1	66.0	62.3	62.4	64.7	2.4	-
10-9	1	66.0	62.5	62.6	64.6	2.1	-
10-10	1	66.0	62.8	62.8	64.4	1.6	-
10-11	1	66.0	61.8	61.7	63.1	1.3	-
10-12	1	66.0	62.9	63.2	63.4	0.5	-
10-13	1	66.0	62.5	62.7	63.2	0.7	-
10-14	1	66.0	62.4	62.5	63.3	0.9	-
10-15	1	66.0	***67.1***	***67.7***	***67.6***	0.5	***Yes***

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
10-16	1	66.0	64.4	64.8	64.9	0.5	-
10-17	1	66.0	62.9	63.3	63.5	0.6	-
10-18	1	66.0	61.9	62.2	62.6	0.7	-
10-19	1	66.0	61.4	61.2	62.6	1.2	-
10-20	1	66.0	60.6	60.6	61.6	1.0	-
10-21	1	66.0	60.6	60.7	61.6	1.0	-
10-22	1	66.0	60.7	60.7	61.6	0.9	-
10-23	1	66.0	60.9	60.9	61.7	0.8	-
10-24	8	66.0	61.5	61.5	62.3	0.8	-
10-25	1	66.0	61.3	61.3	62.2	0.9	-
10-26	1	66.0	61.2	61.2	62.4	1.2	-
10-27	1	66.0	61.3	61.3	62.9	1.6	-
10-28	1	66.0	61.6	61.6	64.0	2.4	-
10-29	1	66.0	62.6	62.7	***66.1***	3.5	***Yes***
10-30	1	66.0	60.6	60.5	61.5	0.9	-
NSA Summary	***44***		***62.3***	***62.4***	***63.9***	***1.6***	***8***
NSA 11: South of SR 408 from Oxalis Ave. to powerline- Illustrated on Page D-8 - Appendix D							
11-1	1	66.0	64.2	64.2	64.4	0.2	-
11-2	1	66.0	63.0	62.9	63.2	0.2	-
11-3	1	66.0	61.7	61.6	61.9	0.2	-
11-4	1	66.0	61.7	61.6	62.0	0.3	-
11-5	1	66.0	63.5	63.5	63.8	0.3	-
11-6	1	66.0	63.4	63.3	63.6	0.2	-
11-7	8	66.0	63.8	63.8	64.0	0.2	-
11-8	1	66.0	62.0	62.0	62.3	0.3	-
11-9	8	66.0	62.3	62.3	62.6	0.3	-
11-10	1	66.0	65.0	65.0	65.2	0.2	-
11-11	1	66.0	64.7	64.7	64.9	0.2	-
11-12	1	66.0	64.7	64.7	64.9	0.2	-
11-13	4	66.0	65.2	65.3	65.3	0.1	-
11-14	1	66.0	62.9	62.9	63.2	0.3	-
11-15	1	66.0	62.5	62.5	62.8	0.3	-
11-16	1	66.0	62.4	62.4	62.6	0.2	-

Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
11-17	5	66.0	62.9	62.9	63.0	0.1	-
11-18	1	66.0	63.4	63.4	63.5	0.1	-
11-19	1	66.0	64.2	64.2	64.2	0.0	-
NSA Summary	***40***		***63.3***	***63.3***	***63.5***	***0.2***	***0***
NSA 12: North of SR 408 from Oxalis Ave. to powerline- Illustrated on Page D-8 - Appendix D							
12-1	1	66.0	63.8	63.8	***67.8***	4.0	***Yes***
12-2	1	66.0	61.8	61.8	64.3	2.5	-
12-3	1	66.0	60.8	60.8	61.8	1.0	-
12-4	1	66.0	61.0	61.0	61.8	0.8	-
12-5	1	66.0	61.1	61.1	61.8	0.7	-
12-6	9	66.0	61.6	61.6	62.2	0.6	-
12-7	1	66.0	63.9	63.9	64.0	0.1	-
12-8	1	66.0	62.6	62.6	62.7	0.1	-
12-9	1	66.0	61.8	61.8	65.0	3.2	-
12-10	1	66.0	61.2	61.2	63.8	2.6	-
NSA Summary	***18***		***62.0***	***62.0***	***63.5***	***1.6***	***1***
NSA 13: South of SR 408 from powerline to Goldenrod Rd. - Illustrated on Page D-9 - Appendix D							
13-1	3	66.0	***68.0***	***68.1***	***68.1***	0.1	***Yes***
13-2	3	66.0	65.8	65.9	65.9	0.1	-
13-3	2	66.0	***69.0***	***69.1***	***69.1***	0.1	***Yes***
13-4	2	66.0	***66.8***	***66.9***	***66.9***	0.1	***Yes***
13-5	2	66.0	***67.5***	***67.6***	***67.6***	0.1	***Yes***
13-6	1	66.0	65.9	65.9	65.9	0.0	-
SLU13-1	1	66.0	63.3	63.3	63.3	0.0	-
SLU13-2	1	66.0	65.2	65.2	65.2	0.0	-
NSA Summary	***15***		***66.4***	***66.5***	***66.5***	***0.1***	***9***
NSA 14: North of SR 408 from powerline to Goldenrod Rd. - Illustrated on Page D-9 - Appendix D							
14-1a	2	66.0	61.8	61.9	61.9	0.1	-
14-1b	2	66.0	64.6	64.6	64.6	0.0	-
14-2a	4	66.0	61.3	61.3	61.4	0.1	-
14-2b	4	66.0	63.8	63.8	63.9	0.1	-

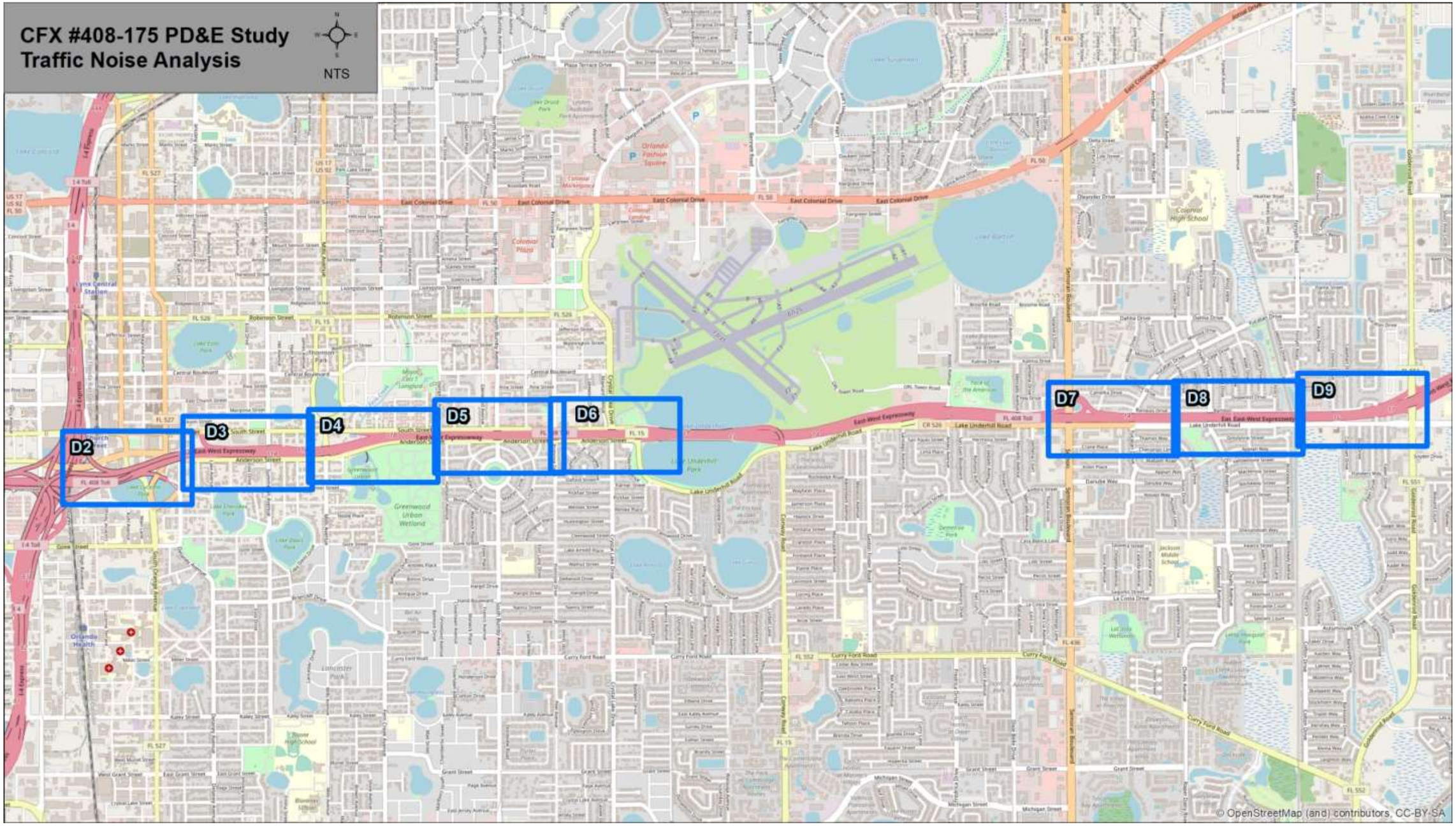
Noise Impact Comparison Matrix

Noise Sensitive Sites			Predicted Noise Levels (dB(A)) *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
14-3a	4	66.0	62.0	62.0	62.0	0.0	-
14-3b	4	66.0	65.0	65.0	65.1	0.1	-
14-4a	2	66.0	61.6	61.6	61.6	0.0	-
14-4b	2	66.0	64.5	64.5	64.6	0.1	-
14-5a	2	66.0	61.1	61.1	61.2	0.1	-
14-5b	2	66.0	63.7	63.7	63.8	0.1	-
14-6a	2	66.0	60.7	60.7	60.8	0.1	-
14-6b	2	66.0	63.3	63.3	63.3	0.0	-
14-7a	4	66.0	60.7	60.8	60.8	0.1	-
14-7b	4	66.0	63.5	63.5	63.5	0.0	-
14-8a	4	66.0	60.5	60.5	60.5	0.0	-
14-8b	4	66.0	63.1	63.1	63.1	0.0	-
14-9	1	66.0	63.1	63.1	63.1	0.0	-
14-10	1	66.0	61.7	61.7	61.8	0.1	-
14-11	1	66.0	63.8	63.8	63.9	0.1	-
14-12	1	66.0	64.4	64.3	64.4	0.0	-
14-13	1	66.0	62.7	62.7	62.8	0.1	-
14-14	1	66.0	63.3	63.3	63.4	0.1	-
14-15	1	66.0	61.9	61.9	62.0	0.1	-
14-16	1	66.0	62.3	62.3	62.4	0.1	-
14-17	2	66.0	***67.6***	***67.7***	***67.7***	0.1	***Yes***
14-18	2	66.0	65.8	65.9	65.9	0.1	-
14-19	2	66.0	65.2	65.3	65.3	0.1	-
14-20	1	66.0	63.1	63.1	63.1	0.0	-
14-21	4	66.0	64.5	64.6	64.6	0.1	-
14-22	1	66.0	65.9	***66.0***	***66.0***	0.1	***Yes***
14-23	1	66.0	***66.6***	***66.7***	***66.7***	0.1	***Yes***
14-24	1	66.0	***67.2***	***67.4***	***67.4***	0.2	***Yes***
14-25a	1	66.0	65.7	65.9	65.8	0.1	-
14-25b	1	66.0	***70.3***	***70.4***	***70.4***	0.1	***Yes***
14-25c	1	66.0	***71.7***	***71.8***	***71.8***	0.1	***Yes***
14-25d	1	66.0	***72.5***	***72.6***	***72.6***	0.1	***Yes***
14-26a	1	66.0	64.8	65.0	64.9	0.1	-

Noise Impact Comparison Matrix							
Noise Sensitive Sites			**Predicted Noise Levels (dB(A))** *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2022 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
14-26b	1	66.0	***69.2***	***69.3***	***69.3***	0.1	***Yes***
14-26c	1	66.0	***70.6***	***70.8***	***70.8***	0.2	***Yes***
14-26d	1	66.0	***71.7***	***71.8***	***71.8***	0.1	***Yes***
NSA Summary	***78***		***64.7***	***64.7***	***64.8***	***0.1***	***11***

Appendix D:

Project Aerials


CFX #408-175 PD&E Study
Traffic Noise Analysis
NTS
D2
D3
D4
D5
D6
D7
D8
D9
East Colonial Drive
East-West Expressway
Lake Underhill Road
Curry Ford Road
Semoran Boulevard
Orlando Fashion Square
Colonial Plaza
Colonial High School
Greenwood Urban Wetland
Lynx Central Station
Orlando Health
Jackson Middle School
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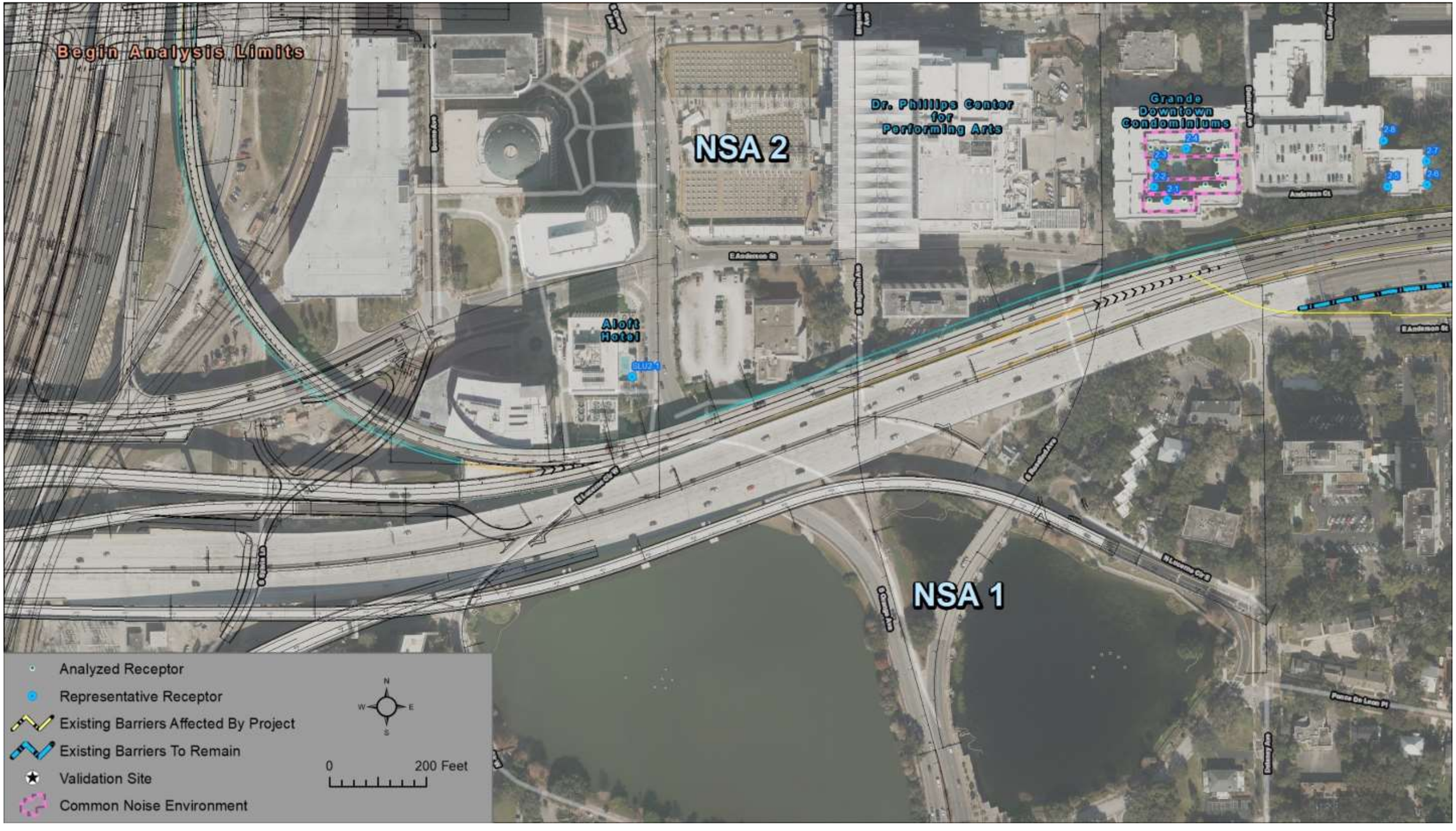
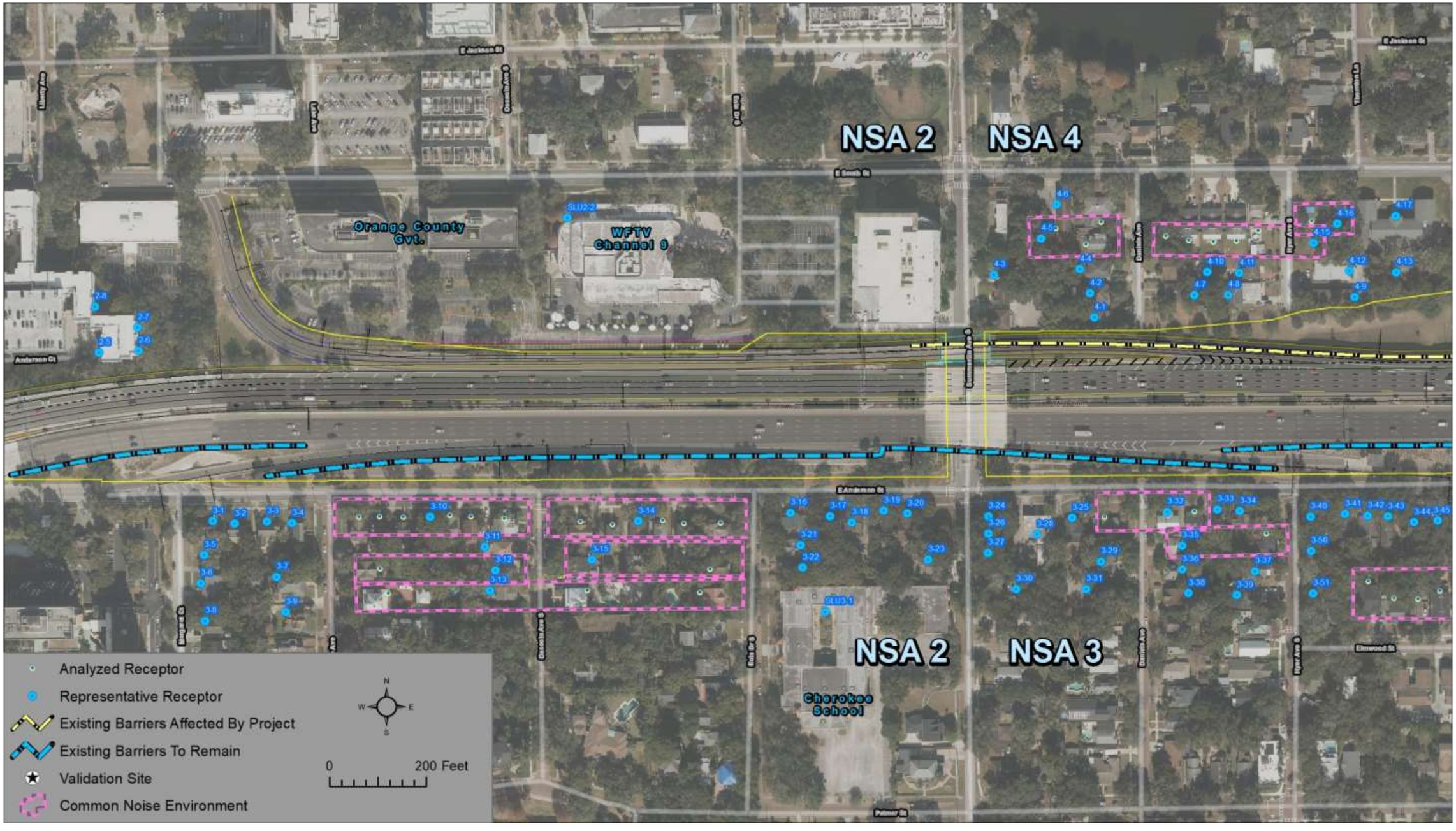
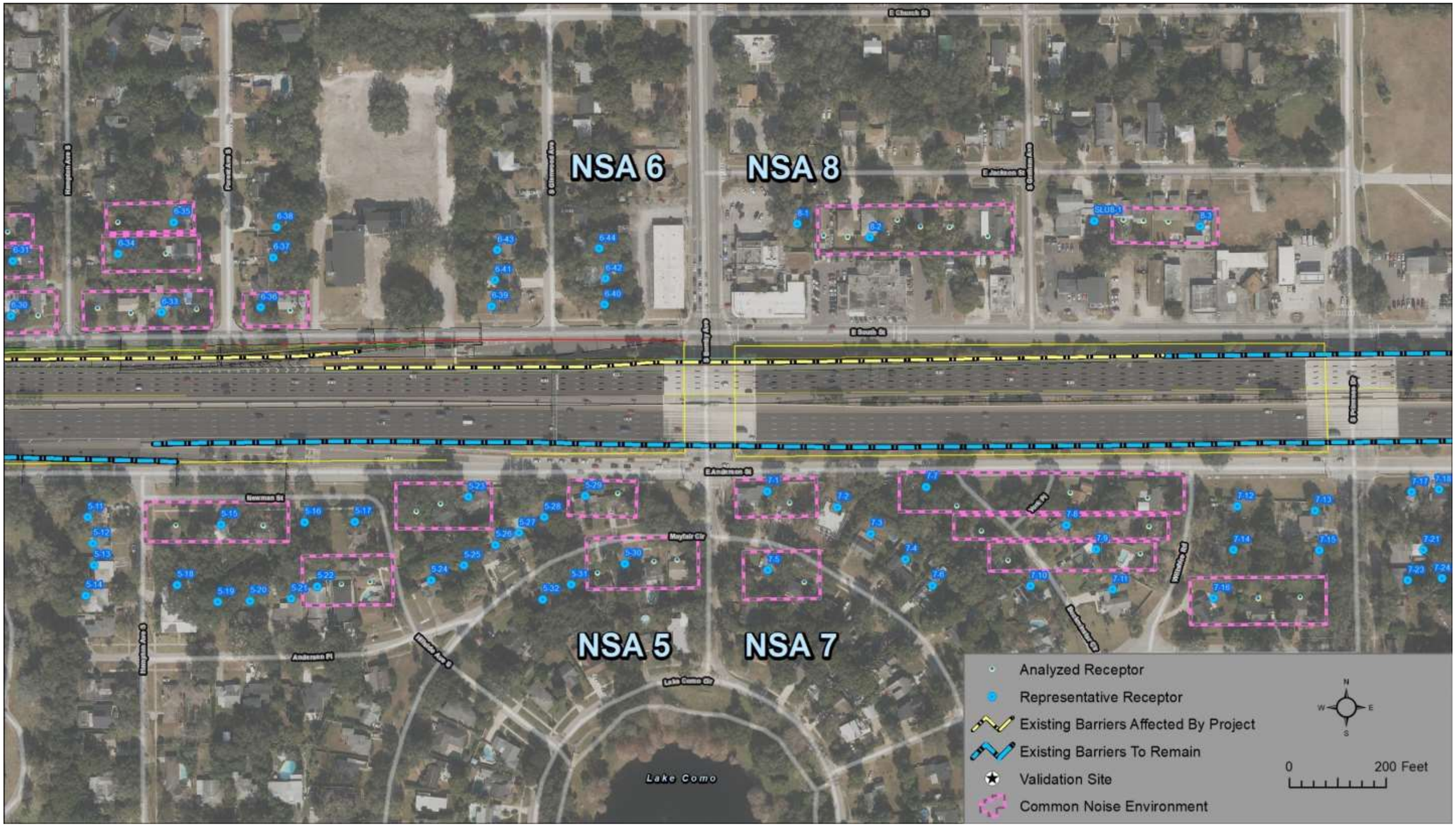
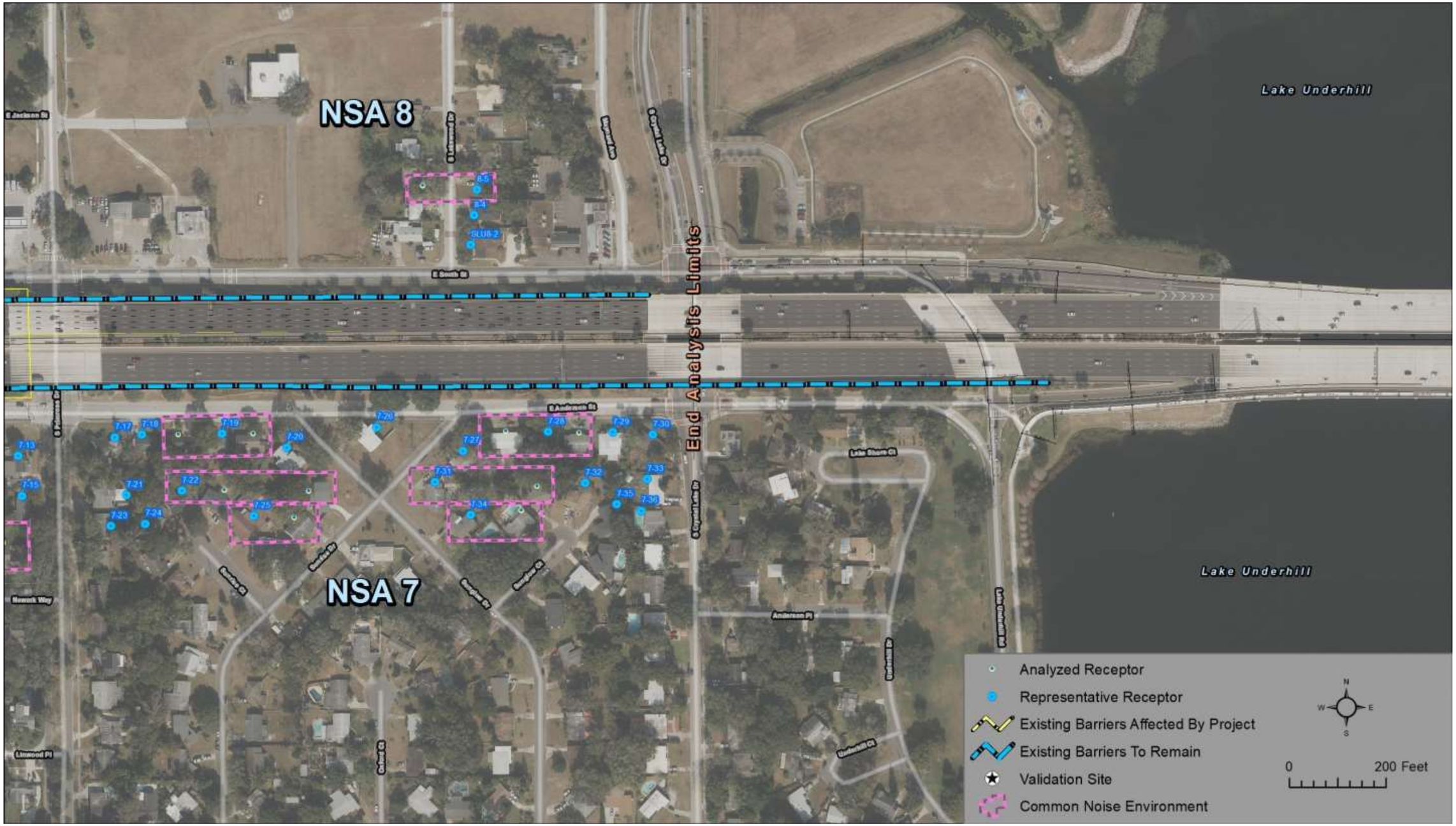

Begin Analysis Limits
NSA 2
Dr. Phillips Center for Performing Arts
Grande Downtown Condominiums
Aloft Hotel
NSA 1
E Anderson St
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
N
W
E
S
0
200 Feet

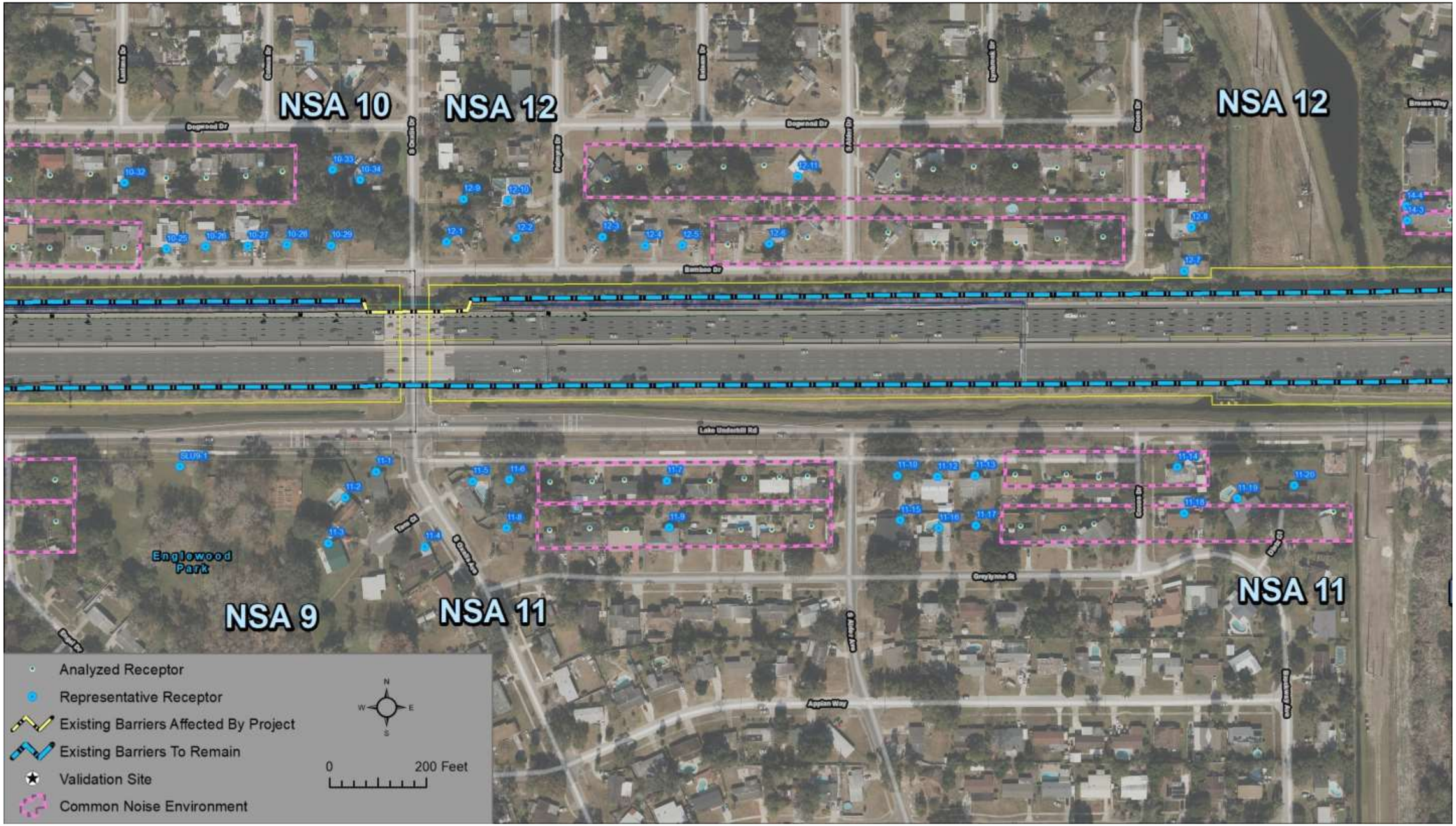

NSA 2
NSA 4
NSA 2
NSA 3
Orange County Gvt.
WFTV Channel 9
Cherokee School
E Jackson St
E South St
E Anderson St
Palmer St
Elmwood St
Anderson St
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
N
W
E
S
0
200 Feet

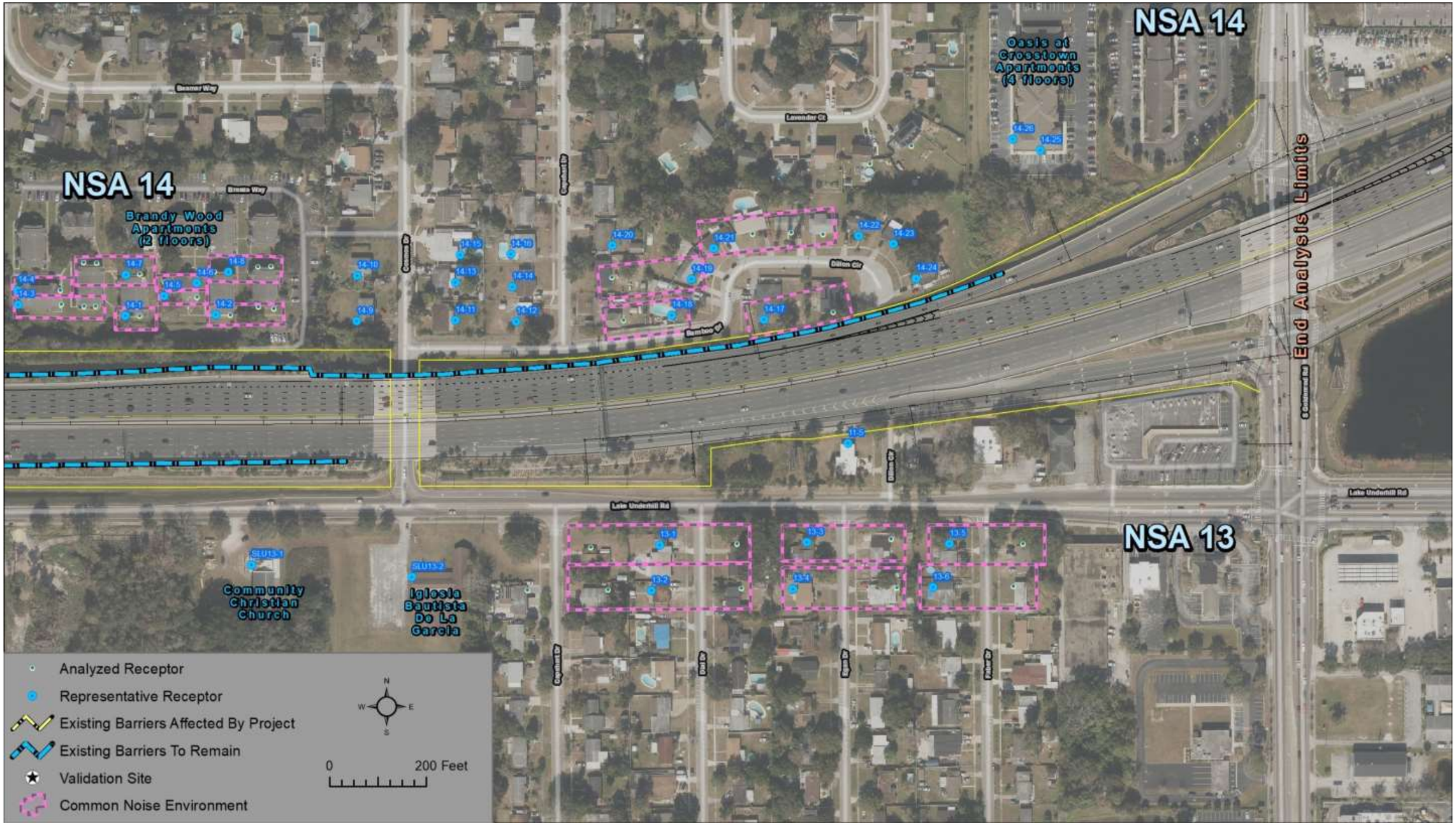

NSA 4
NSA 6
NSA 6
NSA 3
NSA 5
NSA 5
Reeves Terrace
Lake Greenwood
Greenwood Urban Wetlands Park
Greenwood Cemetary
E Jackson St
E Anderson St
E South St
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
0
200 Feet


NSA 6
NSA 8
NSA 5
NSA 7
Lake Como
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
0
200 Feet


NSA 8
NSA 7
Lake Underhill
Lake Underhill
End Analysis Limits
E Jackson St
E South St
E Anderson St
Lake Shore Ct
Anderson Pl
Hework Way
Linwood Pl
R-5
R-4
SLUS-2
T-13
T-15
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-32
T-33
T-34
T-35
T-36
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
N
W
E
S
0
200 Feet

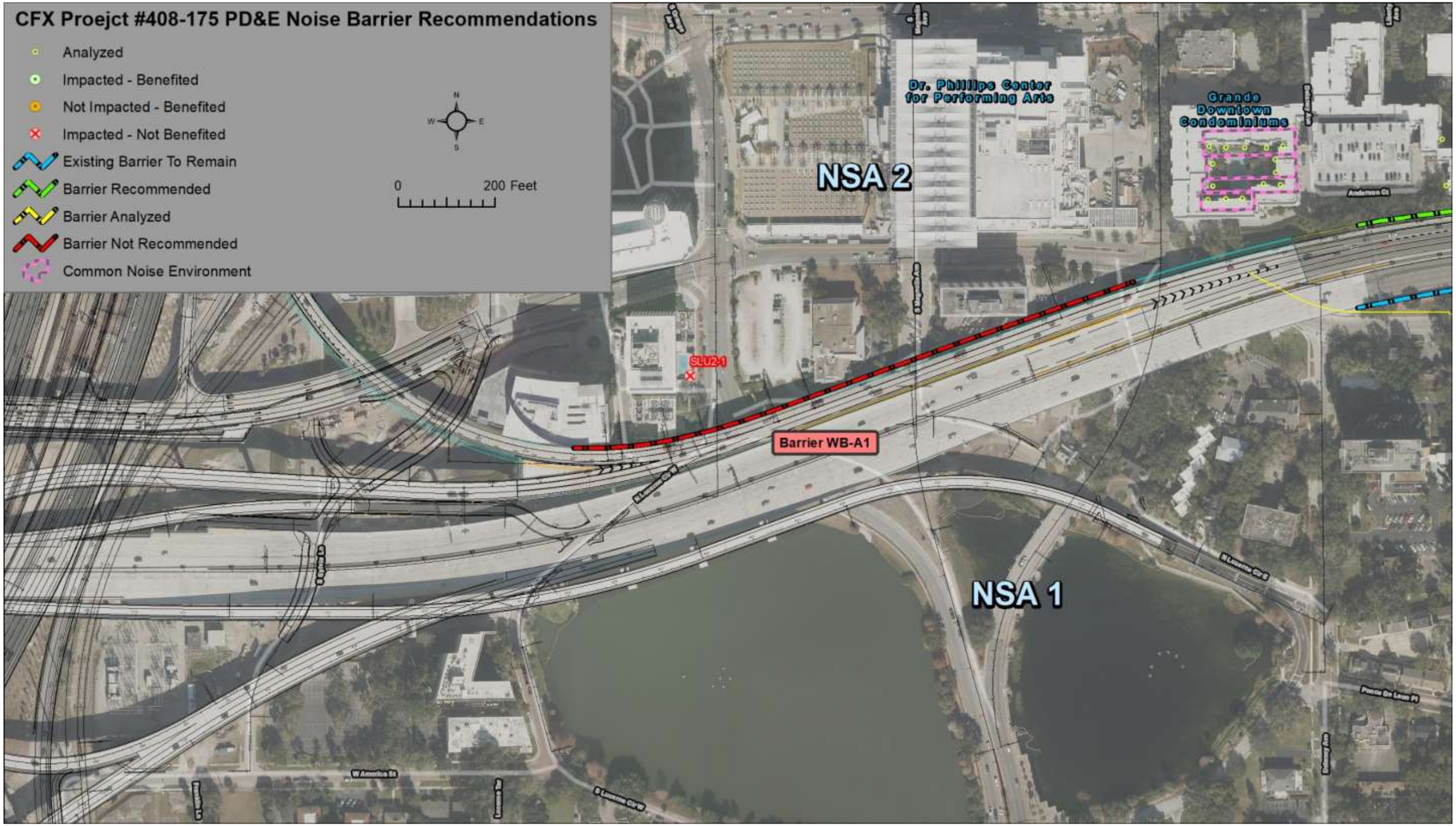

NSA 10
NSA 9
Begin Analysis Limits
Lake Underhill Gardens Apartments (2 floors)
Camelia Dr
Rosalind Dr
Lake Underhill Rd
Thames Way
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
N
W
E
S
0
200 Feet

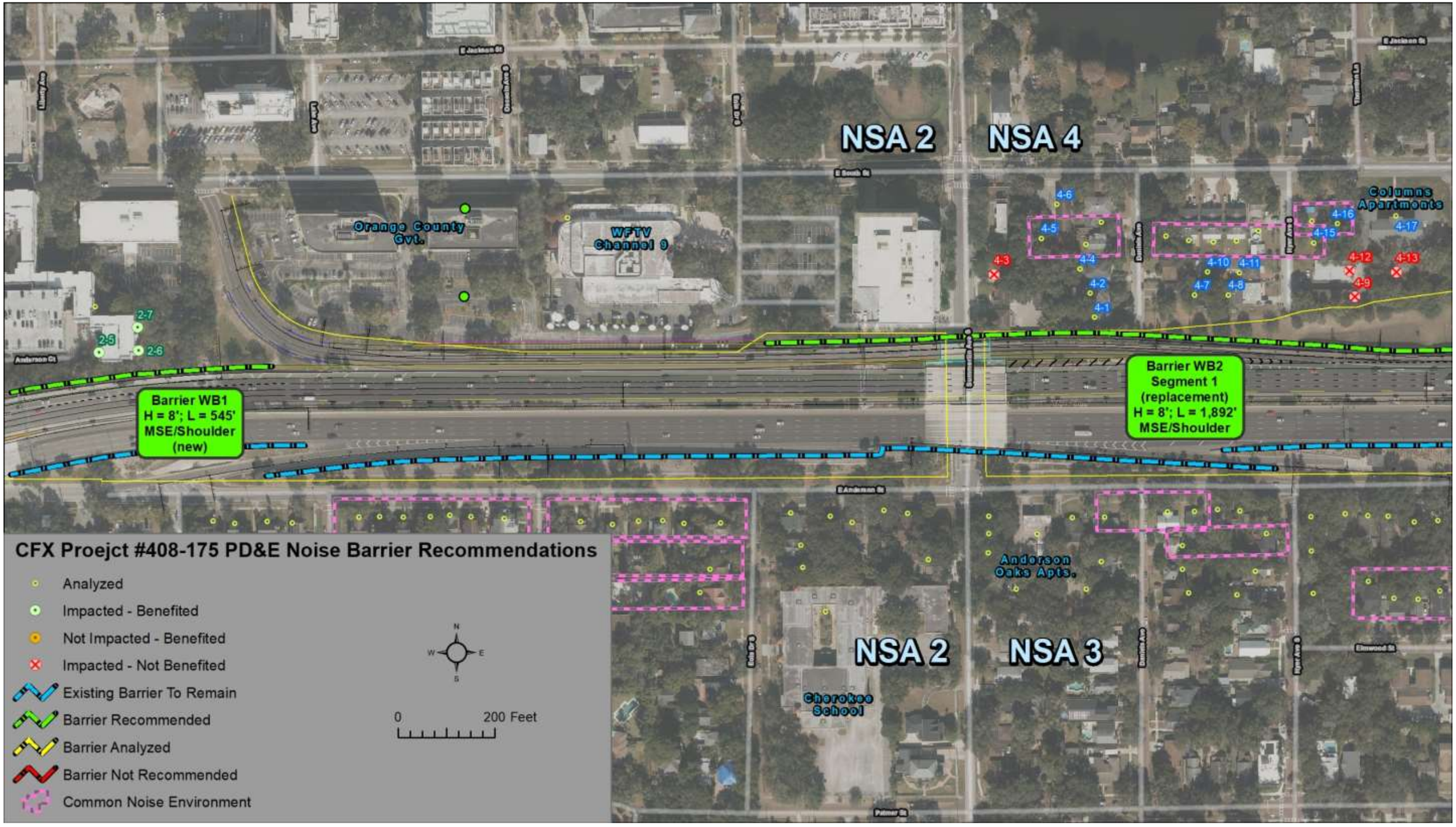

NSA 10
NSA 12
NSA 12
NSA 9
NSA 11
NSA 11
Dogwood Dr
Bamboo Dr
Lake Underhill Rd
Greylynne St
Agapan Way
Englewood Park
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
N
W
E
S
0
200 Feet

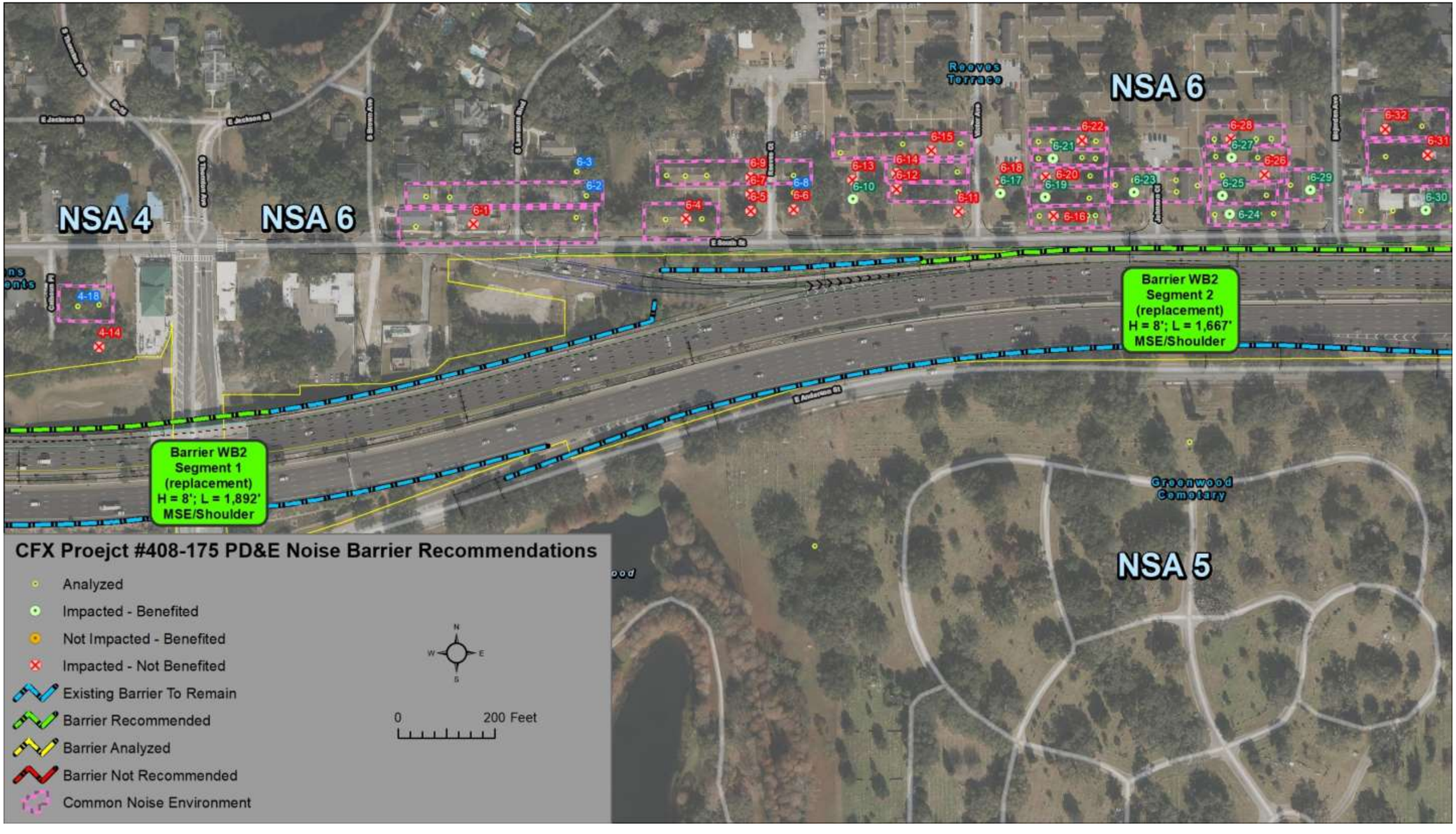

NSA 14
Brandy Wood Apartments (2 floors)
Oasis at Crosstown Apartments (4 floors)
NSA 14
End Analysis Limits
NSA 13
Community Christian Church
Iglesia Bautista De La Garcia
Beamer Way
Brama Way
Lavender Ct
Dillon Cir
Ramton Dr
Lake Underhill Rd
Analyzed Receptor
Representative Receptor
Existing Barriers Affected By Project
Existing Barriers To Remain
Validation Site
Common Noise Environment
N
W
E
S
0
200 Feet

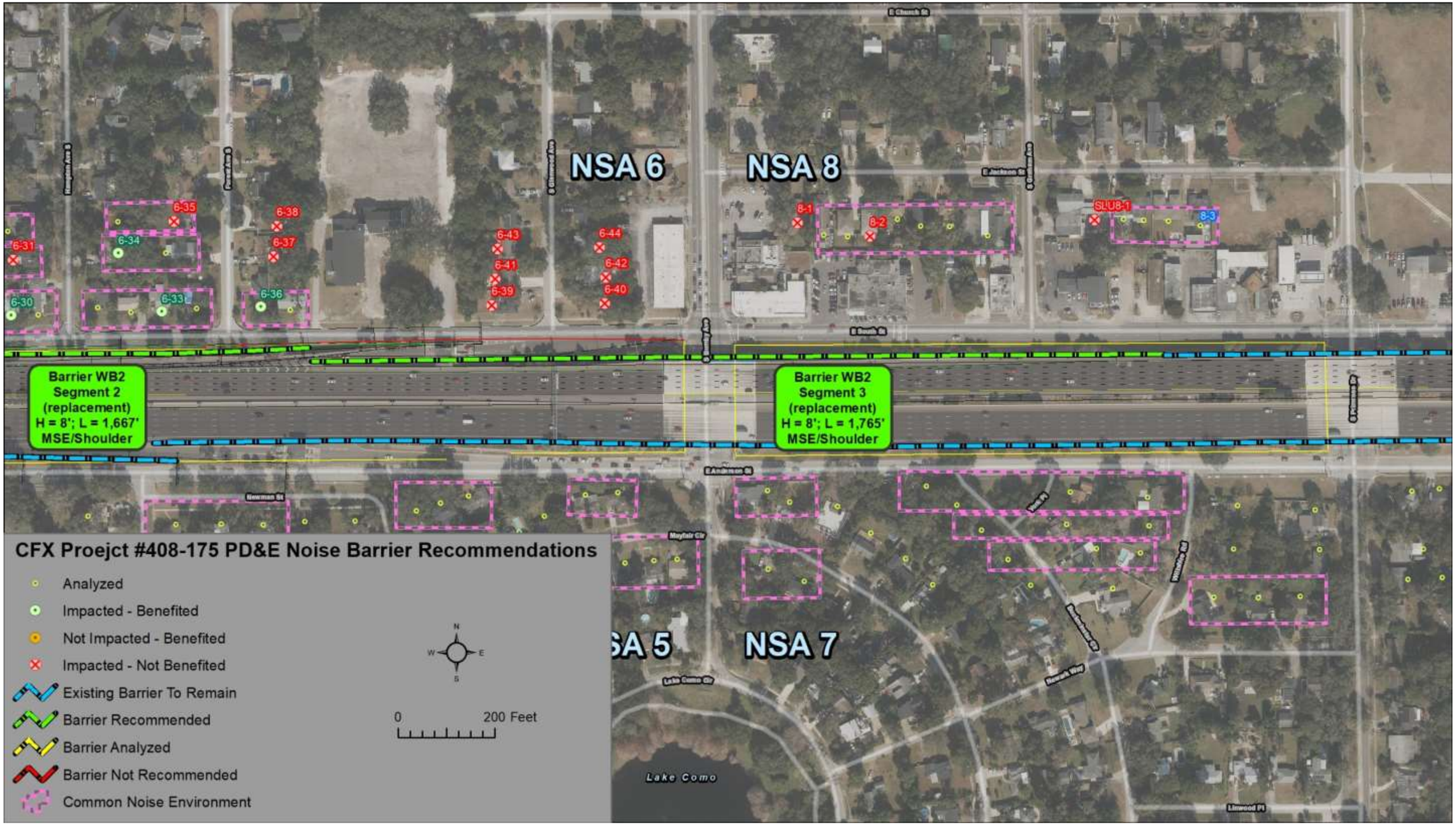
Appendix E:

Noise Barrier Maps


CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet
Dr. Phillips Center for Performing Arts
Grande Downtown Condominiums
NSA 2
SLU2-1
Barrier WB-A1
NSA 1
W America St

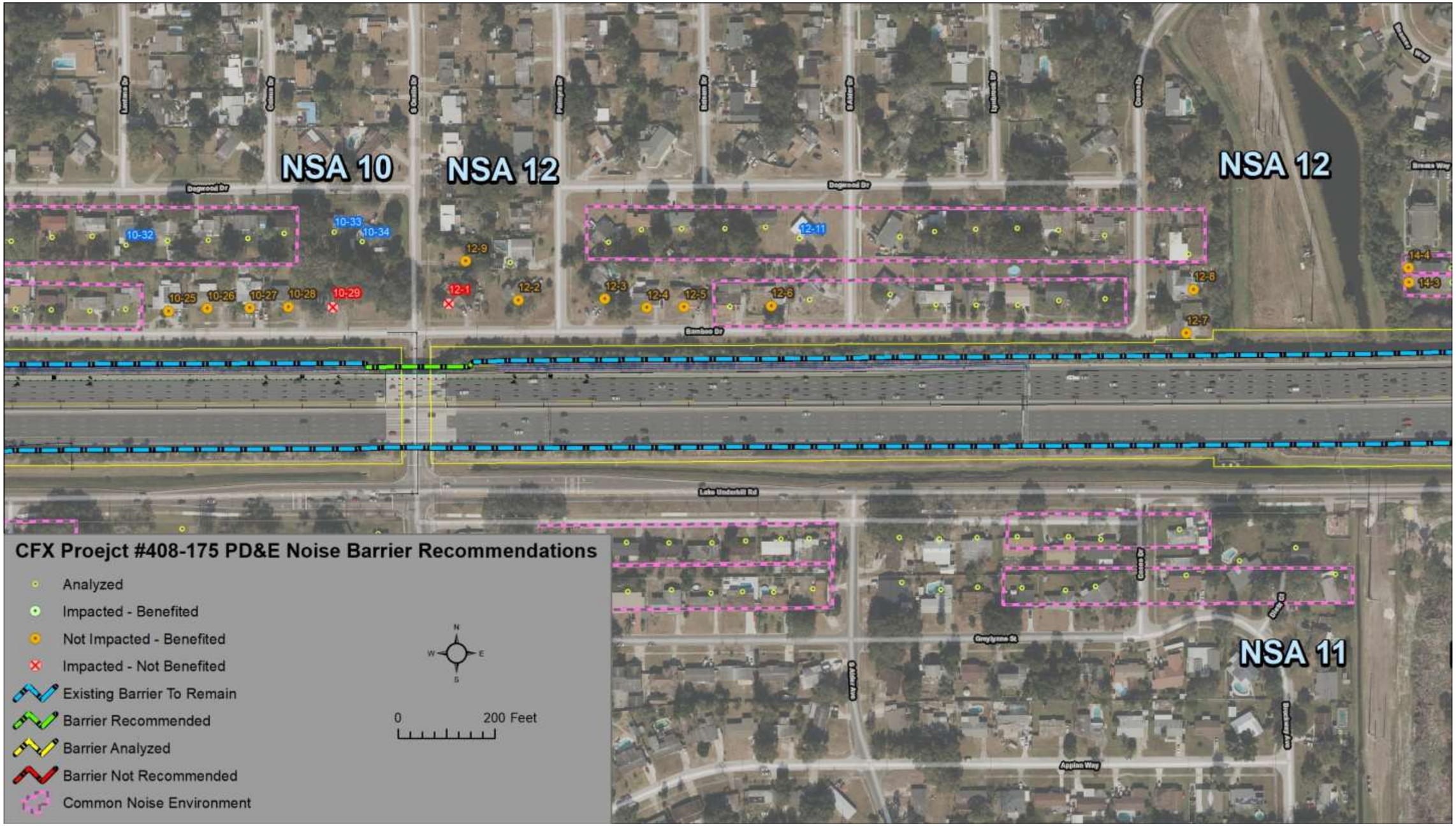

NSA 2
NSA 4
NSA 2
NSA 3
Orange County Gvt.
WFTV Channel 9
Columns Apartments
Anderson Oaks Apts.
Cherokee School
Barrier WB1
H = 8'; L = 545'
MSE/Shoulder
(new)
Barrier WB2
Segment 1
(replacement)
H = 8'; L = 1,892'
MSE/Shoulder
CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet


NSA 4
NSA 6
NSA 6
NSA 5
Reeves Terrace
Greenwood Cemetery
E Jackson St
E South St
E Anderson Ct
S Thomson Ave
S Lumsden Rd
Barrier WB2
Segment 2
(replacement)
H = 8'; L = 1,667'
MSE/Shoulder
Barrier WB2
Segment 1
(replacement)
H = 8'; L = 1,892'
MSE/Shoulder
CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet


NSA 6
NSA 8
NSA 5
NSA 7
6-35
6-34
6-31
6-30
6-33
6-38
6-37
6-36
6-43
6-41
6-39
6-44
6-42
6-40
8-1
8-2
SLU8-1
8-3
Barrier WB2 Segment 2 (replacement) H = 8'; L = 1,667' MSE/Shoulder
Barrier WB2 Segment 3 (replacement) H = 8'; L = 1,765' MSE/Shoulder
E Church St
E Jackson St
E South St
E Anderson St
Newman St
Mayfair Cir
Lake Como Cir
Lake Como
Howell Way
Linwood Pl
CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet


NSA 8
Lake Underhill
Analysis Limits
E Church St
E Jackson St
E South St
E Anderson St
Lake Shore Ct
Anderson Pl
Underhill Ct
B-5
B-4
SLU8-2
CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet


NSA 10
NSA 9
10-1
10-2
10-3
10-4
10-5
10-6
10-7
10-8
10-9
10-10
10-11
10-12
10-13
10-14
10-19
10-20
10-21
10-22
10-23
10-24
10-30
10-31
Barrier WB3
Segment 1
(replacement)
H = 8'; L = 1,313'
MSE/Shoulder
Lake Underhill Gardens Apartments (2 floors)
CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet


NSA 10
NSA 12
NSA 12
NSA 11
Dogwood Dr
Bamboo Dr
Lake Underhill Rd
Greystone Dr
Appian Way
Breeze Way
10-32
10-33
10-34
10-25
10-26
10-27
10-28
10-29
12-9
12-1
12-2
12-3
12-4
12-5
12-6
12-11
12-8
12-7
14-4
14-3
CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet


NSA 14
Brandy Wood Apartments (2 floors)
Oasis at Crosstown Apartments (4 floors)
NSA 14
NSA 13
End Analysis Limits
Beamer Way
Brema Way
Cozens Dr
Coppehard Dr
Lavender Ct
Balton Cir
Rambler Ct
Lake Underhill Rd
14-1
14-2
14-3
14-4
14-5
14-6
14-7
14-8
14-9
14-10
14-11
14-12
14-13
14-14
14-15
14-16
14-17
14-18
14-19
14-20
14-21
14-22
14-23
14-24
CFX Proejct #408-175 PD&E Noise Barrier Recommendations
Analyzed
Impacted - Benefited
Not Impacted - Benefited
Impacted - Not Benefited
Existing Barrier To Remain
Barrier Recommended
Barrier Analyzed
Barrier Not Recommended
Common Noise Environment
N
W
E
S
0
200 Feet