Traffic Noise Study Report

DRAFT

Daniel Webster Western Beltway (SR 429) Widening

From Tilden Road to North of SR 414
Orange County, Florida
CFX Project Numbers: 429-152; 429-153; 429-154

Prepared For:
Central Florida Expressway Authority

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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ACRONYMS

CFR	Code of Federal Regulations
CFX	Central Florida Expressway Authority
CNE	Common Noise Environment
CR	County Road
dB(A)	Decibel (A-Weighted)
DHV	Design Hourly Volume
EB	Eastbound
EOP	Edge of Pavement
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
HCS	Highway Capacity Software
LOS	Level of Service
MP	Milepost
Mph	Miles Per Hour
NAC	Noise Abatement Criteria
NB	Northbound
NRDG	Noise Reduction Design Goal
NSA	Noise Study Area
NSR	Noise Study Report
PD&E	Project Development & Environment
RCMB	Reedy Creek Mitigation Bank
ROW	Right-of-Way
SB	Southbound
SR	State Road
TNM	Traffic Noise Model
WB	Westbound

1.0 INTRODUCTION

The Danial Webster Western Beltway (SR 429) is a 23-mile long, limited-access toll road that extends from Interstate 4 in Osceola County to US 441 in Orange County. The beltway was initially constructed as a four-lane facility with room for expansion within the existing right-of-way (ROW). The Central Florida Expressway Authority (CFX) is now developing design plans to widen the existing roadway in Orange County, specifically between Tilden Road in Winter Garden to north of the SR 414 interchange in Apopka. The project includes revisions to the SR 438/Plant Street northbound entry/exit ramps. The project study corridor is illustrated in **Figure 1**: Project Location Map on the following page.

The objective of this Traffic Noise Study Report is to summarize the traffic noise study conducted for this widening project. The analysis identifies the noise sensitive receptors within the study corridor and evaluates the noise levels predicted to occur as a result of the widening project. The study corridor consists of three separate CFX projects, referred to in this NSR as corridor segments:

- Segment 429-154: Tilden Road to south of the Florida Turnpike
- Segment 429-152: South of the Florida Turnpike to West Road
- Segment 429-153: West Road to north of SR 414

2.0 ANALYZED ALTERNATIVES

The noise impact analysis compares the predicted traffic noise associated with the proposed Build Alternative, with the existing traffic noise within the study corridor and a No-Build Alternative.

2.1 Existing Conditions

SR 429 is currently a four-lane divided, limited-access roadway within 300 feet of right-of-way (varies). The four travel lanes are 12 feet wide with paved outside shoulders. The posted speed limit is 70 miles per hour (mph). At the time of this study, the new entry/exit ramps, toll facilities, and associated auxiliary lanes at Stoneybrook West Parkway (Segment #429-154) were under construction.

2.2 No-Build Alternative

The noise impact analysis also considers an alternative that assesses what would happen to the environment in the future if this proposed widening project was not built. This alternative, called the No-Build Alternative, consists of the existing roadways within the study area and the 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 effects of the proposed project.

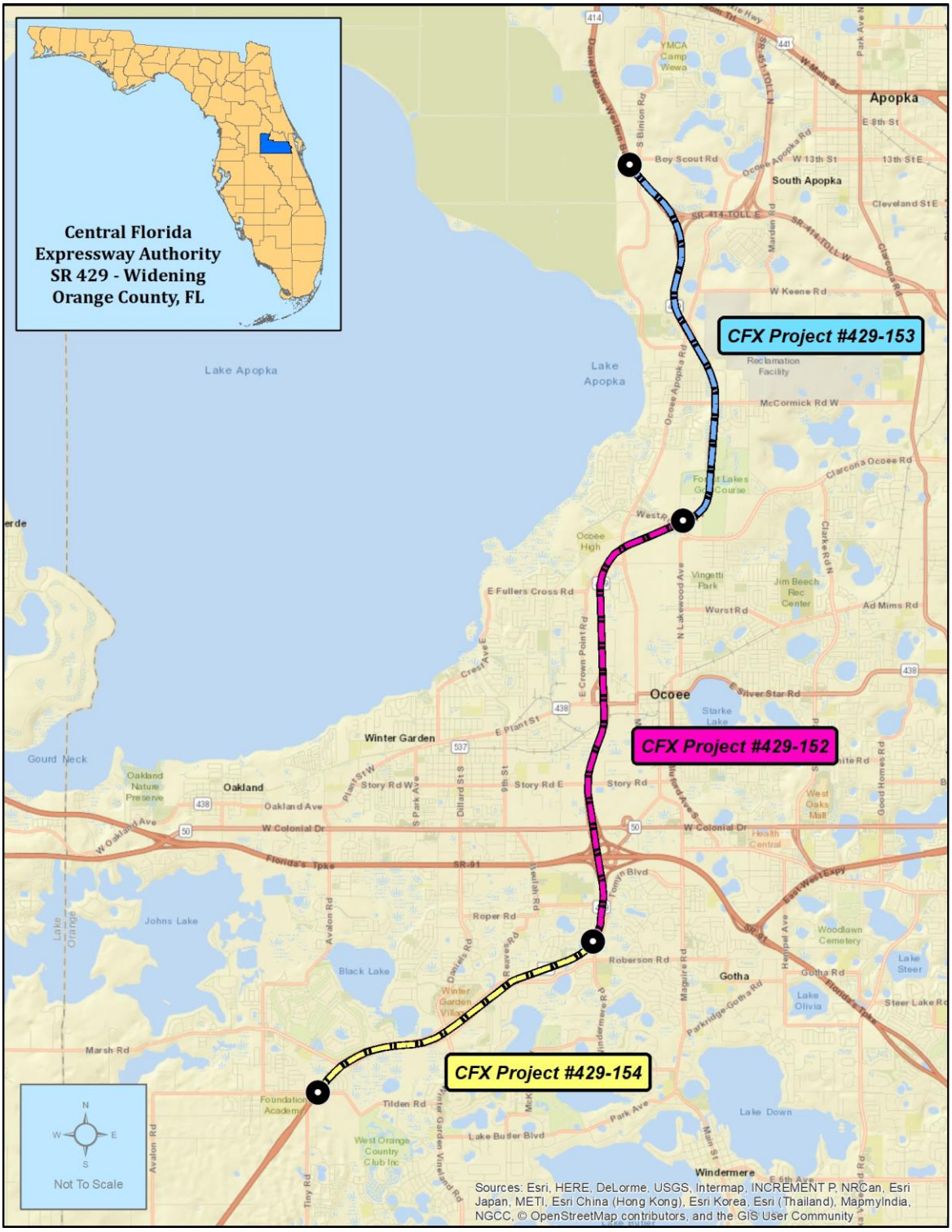

Figure 1: Project Location Map

2.3 Proposed Build Alternative

The proposed project will be constructed with three 12-foot travel lanes in each direction separated by a 14-foot paved median with median barrier. A 12-foot auxiliary lane and 10-foot paved shoulder will be constructed to the outside of the travel lanes in each direction. A 12-foot inside shoulder will be provided for a single Part-Time Shoulder Running (PTSR) in each direction. With the exception of the Tilden Road and Stoneybrook West Parkway overpasses, both in Segment #429-154, and the CR 437A overpass in Segment #429-153, all bridges will be widened to accommodate the proposed typical section, illustrated in **Appendix A: Typical Sections.**

3.0 METHODOLOGY

The traffic noise study conducted for this project is consistent with *Code of Federal Regulations* (C.F.R.), Title 23, § 772[1], Chapter 335, Section 335.17, *Florida Statutes*[2], Part II, Chapter 18 of the Florida Department of Transportation's (FDOT) *Project Development and Environment Manual* [3], and Federal Highway Administration's (FHWA) traffic noise analysis guidelines contained in *FHWA-HEP-10-025*[4].

3.1 Noise Metrics

Traffic noise is a combination of noises produced by the engine, exhaust, and tires and is never constant. The noise metric used to describe this combination of noise is referred to as "Leq." This metric allows for the fluctuations of daily traffic noise to be analyzed in terms of steady noise levels with the same acoustic energy, and thus, is the level of constant sound. Constant sound is quantified by a meter that measures units called decibels (dB). For highway traffic noise, an adjustment or weighting of the high and low-pitched sounds is applied to approximate the way an average person hears. These adjusted sounds are called "A-weighted decibels" and are expressed as "dB(A)."

3.2 Noise Model

The FHWA Traffic Noise Model (TNM) - version 2.5 was used to predict traffic noise levels for this project following guidelines outlined in the FDOT *Traffic Noise Modeling and Analysis Practitioners Handbook*[5]. This program predicts the traffic noise level from a series of roadway segments (the source) at a noise sensitive site (the receptor). The TNM program requires specific data to be entered. These data are noise-influencing variables that include the volume and types of vehicles traveling the roadway, vehicular speed, roadway geometry, and the presence of

[1] Federal Highway Administration, *Code of Federal Regulations*, Title 23 Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise", (July 13, 2010)
[2] *Florida Statutes*, Chapter 335, § 335.17
[3] Florida Department of Transportation, *Project Development and Environment Manual,* Part 2, Chapter 18, (July 1, 2020)
[4] FHWA, *FHWA-HEP-10-025: Highway Traffic Noise: Analysis and Abatement Guidance, (*December 2011)
[5] FDOT, *Traffic Noise Modeling and Analysis Practitioners Handbook*, (January 2016)

existing barriers between the road and receptor such as berms and building rows. All input data coordinates were defined using the NAD 1983-2001 State Plane Florida East system.

3.2.1 Elevation Data

Elevation data for SR 429 was obtained from the 30%/60%/90% design plans as well as As-Built Plans for areas where improvements are not planned but need to be included in the noise analysis. Data for the noise receptors and cross streets were obtained from the Florida Geographic Data Library[6], Google Earth[7], and respective Final Development Plans for developments that are underway (e.g., site preparation/clearing) but have yet to receive individual dwelling building permits, such as Oak Pointe/Thompson Hills Estates[8].

3.2.2 Traffic Data

To predict project noise levels, traffic characteristics that contribute to the greatest traffic noise impact for the 2045 design year were used in the TNM. Worst-case noise conditions occur with the maximum amount of traffic traveling at the posted speed. A Level of Service (LOS) C operating condition produces the highest noise level and was used for this project. A summary of the traffic data provided by the CFX traffic consultant is included in **Appendix B: Noise Study Traffic Data.**

3.2.3 Noise Receptor Data

Noise receptor points are used in the TNM to analyze traffic impacts to noise sensitive sites (discussed further in the following section). For residences, traffic noise levels were predicted at the edge of the dwelling unit closest to the nearest primary roadway. For other noise sensitive sites within the study area, traffic noise levels were predicted where the exterior activity occurs. There are no multi-family/multi-story dwellings within the three study segments; therefore, the receptor sites were modeled five feet above the local ground elevation.

The reporting of project noise levels was simplified by using representative receptors within each Noise Study Area (NSA) to represent Common Noise Environments (CNE), which are defined by FDOT as a group of receptors within the same Activity Category that are exposed to similar noise sources and levels; traffic volumes, traffic mix, and speed; and topographic features.

3.2.4 Noise Sensitive Sites

Noise sensitive sites are defined as any property where frequent human use occurs and where a lowered noise level would be of benefit. To determine which land uses within the study corridor are "noise sensitive," this noise impact analysis used the FHWA Noise Abatement Criteria (NAC). Shown on the following page in **Table 1,** these criteria are divided into individual land use activity categories. For each of these categories, the FDOT has established noise levels at which noise abatement must be considered.

[6] University of Florida. Florida Geographic Data Library, https://www.fgdl.org/metadataexplorer/about.html
[7] Google Earth 2020
[8] Evans Engineering Inc. *Final Development Plan for Oak Pointe – South*, (2 Oak Pointe South FDP.pdf)

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.

One additional 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.

An illustration of typical exterior and interior noises and their corresponding sound level is presented in **Table 2**. This table provides the reader with a better understanding of the noise levels discussed herein.

Table 2: Typical 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		

3.3 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. Consequently, noise barriers are not evaluated for isolated and single receptors. Receptors that receive the 5.0 dB(A) reduction, or higher, are defined as "benefited" by FDOT.
- 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.
- To be considered cost reasonable, the total cost of a barrier that meets all acoustical criteria should not exceed a cost of $42,000 per benefited receptor. The cost per benefited receptor (CBPR) is calculated by multiplying the barrier 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.)

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

Consistent with the FDOT Design Manual, Section 264[9], 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 to be 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 properties that would be affected by the construction of a noise barrier. Sight distance is a safety issue that refers to the ability of drivers to see far enough in each direction to enter the roadway safely. Aesthetics refers to the physical appearance of the noise barrier from both the highway side and the affected property side.

4.0 TRAFFIC NOISE ANALYSIS

4.1 Model Validation

Existing noise levels are measured in the project corridor to confirm if traffic noise is the primary source of noise. Field measurements are also required to verify the accuracy of the TNM before it can be used to predict noise levels. To accomplish this, a series of three 10-minute measurements were taken on April 17, 2020, at one location adjacent to SR 429 within each of the three project segments. An illustration of the measurement sites is provided in Appendix D: Project Aerials on Pages D1-6 (Site #1), D2-8 (Site #2), and D3-3 (Site #3).

Existing noise levels were measured using an Extech Instruments Model 407780A 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.

During each of the 10-minute measurement sessions, traffic data, including vehicle volumes and speeds by type, and meteorological conditions were recorded. The traffic speeds were recorded using a Bushnell Speedster hand-held radar gun. Temperature, wind, and humidity were measured using an Ambient weather WM-3 hand-held meter. The weather conditions at the beginning of the monitoring sessions (9:49 a.m.) were 73° under mostly cloudy skies, 76% humidity, with winds out of the East-Northeast 5 mph. The weather conditions at the close of the monitoring sessions (2:42 p.m.) were 79° under mostly cloudy skies, 78% humidity, with winds out of the East-Southeast 3 mph. No unusual noise events occurred during any of the 10-minute sessions.

[9] FDOT, *FDOT Design Manual*, ***https://www.fdot.gov/roadway/fdm/2019fdm.shtm***

Validation of the 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 a one-hour period, each of the 10-minute 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 on this project.

Table 3: Field Measurement and TNM Validation Summary

Field Monitor Location	Session	Field Measurement dB(A)	TNM Result dB(A)	Variance
Site #1 (429-154)	#1	72.8	73.0	0.2
	#2	72.2	73.2	1.0
	#3	72.8	74.3	1.5
Site #2 (429-152)	#1	76.9	77.4	0.5
	#2	77.7	77.8	0.1
	#3	77.2	77.5	0.3
Stie #3 (429-153)	#1	74.4	75.6	1.2
	#2	74.0	76.8	2.8
	#3	74.0	73.6	0.4

4.2 Identification of Noise Sensitive Sites

Using **Table 1** as a guide, the majority of the noise sensitive land uses within the study corridor fall under Activity Category B - Residential. The Activity Category C and E land uses evaluated within the project study corridor are as follows:

- Segment #429-154
  - Stoneybrooke West golf course (Category C)
- Segment #429-152
  - Pet Paradise (Category E)
  - Warrior Park (Category C)
  - Southwest Aquatics (Category C)
  - Children's Lighthouse People of Faith Lutheran Church – playground (Category C)
  - West Orange Park (Category C)
  - West Orange YMCA (Category C)
- Segment #429-153
  - Forest Lake golf course (Category C)
  - Orange County/pauper cemetery (Category C)
  - Orlando Memorial Gardens cemetery (Category C)

Analysis of interior (Category D) noise levels was not required for this project as all Category B and C locations have areas of exterior use. There are no land uses in the study corridor that warrant an Activity Category A analysis and no Category E land uses with exterior areas that are noise sensitive.

The remainder of the corridor is Activity Category G undeveloped land. A records search of these parcels, conducted in April 2020, did not identify any active permits for buildings that would be considered noise sensitive.

The noise analysis identified 26 Noise Study Areas (NSA) containing a total of 712 potential noise sensitive sites. A set of project aerials illustrating the entire corridor, the NSAs, all representative receptors, and the analyzed sites are included in Appendix D.

- Appendix D1: Segment #429-154 - NSA's 1 thru 7 – 290 sites
- Appendix D2: Segment #429-152 - NSA's 8 thru 17 – 192 sites
- Appendix D3: Segment #429-153 - NSA's 18 thru 26 – 230 sites

4.3 Predicted Noise Levels

A summary of the noise impact analysis is provided in **Appendix C: Noise Impact Comparison Matrix.** This matrix details the TNM-predicted noise levels for the 2018 Existing condition, the 2045 No-Build Alternative, and the 2045 Build Alternative. A summary of the impact analysis results is provided on the following page in **Table 4**.

Currently, a total of 129 analyzed receptors experience noise levels that meet or exceed the 66.0 dB(A) Noise Abatement Criterion (NAC) and 127 are predicted to meet or exceed the NAC under the No-Build Alternative. With the traffic increase associated with the Build Alternative, 463 receptor sites are predicted to have traffic noise levels that meet or exceed the NAC. None of the analyzed sites are predicted to experience a substantial increase (15.0 dB(A) or greater) over the existing condition.

The noise levels increase an average of 4.6 dB(A) over existing conditions across the study corridor, with the greatest increase being 9.4 dB(A) at receptor 12-1 in NSA 12.

Table 4: Impact Analysis Summary

Project Segment #	Activity Category	2018 Existing	2045 No-Build	2045 Build
429-154	B	59	55	196
	C	1	1	2
	E	0	0	0
	Impacts Subtotal	***60***	***56***	***198***
429-152	B	4	4	88
	C	1	2	4
	E	0	0	0
	Impacts Subtotal	***5***	***6***	**92**
429-153	B	62	63	167
	C	2	2	6
	E	0	0	0
	Impacts Subtotal	***64***	***65***	***173***
Impacts Total		***129***	***127***	***463***

Each of the sites impacted as a result of the Build Alternative requires noise abatement consideration, discussed in detail in **Section 4.4**.

4.4 Noise Abatement Consideration

Across the study corridor, 18 noise barriers were evaluated for the potential to provide abatement to the impacted receptors. The criteria discussed in Section 3.3 were utilized to determine if barriers met the applicable acoustic and cost reasonableness parameters utilized by the CFX during the decision-making process. The following barriers are discussed in detail in Section 4.4.1.

- Segment #429-154: Noise Barriers 1 thru 5
- Segment #429-152: Noise Barriers 6 thru 10
- Segment #429-153: Noise Barriers 11 thru 18

4.4.1 Project (Segment) #429-154 Noise Barriers

NSA 1 - Noise Barrier 1

Several scenarios were evaluated to determine the effectiveness of a noise barrier's ability to provide abatement for the 47 impacted homes in NSA 1 (Emerald Ridge). The elevation differences between the receptors and elevated roadway preclude the ability to locate a standard post and panel barrier at or near the ROW line that can meet applicable acoustic criteria (i.e., minimum 5 dB(A) reduction at 2 impacted sites; 7 dB(A) at 1 benefited site).

Of the evaluated scenarios, the option that provides the most effective level of abatement for the homes in Emerald Ridge, from an acoustic and cost perspective, is as follows:

- Option 1 – This option is designed to provide a single 14-foot tall noise barrier, offset from the edge of the northbound shoulder pavement, between the Tilden Road and Stoneybrook West overpasses (stations 936+25 and 955+80).

This scenario meets acoustic abatement criteria for thirty-four (34) of the forty-seven (47) impacted residences. Twenty-nine (29) non-impacted residences are also benefited. This barrier provides an average noise reduction is 6.7 dB(A) with the greatest reduction predicted to be 8.2 dB(A). In addition to meeting acoustic criteria, this option meets cost reasonableness requirements and is the CFX preferred option to carry forward into the project's final design. An illustration of this barrier is provided in **Appendix D1 – Page D1-1 and D1-2**. A summary of the Noise Barrier 1 analysis is provided in **Appendix E1 – Page E1-1**.

NSA 2 - Noise Barrier 2

To determine the effectiveness of a noise barrier's ability to provide abatement for the 67 impacted homes in NSA 2 (Stoneybrook West). It was determined early in the evaluation that the elevation difference between the roadway and receptors as well as the exit ramp to Stoneybrook Parkway necessitated the evaluation of a barrier system, rather than a single barrier. Therefore the analysis focused on the available options for placing a barrier offset from the southbound

edge of pavement between the Stoneybrook Parkway overpass and the exit ramp, and a standard post and panel barrier to the north of the exit ramp and toll facility.

Of the evaluated scenarios, the option that provides the most effective level of abatement from an acoustic and cost perspective is Option 1.

- Option 1 – This barrier system option is designed to provide a 14-foot tall barrier, offset from the edge of the southbound shoulder pavement, between stations 959+25 and 969+00. Due to the presence of the Mechanically Stabilized Earth (MSE) wall near the exit ramp/tool facility, a second 14-foot tall barrier is located at the edge of pavement from Station 968+00 to 971+82. The third barrier in this system is a 22-foot tall post and panel barrier located adjacent to the southbound ROW line.

This scenario meets the acoustic abatement criteria for fifty-seven (57) of the sixty-seven (67) impacted residences. Six (6) non-impacted residences are also benefited. While not meeting the FDOT defiinition of benefited (e.g., at least a 5 dB(A) noise reduction), ten impacted receptors near the exit ramp/toll facility are predicted to receive noise reductions from Barrier 2 ranging from 4.2 dB(A) to 4.9 dB(A). This noise reduction level is meaningful and should be readily perceived by these ten receptors (2-1.1, 2-1.2, 2-2 though 2-2.4, 2-3, 2-3, 2-3.2, and 2-3.3).

This barrier system provides an average noise reduction of 6.6 dB(A), with the greatest reduction predicted to be 8.4 dB(A), and meets the CFX cost reasonableness standards. This option is the CFX preferred option to carry forward into the project's final design. An illustration of this barrier system is provided in **Appendix D1 – Page D1-2 and D1-3**. A summary of the Noise Barrier 2 analysis is provided in **Appendix E1 – Page E1-2**.

NSA 4 and NSA 6 - Noise Barrier 3

Noise Barrier 3 was evaluated to provide abatement to fifty (50) impacted homes, 33 in NSA 4 and 17 in NSA 6. Due to the proximity of the homes in each NSA relative to the Stoneybrook West overpass, both NSA's were treated as one contiguous area for barrier analysis purposes. The analysis focused on the available options for placing a three-segment noise barrier system to maximize the abatement potential to as many impacted receptors as possible.

Of the evaluated scenarios, Option 1 is the most effective from an acoustic and cost perspective.

- Option 1 – This barrier option is designed to provide an 18-foot tall post and panel barrier located near the northbound ROW line from station 1041+00 to 1062+00. A 14-foot tall barrier, offset from the northbound shoulder edge of pavement, begins at station 1062+00 and continues over Stoneybrook Parkway to end at station 1089+00. The section of barrier on the bridge structure is 8 feet tall. This system's third segment consists of a 16-foot tall post and panel barrier located near the ROW line between stations 1089+00 and 1104+91.

This scenario meets the acoustic abatement criteria for thirty (30) impacted residences, twenty-eight (28) in NSA 4 and twelve (12) in NSA 6. Twelve (12) non-impacted residences, all in NSA 4,

are also benefited. Furthermore, Option 1 provides an average noise reduction of 6.6 dB(A), with the greatest reduction predicted to be 9.6 dB(A). Though this option exceeds the FDOT cost reasonableness standards, it is the CFX preferred option to carry forward into the project's final design. An illustration of this barrier system is provided **in Appendix D1 – Page D1-6 through D1-8**. A summary of the Noise Barrier 3 analysis is provided in **Appendix E1 – Page E1-3**.

NSA 5 - Noise Barrier 4

To determine the effectiveness of a noise barrier's ability to provide abatement for the two (2) impacted homes in NSA 5, a shoulder barrier scenario, Option 1, was evaluated. A standard post and panel barrier is not an option in this area due to the Stoneybrook Parkway overpass.

- Option 1 – This barrier option was analyzed to provide a 14-foot tall barrier at the shoulder edge of pavement from station 1058+00 to 1070+10. This barrier option does not provide the required 5.0 dB(A) minimum noise reduction to the impacted residences at the maximum allowed height; therefore, there are no other available options to meet the minimum reduction requirements.

This barrier has been removed from further consideration. An illustration and summary of the barrier analysis are provided in **Appendix D1 – Pages D1-6 and D1-7**, and **Appendix E2 – Page E1-4**, respectively.

NSA 7 - Noise Barrier 5

To determine the effectiveness of a noise barrier's ability to provide abatement for the thirty (30) impacted homes in NSA 7 (Westfield Lakes) several barrier scenarios were evaluated. The analysis included the evaluation of a standard post and panel barrier near the ROW line as well as an option offset from the southbound shoulder edge of pavement. It was determined that post and panel option near the ROW line was not possible because it conflicted with the utilities and associated easements. The only viable placement option is summarized below.

- Option 1 – this barrier option is designed to provide a 20-foot tall post and panel barrier offset from the edge of the shoulder pavement on the berm between the roadway and pond. This barrier provides abatement to all thirty (30) impacted residences as well as eleven (11) non-impacted. The average noise reduction is 7.5 dB(A) with the greatest reduction predicted to be 10.0 dB(A).

Option 1 meets all accoustic and cost criteria and is the CFX preferred option to carry forward into the project's final design. An illustration and summary of the barrier options are provided in **Appendix D1 – Pages D1-7 and D1-8**, and **Appendix E2 – Page E1-5**, respectively.

4.4.2 Project (Segment) #429-152 Noise Barriers

NSA 9 - Noise Barrier 6

To determine the effectiveness of a noise barrier's ability to provide abatement for the twenty-five (25) impacted homes and Warrior Park (Category C) in NSA 9 (Westfield Lakes), several barrier scenarios (ROW only, shoulder only, and ROW/shoulder combination) were evaluated. South of the pedestrian trail, SR 429 begins to increase in elevation and continues on elevated embankment to north of Warrior Road. The elevation differences between the receptors and elevated roadway preclude the ability to locate a standard post and panel barrier at or near the ROW line that can meet applicable acoustic criteria.

Of the evaluated scenarios, the option that provides the most effective level of abatement for the homes in Westfield Lakes, from an acoustic and cost perspective, is as follows:

- Option 2 – This barrier combination option is designed to provide a six-segment barrier system. Segment 1 is a 22-foot tall post and panel barrier located at the southern end of Westfield Lakes, between the existing pond and ROW line (station 1122+80 to 1129+59). Segment 2 is a 16-foot tall barrier, offset from the edge of southbound shoulder pavement from station 1132+00 to 1137+47. Segments 3 (station 1136+07 to 1139+81) and and 5 (station 1146+61 to 1152+00) are each 8-feet tall and are located at edge of the shoulder/traffic railing overpassing the pedestrian trail and Warrior Road. These two segments overlap the adjacent segments. Segment 4 consists of an 18-foot tall barrier, offset from the edge of the shoulder from station 1138+35 to 1148+36. Segment 6 is a 14-foot tall barrier, offset from the edge of the shoulder from station 1150+29 to 1158+00.

This scenario meets acoustic abatement criteria for the twenty-five (25) impacted residences and seventeen (17) non-impacted residences. This barrier provides an average noise reduction is 6.7 dB(A) with the greatest reduction predicted to be 10.3 dB(A). In addition to meeting acoustic criteria, this option meets cost reasonableness requirements and is the CFX preferred option to carry forward into the project's final design. An illustration of this barrier is provided in **Appendix D2 – Page D2-1**. A summary of the Noise Barrier 6 analysis is provided in **Appendix E2 – Page E2-1**.

NSA 11 - Noise Barrier 7

To determine the effectiveness of a noise barrier's ability to provide abatement for the twenty-three (23) impacted homes in NSA 11, several barrier scenarios were evaluated. It was determined early in the evaluation that the elevation difference between the ROW line and the roadway precluded the ability to position a standard post and panel barrier that could meet applicable acoustic criteria. Therefore, the analysis focused on the available options for placing a noise barrier at the offset from the shoulder edge of pavement.

Of the evaluated scenarios, the option that provides the most effective level of abatement from an acoustic and cost perspective is as follows:

- Option 3 – This barrier option is designed to provide a 18-foot tall noise barrier, offset from the edge of southbound shoulder pavement between stations 160+01 and 181+18.

This scenario meets acoustic abatement criteria for fifteen (15) impacted residences and one (1) non-impacted residence. This barrier provides an average noise reduction of 5.7 dB(A), with the greatest reduction predicted to be 7.6 dB(A), and meets the CFX cost reasonableness standards. This option is the CFX preferred option to carry forward into the project's final design. An illustration of this barrier is provided in **Appendix D2 – Page D2-5**. A summary of the Noise Barrier 7 analysis is provided in **Appendix E2 – Page E2-2**.

NSA 12 and NSA 14 - Noise Barrier 8

Noise Barrier 8 was evaluated to provide abatement to the fifteen (15) impacted homes in NSA 12 and four (4) impacted homes in NSA 14. Due to the reconstruction of the interchange and relocation of the northbound on ramp, a standard post and panel barrier is not a viable option. Therefore, the analysis focused on the available options for placing a noise barrier at the ramp shoulder edge of pavement. Engineering constraints (e.g., slope gradient between the shoulder edge of pavement and adjacent MSE wall) limit the maximum barrier height to 8 feet.

Of the evaluated scenarios, Option 2 provides the most level of abatement from an acoustic and cost perspective:

- Option 2 – This barrier option is designed to provide an 8-foot tall noise barrier at the edge of northbound shoulder pavement between ramp station 602+00 and mainline station 210+20 (Palm Drive overpass). This scenario meets the minimum 5 dB(A) noise reduction criteria for eight (8) of the fifteen (15) impacted residences in NSA 12. Though this option does not meet the 7 dB(A) Noise Reduction Design Goal (NRDG) criteria, it provides an average noise reductionof 5.2 dB(A), with the greatest reduction predicted to be 5.4 dB(A), it meets the CFX cost reasonableness standards and is the CFX preferred option to carry forward into the project's final design. The portion of the shoulder barrier anlayzed for NSA 14 cannot meet the minimum 5 dB(A) noise reduction criteria.

An illustration of this barrier is provided in **Appendix D2 – Page D2-6**. A summary of the Noise Barrier 8 options is provided in **Appendix E2 – Page E2-3**.

NSA 15 - Noise Barrier 9

To determine the effectiveness of a noise barrier's ability to provide abatement for the seven (7) impacted homes and the Cornerstone Community Church (Category C) in NSA 15, several barrier scenarios (ROW only and shoulder only) were evaluated.

- Option 1 – This barrier option evaluated a 14-foot tall shoulder barrier. Despite meeting the required abatement thresholds at four (4) of the impacted homes, the barrier does not meet the cost reasonableness threshold.

At $416,190 this barrier far exceeds the CFX cost reasonableness threshold and has been removed from further consideration. An illustration and summary of the barrier analysis are provided in **Appendix D2 – Pages D2-7 and D2-8**, and **Appendix E2 – Page E2-4**, respectively.

NSA 16 - Noise Barrier 10

Several barrier scenarios were evaluated to determine the effectiveness of a noise barrier's ability to provide abatement for the twelve (12) impacted homes in NSA 16 . The Crown Point Woods subdivision in NSA 16 predates the construction of SR 429.

The elevation differences between the receptors and the roadway preclude the ability to locate a standard post and panel barrier at or near the ROW line that can meet applicable acoustic criteria.

Of the evaluated scenarios, Option 2 provides the most abatement from an acoustic and cost perspective.

- Option 2 – This barrier combination option is designed as a three-segment system. Segment 1 is an 18-foot tall barrier, offset from the northbound shoulder edge of pavement, from station 241+30 to 264+00. Segment 2 is an 8-foot tall barrier located at the edge of shoulder pavement/traffic railing overpassing the creek from station 263+00 to 267+00. This segment overlaps the adjacent segments. Segment 3 consists of an 18-foot tall barrier, offset from the northbound edge of shoulder pavement, from station 266+00 to 275+10.

This scenario meets the acoustic abatement criteria for eight (8) impacted residences in NSA 16 and Thirteen (13) non-impacted residences. Option 2 provides an average noise reduction of 5.6 dB(A), with the greatest reduction predicted to be 6.6 dB(A). Though this option is higher than the cost reasonableness standards, it is the CFX preferred option to carry forward into the project's final design. An illustration and summary of the barrier options are provided in **Appendix D2 – Pages D2-7 thru D2-10**, and **Appendix E2 – Page E2-5**, respectively.

4.4.3 Project (Segment) #429-154 Noise Barriers

NSA 19 - Noise Barrier 11

To determine the effectiveness of a noise barrier's ability to provide abatement for the thirty-five (35) impacted townhomes in NSA 19 (The Greens at Forest Lake – currently under construction), several barrier scenarios were evaluated. Due to the increase in roadway elevation over the golf course trail, the analysis focused on the available options for placing a two-segment noise barrier system to maximize the abatement potential to as many impacted receptors as possible.

Of the evaluated scenarios, Option 1 provides the most abatement from an acoustic and cost perspective.

- Option 1 – This barrier system is designed to provide a 22-foot tall post and panel barrier located near the ROW line from station 334+70 to 348+00 and a 14-foot tall barrier, offset from the southbound shoulder edge of pavement from station 347+00 to 352+00. Several engineering constraints precluded the ability to continue the offset shoulder barrier over the existing golf course trail.

This scenario meets the acoustic abatement criteria for twenty-three (23) impacted residences and three (3) non-impacted residences. This option provides an average noise reduction of 7.7 dB(A), with the greatest reduction predicted to be 12.7 dB(A). Furthermore, this option meets cost reasonableness standards and is the CFX preferred option to carry forward into the project's final design. An illustration of this barrier system is provided **in Appendix D3 – Page D3-1**. A summary of the Noise Barrier 3 options is provided in **Appendix E3 – Page E3-1**.

NSA 19 - Noise Barrier 12

To determine the effectiveness of a noise barrier's ability to provide abatement for the four impacted locations within the Forest Lake Golf Course, west of SR 429. The golf course is considered an Activity Category C land use. Due to the substantial elevation difference between the roadway and golf course property, the standard post and panel barrier is not an option in this location.

- Option 1 – This barrier option was analyzed to provide a 14-foot tall barrier, offset from the southbound edge of shoulder pavement, from station 354+00 to 367+45. At this maximum height, the barrier is unable to provide the required 5 dB(A) minimum noise reduction to the impacted golf course locations. There are no other options available to meet the minimum reduction requirements.

This barrier has been removed from further consideration. An illustration and summary of the barrier analysis are provided in **Appendix D3 – Page D3-1 and D3-2**, and **Appendix E3 – Page E3-2**, respectively.

NSA 19 - Noise Barrier 13

To determine the effectiveness of a noise barrier's ability to provide abatement for county/pauper cemetary north of the Forest Lake Golf Course and west of SR 429, several barrier options were analyzed. The cemetary is considered an Activity Category C land use. Due to the substantial elevation differences between the roadway and cemetary property, a two-segment barrier system was analyzed.

- Option 1 – This barrier option was analyzed to provide a 10-foot tall barrier at the southbound edge of shoulder pavement from station 368+60 to ramp station 1001+80 and an 18-foot tall post and panel barrier from station 371+20 to 373+00.

Though this barrier system is able to meet minimum accoustic criteria, it far exceeds the cost reasonableness criteria outlined in FDOT research publication ***A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations[10].*** The site would require more than 224 people to spend 2 hours per day, every day of the year, to be considered cost reasonable. This is an unrealistic expectation; thus, abatement for this special use barrier is not reasonable and it has been removed from further consideration. An illustration and summary of the barrier analysis are provided in **Appendix D3 – Page D3-2** and **Appendix E3 – Page E3-3**, respectively.

NSA 21 - Noise Barrier 14

To determine the effectiveness of a noise barrier's ability to provide abatement for the thirty-eight (38) impacted homes in NSA 21 (McCormick Woods), several barrier scenarios were evaluated. It was determined that a post and panel barrier near the ROW line is the most viable option and is summarized below.

- Option 1 – This barrier option is designed to provide a 22-foot tall post and panel barrier near the northbound ROW line from station 377+00 to 409+14. This barrier provides abatement to thirty-seven (37) impacted residences as well as six (6) non-impacted residences. The average noise reduction is 9.3 dB(A) with the greatest reduction predicted to be 13.0 dB(A). This noise barrier option also provides noise abatement to the adjacent Orlando Memorial Gardens Cemetary, an Activity Category C land use.

Option 1 meets all criteria and is the CFX preferred option to carry forward into the project's final design. An illustration and summary of the barrier analysis are provided in **Appendix D3 – Pages D3-2 and D3-3**, and **Appendix E3 – Page E3-4**, respectively.

NSA 22 - Noise Barrier 15

To determine the effectiveness of a noise barrier's ability to provide abatement for the ten (10) impacted homes in NSA 22 (Forestbrooke), several barrier scenarios were evaluated. It was determined that a post and panel barrier near the ROW line was the most viable option and is summarized below.

- Option 1 – This barrier option is designed to provide a 12-foot tall post and panel barrier near the northbound ROW line, east of the overhead powerline easement, from station 384+94 to 395+09. This barrier provides abatement to all ten (10) impacted residences.

[10] FDOT, A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations, July 2009

The average noise reduction is 6.4 dB(A) with the greatest reduction predicted to be 7.1 dB(A).

Option 1 meets all criteria and is the CFX preferred option to carry forward into the project's final design. An illustration and summary of the barrier analysis are provided in **Appendix D3 – Page D3-2** and **Appendix E3 – Page E3-5**, respectively.

NSA 23 - Noise Barrier 16

To determine the effectiveness of a noise barrier's ability to provide abatement for the two (2) impacted homes in NSA 23, several post and panel barrier options with varying heights and lengths were evaluated near the southbound ROW line.

- Option 2 – This barrier option was analyzed to provide a 12-foot tall barrier from station 427+20 to 432+25. This barrier provides abatement to the two impacted residences. However, at $106,740, Option 2 far exceeds the CFX cost reasonableness threshold and has been removed from further consideration.

An illustration and summary of the barrier analysis are provided in **Appendix D3 – Page D3-4** and **Appendix E3 – Page E3-6**, respectively.

NSA 24 - Noise Barrier 17

To determine the effectiveness of a noise barrier's ability to provide abatement for the sixty-three (63) impacted residences in NSA 24 (Oak Pointe single-family houses and townhomes – currently under construction), several barrier scenarios were evaluated. It was determined that a post and panel barrier near the ROW line is the most viable option and is summarized below.

- Option 2 – This barrier option is designed to provide a 22-foot tall post and panel barrier near the northbound ROW line from station 411+00 to 440+00. This barrier provides abatement to all sixty-three (63) impacted residences as well as thirteen (13) non-impacted. The average noise reduction is 10.5 dB(A) with the greatest reduction predicted to be 13.9 dB(A).

Option 2 meets all acoustic and cost criteria and is the CFX preferred option to carry forward into the project's final design. An illustration and summary of the barrier analysis are provided in **Appendix D3 – Pages D3-3 and D3-4,** and **Appendix E3 – Page E3-7**, respectively.

NSA 25 - Noise Barrier 18

To determine the effectiveness of a noise barrier's ability to provide abatement for the eighteen (18) impacted homes in NSA 25 (Magnolia Park Estates), numerous scenarios were evaluated. Early in the evaluation, it was determined that the existing screenwall, built as part of the original exit ramp/toll facility construction, is not sufficient to abate the Build Alternative's impacts to the

neighborhood. This is due to many factors including the screenwall's insuffcient height and length, the Build Alternative's increase in roadway elevation and number of lanes, and the receptor elevations relative to the SR 429 mainline and exit ramp. Therefore, the analysis focused on the available options for placing additional noise barriers to work in conjunction with the existing screenwall.

Of the evaluated scenarios, the option that provides the most effective level of abatement from an acoustic and cost perspective is as follows:

- Option 3a – This barrier combination option is designed to provide a three-segment barrier system. Segment 1 [SB4a/5a/6a] is a 14-foot tall barrier, offset from the southbound shoulder edge of pavement, from station 453+00 to 472+00. The SB4a portion of Segment 1 is 8-feet tall as it approaches and overpasses CR 437A. Segment 2 is standard post and panel barrier extension of the existing screenwall from station 3001+00 to 3005+00. The height of this barrier varies as it is stepped on the bottom to follow the existing topography; however,the finished top elevation will be similar to southern end of the existing screenwall. Segment 3 consists of a 22-foot tall post and panel barrier located near the ROW line from station 469+00 to 473+00. There were several engineering constraints and safety issues with connecting this segment to the northern terminus of the existing screenwall. Thus, there is a gap between the end of the screenwall and the start of Segment 3.

  This scenario meets acoustic abatement criteria for fifteen (15) of the twenty (20) impacted residences and seven (7) non-impacted residences. Though they are not considered benefited (e.g., at least a 5 dB(A) noise reduction), the three impacted residences in the vicinity of the existing screenwall and exit ramp/toll facility (25-1, 25-8, and 25-12) are predicted to receive noise reductions ranging from 4.2 dB(A) to 4.9 dB(A). The three non-impacted residences (25-7, 25-21, and 25-22) are predicted to receive noise reducitons ranging from 3.9 dB(A) to 4.2 dB(A). This level of noise reduction is meaningful and should be readily perceived.

In addition to meeting acoustic criteria, this option meets CFX cost reasonableness standards is the CFX preferred option to carry forward into the project's final design. An illustration of this barrier is provided in **Appendix D3 – Page D3-5**. A summary of the Noise Barrier 18 analysis is provided in **Appendix E3 – Page E3-8**.

4.5 Segment #429-154 Summary and Recommendations

Traffic noise levels were predicted for 290 noise sensitive sites within Project Segment #429-154 for the 2018 existing condition and the 2045 Design Year No-Build and Build Alternatives. Sixty (60) of the analyzed sites are currently experiencing traffic noise levels that meet or exceed the 66.0 dB(A) NAC. Fifty-six (56) sites are predicted to do so with the No-Build Alternative. Due to the increase in traffic volumes attributed to the Build Alternative, noise impacts are predicted for 198 receptors in NSAs 1 through 7. The overall noise increase over existing conditions within Segment #429-154 is predicted to be an average of 3.8 dB(A), with the greatest increase at a residence being 8.7 dB(A). Neither of these two values represents a substantial noise increase (ie. greater than 15. 0 dB(A)).

To mitigate for these impacts, several noise barriers were evaluated. The barrier evaluations analyzed several dimension options using the FDOT acoustic feasibility and reasonableness criteria in addition to the established CFX cost reasonableness standards for abatement measures. After careful consideration of all options, CFX recommends the advancement of the four noise barrier options summarized on the following page in Table 5.

Table 5: Noise Barrier Options Recommended for Further Evaluation (Project #429-154)

429-154 Barrier Options Recommended For Further Evaluation

Barrier Option	Barrier Height (feet)	Number of Impacted Sites	Number of Benefited Sites *1	Noise Reduction dB(A) *2 Average (Max)	Total Estimated Cost *3	Cost per Benefited Receptor
Noise Barrier 1: Option 1	14 - offset shoulder	47	63	6.7 (8.2)	$ 808,920	$ 12,840
Noise Barrier 2: Option 1	14 - offset shoulder 14 - shoulder 22 - ROW	67	63	6.6 (8.4)	$2,412,480	$ 38,293
Noise Barrier 3: Option 1	18 - ROW 14 - offset shoulder (8' on bridge) 16 - ROW	50	42	6.6 (9.6)	$3,007,747	$ 71,613
Noise Barrier 5: Option 1	20 - offset (on berm)	30	41	7.5 (10.0)	$1,512,000	$ 36,878

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

4.6 Segment #429-152 Summary and Recommendations

Traffic noise levels were predicted for 192 noise sensitive sites within Project Segment #429-152 for the 2018 existing condition and the 2045 Design Year No-Build and Build Alternatives. Five (5) of the analyzed sites are currently experiencing traffic noise levels that meet or exceed the 66.0 dB(A) NAC. Six (6) sites are predicted to do so with the No-Build Alternative. Due to the increase in traffic volumes attributed to the Build Alternative, noise impacts are predicted for ninety-two (92) receptors in NSAs 9 through 16. The overall noise increase over existing conditions within Segment #429-152 is predicted to be an average of 5.3 dB(A), with the greatest increase at a residence being 9.4 dB(A). Neither of these two values represents a substantial noise increase (ie. greater than 15. 0 dB(A)).

Impacted receptor 13-1 is considered isolated; therefore, a barrier cannot achieve the required minimum of 5.0 dB(A) noise reduction for *at least two receptors*. Because of this, a barrier was not evaluated for this location.

To mitigate for these impacts, several noise barriers were evaluated. The barrier evaluations analyzed several dimension options using the FDOT acoustic feasibility and reasonableness criteria in addition to the established CFX cost reasonableness standards for abatement measures. After careful consideration of all options, CFX recommends the advancement of the four noise barrier options summarized on the following page in Table 6.

Table 6: Noise Barrier Options Recommended for Further Evaluation (Project #429-152)

429-152 Barrier Options Recommended For Further Evaluation						
Barrier Option	**Barrier Height (feet)**	**Number of Impacted Sites**	**Number of Benefited Sites** *1	**Noise Reduction dB(A)** *2 **Average (Max)**	**Total Estimated Cost** *3	**Cost per Benefited Receptor**
Noise Barrier 6: Option 2	16 - offset shoulder 8 - bridge shoulder 18 - offset shoulder 8 - bridge shoulder 14 - offset shoulder 22 - ROW	25	42	6.7 (10.3)	$1,370,160	$ 32,623
Noise Barrier 7: Option 3	18 - offset shoulder	23	16	5.7 (7.6)	$1,130,220	$ 70,639
Noise Barrier 8: Option 2	8 - shoulder	19	8	5.2 (5.4)	$ 422,400	$ 52,800
Noise Barrier 10: Option 2	18 - offset shoulder 8 - bridge shoulder 18 - offset shoulder	12	21	5.6 (6.6)	$1,800,060	$ 85,717

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

4.7 Segment #429-153 Summary and Recommendations

Traffic noise levels were predicted for 230 noise sensitive sites within Project Segment #429-153 for the 2018 existing condition and the 2045 Design Year No-Build and Build Alternatives. Sixty-four (64) of the analyzed sites are currently experiencing traffic noise levels that meet or exceed the 66.0 dB(A) NAC and sixty-five (65) are predicted to do so with the No-Build Alternative. Due to the increase in traffic volumes attributed to the Build Alternative, noise impacts are predicted for 173 receptors in NSAs 17 through 26. The overall noise increase over existing conditions within Segment #429-153 is predicted to be an average of 4.7 dB(A), with the greatest increase at a residence being 6.9 dB(A). Neither of these two values represents a substantial noise increase (ie. greater than 15. 0 dB(A)).

To mitigate for these impacts, several noise barriers were evaluated. The barrier evaluations analyzed several dimension options using the FDOT acoustic feasibility and reasonableness criteria in addition to the established CFX cost reasonableness standards for abatement measures. After careful consideration of all options, CFX recommends the advancement of the five noise barrier options summarized on the following page in Table 7.

Table 7: Noise Barrier Options Recommended for Further Evaluation (Project #429-153)

429-153 Barrier Options Recommended For Further Evaluation						
Barrier Option	**Barrier Height (feet)**	**Number of Impacted Sites**	**Number of Benefited Sites** [*1]	**Noise Reduction dB(A)** [*2] **Average (Max)**	**Total Estimated Cost** [*3]	**Cost per Benefited Receptor**
Noise Barrier 11: Option 1	22 - ROW 14 - offset shoulder	35	26	7.7 (12.7)	$1,010,760	$ 38,875
Noise Barrier 14: Option 1	22 - ROW	38	43	9.3 (13.0)	$2,094,840	$ 48,717
Noise Barrier 15: Option 1	12 - ROW	10	10	6.4 (7.1)	$ 366,120	$ 36,612
Noise Barrier 17: Option 2	20 - offset (on berm)	63	76	10.5 (13.9)	$1,964,820	$ 25,853
Noise Barrier 18: Option 2	Varied - ROW extension 14 - offset shoulder 22 - ROW extension	18	22	7.2 (10.4)	$1,260,267	$ 57,285

5.0 CONSTRUCTION NOISE AND VIBRATION IMPACTS

The existing residential and institutional land uses within the limits of this project are considered noise and vibration sensitive. Construction of the proposed roadway improvements is not expected to have any significant noise or vibration impacts. It is anticipated that the application of the *FDOT Standard Specifications for Road and Bridge Construction*[11] will minimize or eliminate most of the potential short-term construction noise and vibration impacts.

Should any noise or vibration issue 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 Public Meetings

Prior to making any final decisions on the proposed noise walls, CFX will hold a Sound Wall Information Meeting (SWIM) for each of the three project segments. The proposed barriers, along with other pertinent project construction-related information, will be presented. As part of the SWIM, CFX will also directly solicit the opinions by conducting a survey of the property owners and tenants/renters benefited by the proposed noise walls, as identified in the report.

[11] FDOT, *Standard Specifications for Road and Bridge Construction*, July 2018.

7.0 REFERENCES

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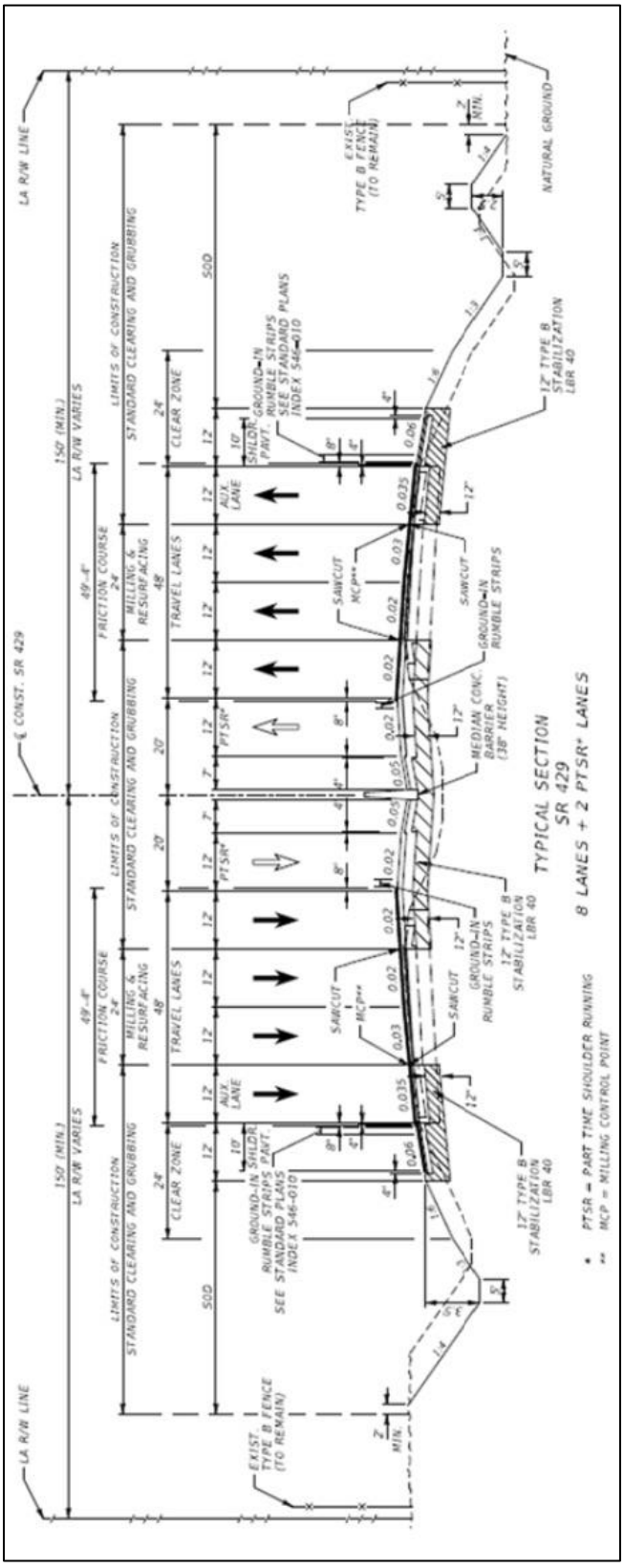
Appendix A:
Typical Sections


TYPICAL SECTION
SR 429
8 LANES + 2 PTSR* LANES
* PTSR = PART TIME SHOULDER RUNNING
** MCP = MILLING CONTROL POINT
℄ CONST. SR 429
LA R/W LINE
150' (MIN.)
LA R/W VARIES
49'-4"
FRICTION COURSE
24'
MILLING & RESURFACING
48'
TRAVEL LANES
LIMITS OF CONSTRUCTION
STANDARD CLEARING AND GRUBBING
CLEAR ZONE
SOD
AUX. LANE
10' SHLDR. PAVT.
GROUND-IN RUMBLE STRIPS SEE STANDARD PLANS INDEX 546-010
SAWCUT
MCP**
PTSR*
MEDIAN CONC. BARRIER (38" HEIGHT)
12" TYPE B STABILIZATION LBR 40
EXIST. TYPE B FENCE (TO REMAIN)
NATURAL GROUND

Appendix B:
Noise Study Traffic Data

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: **SR 429 Mainline**

Data (Directional)	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**			
Year	2018	2045	2045			
Number of Lanes/**Direction**	2	2	2	3	4	5
LOS C Peak Hour Directional Volume *1	3020	3020	3020	4580	6080	7680
Posted Speed	70	70	70	70	70	70
D%*2	47	47	47	47	47	47
Tpeak (DHV%)*3	7.0	7.0	7.0	7.0	7.0	7.0
MT(DHV%)*3	4.31	4.31	4.31	4.31	4.31	4.31
HT (DHV%)*3	2.69	2.69	2.69	2.69	2.69	2.69
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = Volumes provided by Dewberry Engineering, 3/13/2020 and based on FDOT Generalized LOS Tables

*2 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*3 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: **SR 429 Slip Ramps at Stoneybrook Pkwy S. of CR 535 (#429-154)**

	NB ON fr Stoneybrook EB (Ramp C)			SB OFF to Stoneybrook WB (Ramp D)		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045
Number of Lanes	n/a	n/a	1	n/a	n/a	1
Demand Peak Hour Directional Volume *1	n/a	n/a	625	n/a	n/a	760
Posted or Design Speed	n/a	n/a	45	n/a	n/a	45
Tpeak (DHV%)*2	n/a	n/a	7.0	n/a	n/a	7.0
MT(DHV%)*2	n/a	n/a	4.3	n/a	n/a	4.3
HT (DHV%)*2	n/a	n/a	2.7	n/a	n/a	2.7
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*2 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: SR 429 Ramps at CR 535/Winter Garden Vineland

	NB/EB OFF to CR 535 via Stoneybrook (Ramp B)			SB/WB ON fr CR 535 via Stoneybrook (Ramp A)			NB/EB ON fr CR 535 via Stoneybrook (Ramp C)			SB/WB OFF to CR 535 via Stoneybrook (Ramp D)		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045	2018	2045	2045	2018	2045	2045
Number of Lanes	1	1	1	1	1	1	2	2	2	1	1	1
Demand Peak Hour Directional Volume *1	453	1075	1075	359	880	880	1157	1460	1460	1165	1785	1785
Posted or Design Speed	35	35	35	50	50	50	35	35	35	35	35	35
Tpeak (DHV%)*2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
MT(DHV%)*2	4.31	4.3	4.3	4.31	4.3	4.3	4.31	4.3	4.3	4.31	4.3	4.3
HT (DHV%)*2	2.69	2.7	2.7	2.69	2.7	2.7	2.69	2.7	2.7	2.69	2.7	2.7
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*2 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: SR 429 Ramps at Turnpike (#429-152)

	NB OFF to Turnpike EB (Ramp B)			SB ON fr Turnpike (Ramp D)		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045
Number of Lanes	1	1	1	1	1	1
Demand Peak Hour Directional Volume *1	1696	2690	2690	1686	4030	4030
Posted or Design Speed	50	50	50	50	50	50
Tpeak (DHV%)*2	7.0	7.0	7.0	7.0	7.0	7.0
MT(DHV%)*2	4.31	4.3	4.3	4.31	4.3	4.3
HT (DHV%)*2	2.69	2.7	2.7	2.69	2.7	2.7
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*2 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: SR 429 Ramps at SR 438 (Plant St./Franklin St.) (#429-152)

	NB OFF (Ramp A)			NB ON (Ramp D)			SB OFF (Ramp C)			SB ON (Ramp B)		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045	2018	2045	2045	2018	2045	2045
Number of Lanes	2	2	2	1	1	1	1	1	1	1	1	1
Demand Peak Hour Directional Volume *1	575	1405	1405	287	605	605	250	740	740	489	1150	1150
Posted or Design Speed	35	35	35	50	50	50	50	50	50	25	25	25
Tpeak (DHV%)*2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
MT(DHV%)*2	4.31	4.3	4.3	4.31	4.3	4.3	4.31	4.3	4.3	4.31	4.3	4.3
HT (DHV%)*2	2.69	2.7	2.7	2.69	2.7	2.7	2.69	2.7	2.7	2.69	2.7	2.7
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*2 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: SR 429 Ramps at Clarcona-Ocoee Rd (#429-152 & 153)

	NB OFF (Ramp F)			NB ON (Ramp G)			SB OFF (Ramp H)			SB ON (Ramp E)		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045	2018	2045	2045	2018	2045	2045
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Demand Peak Hour Directional Volume *1	549	1170	1170	123	325	325	140	270	270	664	1430	1430
Posted or Design Speed	35	35	35	50	50	50	50	50	50	35	35	35
Tpeak (DHV%)*2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
MT(DHV%)*2	4.31	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
HT (DHV%)*2	2.69	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*2 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: SR 429 Ramps at Ocoee Apopka Rd (CR 437) (#429-153)

	NB OFF (Ramp B)			NB ON (Ramp C)			SB OFF (Ramp D)			SB ON (Ramp A)		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045	2018	2045	2045	2018	2045	2045
Number of Lanes	1	1	1	2	2	2	2	2	2	1	1	1
Demand Peak Hour Directional Volume *1	282	355	355	95	200	200	101	245	245	292	290	290
Posted or Design Speed	50	50	50	35	35	35	35	35	35	50	50	50
Tpeak (DHV%)*2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
MT(DHV%)*2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
HT (DHV%)*2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*2 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: SR 429 Ramps at SR 414 Ramps (#429-153)

	NB OFF to EB 414			SB OFF to EB 414			SB ON fr WB 414		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045	2018	2045	2045
Number of Lanes	2	2	2	2	2	2	2	2	2
Demand Peak Hour Directional Volume *1	1622	2535	2535	956	2480	2480	1743	3095	3095
Posted or Design Speed	50	50	50	50	50	50	50	50	50
Tpeak (DHV%)*2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
MT(DHV%)*2	4.31	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
HT (DHV%)*2	2.69	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = SR 429 Widening Program Design Traffic Analysis, CDM Smith. October 23, 2019

*2 = Axel Counts for AVI Data through the Forest Lake Toll Plaza - 3/8/19 to 3/14/19

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: **Tilden Rd (#429-154)**

Data	Existing Facility	No-Build (Design Year)	Build (Design Year)
Year	2018	2045	2045
Total Number of Lanes	2	2	2
LOS C Peak Hour 2-Way Volume *1	1359	1359	1359
Posted Speed	45	45	45
Tpeak (DHV%)*2	1.9	1.9	1.9
MT(DHV%)*2	n/a	n/a	n/a
HT (DHV%)*2	n/a	n/a	n/a
Buses (DHV%)	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a

Data Sources:

*1 = 2012 FDOT Quality/Level of Service Handbook:Table 4: Generalized Peak Hour 2-Way Volumes for Florida's Urbanized Areas

*2 = Portable Traffic Monitoring Site: 758177. FDOT Traffic Online .

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: Stoneybrook W. Parkway (#429-154)

	SB 1-way (W. of SR 429)			NB 1-way (E of SR 429)			2-Way Segment		
Data	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**	**Existing Facility**	**No-Build (Design Year)**	**Build (Design Year)**
Year	2018	2045	2045	2018	2045	2045	2018	2045	2045
Number of Lanes/**Direction**	2	2	2	2	2	2	2	2	2
LOS C Peak Hour Directional Volume *[1]	2063	2063	2063	2063	2063	2063	3078	3078	3078
Posted Speed	45	45	45	45	45	45	45	45	45
Tpeak (DHV%)*[2]	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
MT(DHV%)*[2]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
HT (DHV%)*[2]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Buses (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Data Sources:

*1 = 2012 FDOT Quality/Level of Service Handbook: 1-Way Pair: Table 7: Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas; 2-Way Segment: Table 4:Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.

*2 = Portable Traffic Monitoring Site: 758385 & 758075. FDOT Traffic Online .

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: **Winter Garden-Vineland Rd (CR 535) S. of SR 429 (#429-154)**

Data	Existing Facility	No-Build (Design Year)	Build (Design Year)
Year	2018	2045	2045
Number of Lanes/**Direction**	2	2	2
LOS C Peak Hour Directional Volume *[1]	1719	1719	1719
Posted Speed	40	40	40
Tpeak (DHV%)*[2]	2.1	2.1	2.1
MT(DHV%)*[2]	n/a	n/a	n/a
HT (DHV%)*[2]	n/a	n/a	n/a
Buses (DHV%)	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a

Data Sources:

*1 = 2012 FDOT Quality/Level of Service Handbook:Table 7: Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas

*2 = Portable Traffic Monitoring Site: 758330. FDOT Traffic Online .

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: **Windermere Rd W. of SR 429 (#429-154)**

Data	Existing Facility	No-Build (Design Year)	Build (Design Year)
Year	2018	2045	2045
Total Number of Lanes	2	2	2
LOS C Peak Hour 2-Way Volume *1	1359	1359	1359
Posted Speed	35	35	35
Tpeak (DHV%)*2	1.9	1.9	1.9
MT(DHV%)*2	n/a	n/a	n/a
HT (DHV%)*2	n/a	n/a	n/a
Buses (DHV%)	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a

Data Sources:

*1 = 2012 FDOT Quality/Level of Service Handbook:Table 4: Generalized Peak Hour 2-Way Volumes for Florida's Urbanized Areas

*2 = Portable Traffic Monitoring Site: 758075. FDOT Traffic Online .

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: **W. Franklin St. (SR 438) E. of SR 429 (#429-152)**

Data	Existing Facility	No-Build (Design Year)	Build (Design Year)
Year	2018	2045	2045
Total Number of Lanes	2	2	2
LOS C Peak Hour 2-Way Volume *1	660	660	660
Posted Speed	35	35	35
Tpeak (DHV%)*2	5.3	5.3	5.3
MT(DHV%)*2	3.73	3.73	3.73
HT (DHV%)*2	1.57	1.57	1.57
Buses (DHV%)	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a

Data Sources:

*1 = 2012 FDOT Quality/Level of Service Handbook:Table 4: Generalized Peak Hour 2-Way Volumes for Florida's Urbanized Areas

*2 = Portable Traffic Monitoring Site: 750662. FDOT Traffic Online .

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: Clarcona Ocoee Rd E. of SR 429 (#429-152 & 153)

Data	Existing Facility	No-Build (Design Year)	Build (Design Year)
Year	2018	2045	2045
Number of **Lanes/Direction**	2	2	2
LOS C Peak Hour Directional Volume *1	1719	1719	1719
Posted Speed	45	45	45
Tpeak (DHV%)*2	1.9	1.9	1.9
MT(DHV%)*2	n/a	n/a	n/a
HT (DHV%)*2	n/a	n/a	n/a
Buses (DHV%)	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a

Data Sources:

*1 = 2012 FDOT Quality/Level of Service Handbook:Table 7: Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas

*2 = Portable Traffic Monitoring Site: 758390. FDOT Traffic Online .

TRAFFIC DATA FOR NOISE STUDIES

Project Description: SR 429 from Tilden Rd to SR 429/SR 414 Interchange

CFX Project #: 429-154; 429-152; 429-153

Segment Description: Ocoee Apopka Rd (CR 437A) SW of SR 429 (#429-153)

Data	Existing Facility	No-Build (Design Year)	Build (Design Year)
Year	2018	2045	2045
Total Number of Lanes	2	2	2
LOS C Peak Hour 2-Way Volume *1	1359	1359	1359
Posted Speed	45	45	45
Tpeak (DHV%)*2	1.9	1.9	1.9
MT(DHV%)*2	n/a	n/a	n/a
HT (DHV%)*2	n/a	n/a	n/a
Buses (DHV%)	n/a	n/a	n/a
Motorcycles (DHV%)	n/a	n/a	n/a

Data Sources:

*1 = 2012 FDOT Quality/Level of Service Handbook:Table 4: Generalized Peak Hour 2-Way Volumes for Florida's Urbanized Areas

*2 = Portable Traffic Monitoring Site: 7552000. FDOT Traffic Online .

Appendix C:
Noise Impact Comparison Matrix

Project Segment #429-154 Receptors– Pages C2-1 thru C2-7
Project Segment #429-152 Receptors – Pages C2-7 thru C2-13
Project Segment # 429-153 Receptors – Pages C2-13 thru C2-20

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
NSA 1: (South) - Illustrated on Page D1-1 and D1-2 - Appendix D							
1-1	1	66.0	67.6	67.8	68.3	0.7	*YES*
1-2	1	66.0	65.6	65.8	66.9	1.3	*YES*
1-3	1	66.0	65.5	65.6	67.0	1.5	*YES*
1-4	1	66.0	65.4	65.5	67.2	1.8	*YES*
1-5	1	66.0	65.1	65.2	67.1	2.0	*YES*
1-6	1	66.0	62.1	61.9	64.2	2.1	-
1-7	16	66.0	65.8	65.9	68.0	2.2	*YES*
1-8	1	66.0	66.0	65.8	68.5	2.5	*YES*
1-9	1	66.0	66.1	65.8	68.6	2.5	*YES*
1-10	1	66.0	66.1	65.8	68.6	2.5	*YES*
1-11	1	66.0	66.2	66.0	68.6	2.4	*YES*
1-12	1	66.0	66.1	65.7	68.5	2.4	*YES*
1-13	1	66.0	65.8	65.2	68.1	2.3	*YES*
1-14	1	66.0	65.1	64.3	67.2	2.1	*YES*
1-15	2	66.0	65.2	65.0	67.6	2.4	*YES*
1-16	2	66.0	65.0	64.6	67.5	2.5	*YES*
1-17	2	66.0	65.1	64.6	67.7	2.6	*YES*
1-18	1	66.0	64.8	64.6	67.0	2.2	*YES*
1-19	1	66.0	63.1	63.0	65.4	2.3	-
1-20	2	66.0	63.5	62.9	66.0	2.5	*YES*
1-21	2	66.0	63.7	62.7	66.1	2.4	*YES*
1-22	1	66.0	64.9	64.1	67.3	2.4	*YES*
1-23	1	66.0	64.5	64.3	67.1	2.6	*YES*
1-24	1	66.0	64.1	64.1	65.7	1.6	-
1-25	1	66.0	64.6	64.4	66.5	1.9	*YES*
1-26	1	66.0	62.9	62.6	65.3	2.4	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
1-27	1	66.0	63.1	62.7	65.4	2.3	-
1-28	1	66.0	63.3	62.6	65.7	2.4	-
1-29	2	66.0	63.0	62.4	65.5	2.5	-
1-30	1	66.0	64.3	64.1	66.1	1.8	*YES*
1-31	1	66.0	62.6	62.3	65.0	2.4	-
1-32	1	66.0	63.0	62.8	65.4	2.4	-
1-33	1	66.0	62.4	62.6	65.0	2.6	-
1-34	2	66.0	62.7	62.5	65.0	2.3	-
1-35	1	66.0	63.2	62.9	65.9	2.7	-
1-36	1	66.0	61.0	60.6	63.7	2.7	-
1-37	1	66.0	64.2	64.3	65.7	1.5	-
1-38	1	66.0	64.1	64.0	65.9	1.8	-
1-39	1	66.0	62.8	62.7	65.0	2.2	-
1-40	1	66.0	63.1	63.2	65.5	2.4	-
1-41	1	66.0	63.8	63.9	65.5	1.7	-
1-42	1	66.0	62.1	62.2	64.6	2.5	-
1-43	1	66.0	62.8	63.2	65.4	2.6	-
1-44	1	66.0	62.2	62.6	65.0	2.8	-
1-45	2	66.0	62.0	61.6	64.9	2.9	-
1-46	4	66.0	63.4	63.2	66.6	3.2	*YES*
1-47	1	66.0	63.6	63.7	65.2	1.6	-
1-48	1	66.0	62.7	62.8	64.8	2.1	-
1-49	1	66.0	62.8	62.9	65.3	2.5	-
1-50	1	66.0	62.9	62.2	65.0	2.1	-
1-51	1	66.0	63.0	62.1	65.0	2.0	-
1-52	1	66.0	62.2	61.3	64.6	2.4	-
1-53	1	66.0	62.8	61.9	65.2	2.4	-
1-54	1	66.0	61.5	60.7	64.2	2.7	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
NSA Summary (Totals/Averages)	***80***		***63.9***	***63.7***	***66.2***	***2.3***	***47***
NSA 2: (North) - Illustrated on Page D1-2 and D1-3 - Appendix D							
2-1	7	66.0	62.9	62.9	65.5	2.6	-
2-1.1	1	66.0	63.8	63.8	66.5	2.7	*YES*
2-1.2	1	66.0	63.5	63.5	66.1	2.6	*YES*
2-1.3	1	66.0	63.0	63.0	65.7	2.7	-
2-1.4	1	66.0	62.7	62.7	65.4	2.7	-
2-1.5	1	66.0	62.8	62.8	65.5	2.7	-
2-1.6	1	66.0	62.5	62.5	65.1	2.6	-
2-1.7	1	66.0	62.3	62.3	65.0	2.7	-
2-1.8	1	66.0	62.6	62.6	65.1	2.5	-
2-1.9	1	66.0	62.5	62.5	64.8	2.3	-
2-2	3	66.0	63.9	63.9	66.7	2.8	*YES*
2-2.1	1	66.0	63.6	63.6	66.3	2.7	*YES*
2-2.2	1	66.0	63.3	63.4	66.0	2.7	*YES*
2-3	4	66.0	65.2	65.2	68.3	3.1	*YES*
2-4	1	66.0	65.7	65.7	68.8	3.1	*YES*
2-5	1	66.0	64.9	64.9	67.9	3.0	*YES*
2-6	1	66.0	63.8	63.8	67.0	3.2	*YES*
2-7	1	66.0	62.0	62.0	65.1	3.1	-
2-8	1	66.0	63.3	63.3	66.3	3.0	*YES*
2-9	1	66.0	64.3	64.3	67.3	3.0	*YES*
2-10	1	66.0	66.0	66.0	68.9	2.9	*YES*
2-11	7	66.0	68.6	68.6	71.3	2.7	*YES*
2-12	7	66.0	69.5	69.5	71.9	2.4	*YES*
2-13	6	66.0	69.2	69.2	71.9	2.7	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
2-14	5	66.0	69.8	69.8	72.6	2.8	*YES*
2-15	1	66.0	68.9	69.0	72.0	3.1	*YES*
2-16	1	66.0	66.6	66.6	69.8	3.2	*YES*
2-17	1	66.0	65.1	65.1	68.6	3.5	*YES*
2-18	1	66.0	63.9	64.0	67.8	3.9	*YES*
2-19	1	66.0	61.4	61.5	64.7	3.3	-
2-20	6	66.0	63.7	63.7	66.6	2.9	*YES*
2-21	7	66.0	63.7	63.7	66.5	2.8	*YES*
2-22	5	66.0	63.9	63.9	66.8	2.9	*YES*
2-23	1	66.0	59.3	59.4	62.4	3.1	-
2-24	1	66.0	64.6	64.6	67.6	3.0	*YES*
2-25	1	66.0	63.4	63.4	66.5	3.1	*YES*
2-26	1	66.0	63.1	63.1	66.0	2.9	*YES*
2-27	1	66.0	61.1	61.1	64.1	3.0	-
2-28	1	66.0	61.5	61.5	64.4	2.9	-
2-29	1	66.0	60.1	60.1	63.2	3.1	-
2-30 Cat C	1	66.0	68.6	68.6	71.4	2.8	*YES*
2-31 Cat C	1	66.0	64.9	64.9	66.6	1.7	*YES*
NSA Summary (Totals/Averages)	***89***		***64.2***	***64.2***	***67.0***	***2.9***	***69***
NSA 3: (South) - Illustrated on Page D1-4 - Appendix D							
3-1	1	66.0	60.5	60.7	63.2	2.7	-
NSA Summary (Totals/Averages)	***1***		***60.5***	***60.7***	***63.2***	***2.7***	***0***
NSA 4: (South) - Illustrated on Page D1-4 thru D1-6 - Appendix D							
4-1	1	66.0	64.2	64.4	68.4	4.2	*YES*
4-2	1	66.0	63.2	63.4	67.3	4.1	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
4-3	1	66.0	62.0	62.3	66.5	4.5	*YES*
4-4	1	66.0	61.0	61.2	65.7	4.7	-
4-5	1	66.0	60.4	60.7	65.2	4.8	-
4-6	1	66.0	62.1	62.4	66.5	4.4	*YES*
4-7	1	66.0	60.4	60.7	65.0	4.6	-
4-8	1	66.0	59.6	59.9	64.3	4.7	-
4-9	1	66.0	60.1	60.4	64.9	4.8	-
4-10	1	66.0	60.2	60.6	65.0	4.8	-
4-11	1	66.0	61.2	61.6	65.8	4.6	-
4-12	1	66.0	62.8	63.2	67.1	4.3	*YES*
4-13	1	66.0	63.1	63.5	67.1	4.0	*YES*
4-14	1	66.0	62.4	62.9	66.4	4.0	*YES*
4-15	1	66.0	61.7	62.2	65.8	4.1	-
4-16	1	66.0	70.1	70.5	72.1	2.0	*YES*
4-17	1	66.0	67.6	68.1	70.2	2.6	*YES*
4-18	1	66.0	68.2	68.6	70.9	2.7	*YES*
4-19	1	66.0	67.4	67.9	70.5	3.1	*YES*
4-20	1	66.0	66.2	66.6	69.5	3.3	*YES*
4-21	1	66.0	65.0	65.4	68.4	3.4	*YES*
4-22	1	66.0	62.5	62.9	66.2	3.7	*YES*
4-23	1	66.0	63.2	63.6	66.9	3.7	*YES*
4-24	1	66.0	62.7	63.1	66.5	3.8	*YES*
4-25	1	66.0	62.4	62.8	66.3	3.9	*YES*
4-26	1	66.0	61.5	61.9	65.4	3.9	-
4-27	1	66.0	61.8	62.2	65.7	3.9	-
4-28	1	66.0	62.2	62.5	66.0	3.8	*YES*
4-29	1	66.0	62.2	62.5	65.9	3.7	-
4-30	1	66.0	62.2	62.5	66.0	3.8	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
4-31	1	66.0	62.0	62.3	65.7	3.7	-
4-32	1	66.0	61.6	61.9	65.5	3.9	-
4-33	1	66.0	62.5	62.8	66.1	3.6	*YES*
4-34	1	66.0	63.1	63.4	66.7	3.6	*YES*
4-35	1	66.0	63.9	64.1	67.4	3.5	*YES*
4-36	1	66.0	64.8	65.0	68.2	3.4	*YES*
4-37	1	66.0	64.9	65.1	67.8	2.9	*YES*
4-38	1	66.0	67.8	67.9	70.6	2.8	*YES*
4-39	1	66.0	68.1	68.2	71.1	3.0	*YES*
4-40	1	66.0	69.6	69.7	72.0	2.4	*YES*
4-41	1	66.0	62.8	62.9	66.8	4.0	*YES*
4-42	1	66.0	61.9	62.1	66.0	4.1	*YES*
4-43	1	66.0	70.3	70.3	71.8	1.5	*YES*
4-44	1	66.0	66.2	66.2	68.6	2.4	*YES*
4-45	1	66.0	63.8	63.9	66.7	2.9	*YES*
4-46	1	66.0	62.9	62.9	66.3	3.4	*YES*
4-47	1	66.0	62.2	62.2	65.8	3.6	-
4-48	1	66.0	61.3	61.4	65.1	3.8	-
NSA Summary (Totals/Averages)	***48***		***63.5***	***63.8***	***67.2***	***3.7***	***33***
NSA 5: (West) - Illustrated on Page D1-5 - Appendix D							
5-1	1	66.0	66.8	66.8	69.6	2.8	*YES*
5-2	1	66.0	63.4	63.5	66.8	3.4	*YES*
5-3	1	66.0	60.8	60.8	64.7	3.9	-
NSA Summary (Totals/Averages)	***3***		***63.7***	***63.7***	***67.0***	***3.4***	***2***
NSA 6: (East) - Illustrated on Page D1-5 thru D1-6 - Appendix D							

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
6-1	1	66.0	66.8	66.8	73.2	6.4	*YES*
6-2	10	66.0	67.1	67.1	72.3	5.2	*YES*
6-3	1	66.0	64.4	64.4	70.4	6.0	*YES*
6-4	1	66.0	68.7	68.7	71.6	2.9	*YES*
6-5	1	66.0	66.4	66.4	70.0	3.6	*YES*
6-6	1	66.0	66.3	66.3	69.4	3.1	*YES*
6-7	1	66.0	65.6	65.6	68.8	3.2	*YES*
6-8	1	66.0	65.8	65.8	68.5	2.7	*YES*
6-9	1	66.0	61.9	61.9	64.4	2.5	-
6-10	1	66.0	61.0	61.0	65.3	4.3	-
6-11	1	66.0	59.2	59.2	63.2	4.0	-
6-12	1	66.0	61.3	61.4	65.9	4.6	-
6-13	1	66.0	61.4	61.4	65.7	4.3	-
6-14	1	66.0	61.4	61.4	65.7	4.3	-
6-15	1	66.0	61.7	61.7	65.9	4.2	-
6-16	1	66.0	61.6	61.6	65.9	4.3	-
6-17	1	66.0	61.5	61.5	65.2	3.7	-
6-18	1	66.0	61.0	61.1	64.9	3.9	-
6-19	1	66.0	60.5	60.5	64.4	3.9	-
NSA Summary (Totals/Averages)	***28***		***63.3***	***63.4***	***67.4***	***4.1***	***17***
NSA 7: (West) - Illustrated on Page D1-5 thru D1-6 - Appendix D							
7-1	9	66.0	63.8	63.8	72.0	8.2	*YES*
7-2	1	66.0	62.4	62.4	70.4	8.0	*YES*
7-3	1	66.0	61.9	61.9	70.6	8.7	*YES*
7-4	1	66.0	61.1	61.1	68.8	7.7	*YES*
7-5	1	66.0	61.0	61.0	69.7	8.7	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
7-6	1	66.0	60.2	60.2	68.8	8.6	*YES*
7-7	5	66.0	60.8	60.8	68.3	7.5	*YES*
7-8	1	66.0	60.8	60.8	68.7	7.9	*YES*
7-9	1	66.0	60.8	60.8	68.5	7.7	*YES*
7-10	1	66.0	59.9	59.9	67.1	7.2	*YES*
7-11	1	66.0	58.1	58.1	65.9	7.8	-
7-12	1	66.0	58.4	58.4	66.2	7.8	*YES*
7-13	1	66.0	56.4	56.5	63.7	7.3	-
7-14	1	66.0	57.0	57.0	65.1	8.1	-
7-15	1	66.0	59.2	59.2	67.3	8.1	*YES*
7-16	1	66.0	59.4	59.4	67.8	8.4	*YES*
7-17	1	66.0	57.6	57.6	65.7	8.1	-
7-18	1	66.0	57.7	57.7	65.8	8.1	-
7-19	1	66.0	57.8	57.8	66.0	8.2	*YES*
7-20	1	66.0	56.3	56.3	64.4	8.1	-
7-21	1	66.0	58.5	58.5	66.8	8.3	*YES*
7-22	1	66.0	58.0	58.0	66.5	8.5	*YES*
7-23	1	66.0	57.1	57.1	64.8	7.7	-
7-24	1	66.0	56.5	56.5	65.0	8.5	-
7-25	1	66.0	57.2	57.2	65.5	8.3	-
7-26	1	66.0	55.2	55.2	63.2	8.0	-
7-27	1	66.0	57.7	57.7	65.8	8.1	-
7-28	1	66.0	57.6	57.6	66.0	8.4	*YES*
7-29	1	66.0	60.7	60.7	67.5	6.8	*YES*
NSA Summary (Totals/Averages)	***41***		***58.9***	***58.9***	***67.0***	***8.0***	***30***
NSA 8: (East) - Illustrated on Page D2-2 and D2-3 - Appendix D							

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
8-1 Cat. E	1	71.0	65.5	65.5	68.0	2.5	-
8-2 Cat. C	1	66.0	61.2	61.7	63.8	2.6	-
8-3	1	66.0	64.6	64.9	65.4	0.8	-
NSA Summary (Totals/Averages)	***3***		***63.8***	***64.0***	***65.7***	***2.0***	***0***
NSA 9: (West) - Illustrated on Page D2-2 - Appendix D							
9-1	1	66.0	65.1	65.1	71.6	6.5	*YES*
9-2	1	66.0	66.5	66.5	72.3	5.8	*YES*
9-3	1	66.0	65.7	65.7	71.5	5.8	*YES*
9-4	1	66.0	64.9	64.9	70.8	5.9	*YES*
9-5	1	66.0	64.1	64.2	70.2	6.1	*YES*
9-6	1	66.0	63.3	63.4	69.4	6.1	*YES*
9-7	1	66.0	62.4	62.5	68.1	5.7	*YES*
9-8	1	66.0	62.1	62.3	67.8	5.7	*YES*
9-9	1	66.0	61.9	62.1	67.0	5.1	*YES*
9-10	1	66.0	61.9	62.1	66.7	4.8	*YES*
9-11	1	66.0	62.0	62.2	66.4	4.4	*YES*
9-12	1	66.0	62.1	62.3	66.3	4.2	*YES*
9-13	1	66.0	62.1	62.4	65.9	3.8	-
9-14	1	66.0	62.1	62.5	65.8	3.7	-
9-15	1	66.0	61.9	62.3	65.6	3.7	-
9-16	1	66.0	63.8	63.8	70.2	6.4	*YES*
9-17	1	66.0	63.4	63.4	69.3	5.9	*YES*
9-18	1	66.0	62.8	62.9	68.4	5.6	*YES*
9-19	1	66.0	61.8	61.9	67.6	5.8	*YES*
9-20	1	66.0	61.5	61.6	66.7	5.2	*YES*
9-21	1	66.0	61.4	61.6	66.5	5.1	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
9-22	1	66.0	61.3	61.5	66.2	4.9	*YES*
9-23	1	66.0	61.1	61.3	65.9	4.8	-
9-24	1	66.0	61.0	61.2	65.7	4.7	-
9-25	1	66.0	61.1	61.4	65.4	4.3	-
9-26	1	66.0	60.8	61.1	65.4	4.6	-
9-27	1	66.0	60.7	61.2	65.0	4.3	-
9-28	1	66.0	62.3	62.2	68.9	6.6	*YES*
9-29	1	66.0	62.1	61.6	68.3	6.2	*YES*
9-30	1	66.0	61.3	61.1	67.4	6.1	*YES*
9-31	1	66.0	60.4	60.5	66.2	5.8	*YES*
9-32	1	66.0	58.2	58.4	63.4	5.2	-
9-33	1	66.0	59.2	59.3	64.8	5.6	-
9-34	1	66.0	61.1	61.0	67.8	6.7	*YES*
9-35	1	66.0	60.8	59.4	67.1	6.3	*YES*
9-36	1	66.0	58.8	58.9	64.9	6.1	
9-37	1	66.0	59.6	59.6	65.7	6.1	-
9-38	1	66.0	58.9	59.0	64.3	5.4	-
9-39	1	66.0	60.0	59.8	66.7	6.7	*YES*
9-40	1	66.0	59.5	57.7	65.9	6.4	-
9-41	1	66.0	57.7	57.8	63.8	6.1	-
9-42	1	66.0	58.7	58.6	64.8	6.1	-
9-43	1	66.0	58.3	58.5	63.5	5.2	-
9-44	1	66.0	58.9	58.7	65.6	6.7	-
9-45	1	66.0	58.4	56.4	64.8	6.4	-
9-46	1	66.0	56.7	56.8	62.8	6.1	-
9-47	1	66.0	57.7	57.7	63.8	6.1	-
9-48 (Cat C)	1	66.0	67.4	67.4	73.5	6.1	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
9-49 (Cat C)	1	66.0	65.8	65.9	68.4	2.6	*YES*
NSA Summary (Totals/Averages)	**49**		**61.4**	**61.4**	**66.9**	**5.5**	**28**
NSA 10: (West) - Illustrated on Page D2-2 and D2-3 - Appendix D							
10-1 Cat C	1	66.0	65.3	66.4	68.6	3.3	*YES*
10-2 Cat C	1	66.0	61.5	62.3	65.9	4.4	-
10-3 Cat C	1	66.0	59.9	60.9	64.2	4.3	-
10-4 Cat C	1	66.0	59.9	61.5	63.5	3.6	-
10-5 Cat C	1	66.0	58.6	60.6	62.1	3.5	-
NSA Summary (Totals/Averages)	***5***		***61.0***	***62.3***	***64.9***	***3.8***	***1***
NSA 11: (East) - Illustrated on Page D2-6 - Appendix D							
11-1	2	66.0	66.8	66.9	72.6	5.8	*YES*
11-2	1	66.0	64.5	64.5	72.4	7.9	*YES*
11-3	2	66.0	63.3	63.4	71.2	7.9	*YES*
11-4	1	66.0	62.6	62.6	69.8	7.2	*YES*
11-5	1	66.0	62.8	62.8	68.6	5.8	*YES*
11-6	1	66.0	61.9	62.0	69.3	7.4	*YES*
11-7	1	66.0	61.3	61.5	68.5	7.2	*YES*
11-8	1	66.0	61.1	61.2	68.5	7.4	*YES*
11-9	1	66.0	61.3	61.4	68.2	6.9	*YES*
11-10	1	66.0	61.1	61.2	67.1	6.0	*YES*
11-11	2	66.0	60.7	60.8	68.1	7.4	*YES*
11-12	1	66.0	60.3	60.4	67.4	7.1	*YES*
11-13	1	66.0	60.7	60.8	67.1	6.4	*YES*
11-14	2	66.0	60.1	60.3	67.1	7.0	*YES*
11-15	1	66.0	60.5	60.6	66.1	5.6	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
11-16	1	66.0	59.5	59.6	66.2	6.7	*YES*
11-17	1	66.0	59.1	59.2	66.0	6.9	*YES*
11-18	1	66.0	59.0	59.1	66.1	7.1	*YES*
11-19	1	66.0	59.2	59.3	66.2	7.0	*YES*
11-21	1	66.0	59.2	59.4	65.7	6.5	-
11-22	3	66.0	58.3	58.4	65.5	7.2	-
NSA Summary (Totals/Averages)	***27***		***61.1***	***61.2***	***68.0***	***6.9***	***23***
NSA 12: (East) - Illustrated on Page D2-7 - Appendix D							
12-1	1	66.0	59.9	60.2	69.3	9.4	*YES*
12-2	1	66.0	59.6	59.9	68.7	9.1	*YES*
12-3	1	66.0	59.5	59.8	68.4	8.9	*YES*
12-4	1	66.0	59.6	59.9	68.1	8.5	*YES*
12-5	1	66.0	59.5	59.7	67.7	8.2	*YES*
12-6	1	66.0	59.5	59.8	67.5	8.0	*YES*
12-7	1	66.0	59.5	59.8	67.1	7.6	*YES*
12-8	1	66.0	59.4	59.7	67.0	7.6	*YES*
12-9	1	66.0	59.2	59.4	66.6	7.4	*YES*
12-10	1	66.0	59.0	59.3	66.3	7.3	*YES*
12-11	1	66.0	59.2	59.4	65.9	6.7	-
12-12	1	66.0	59.2	59.4	65.5	6.3	-
12-13	1	66.0	59.1	59.3	65.0	5.9	-
12-14	1	66.0	59.0	59.3	64.7	5.7	-
12-15	1	66.0	59.1	59.3	64.6	5.5	-
12-16	1	66.0	59.0	59.2	64.4	5.4	-
12-17	1	66.0	59.0	59.2	64.2	5.2	-
12-18	1	66.0	59.6	59.8	65.3	5.7	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
12-19	1	66.0	60.5	60.7	66.0	5.5	*YES*
12-20	1	66.0	61.4	61.7	65.5	4.1	-
12-21	1	66.0	61.6	61.9	65.6	4.0	-
12-22	1	66.0	62.1	62.3	65.5	3.4	-
12-23	1	66.0	62.3	62.5	65.5	3.2	-
12-24	1	66.0	62.5	62.7	65.5	3.0	-
12-25	1	66.0	62.6	62.8	65.5	2.9	-
12-26	1	66.0	62.6	62.8	65.6	3.0	-
12-27	1	66.0	62.6	62.8	65.6	3.0	-
12-28	1	66.0	62.9	63.1	65.8	2.9	-
12-29	1	66.0	62.9	63.1	65.6	2.7	-
12-30	1	66.0	62.9	63.1	65.8	2.9	-
12-31	1	66.0	63.0	63.2	66.2	3.2	*YES*
12-32	1	66.0	62.9	63.1	66.2	3.3	*YES*
12-33	1	66.0	63.1	63.3	66.5	3.4	*YES*
12-34	1	66.0	60.7	60.9	65.3	4.6	-
12-35	1	66.0	60.7	60.9	65.1	4.4	-
12-36	1	66.0	60.8	61.0	65.0	4.2	-
12-37	1	66.0	61.0	61.2	65.0	4.0	-
12-38	1	66.0	61.3	61.5	64.8	3.5	-
12-39	1	66.0	61.3	61.5	64.8	3.5	-
12-40	1	66.0	61.5	61.6	65.2	3.7	-
12-41	1	66.0	59.7	60.0	65.1	5.4	-
12-42	1	66.0	58.5	58.9	66.1	7.6	*YES*
12-43	1	66.0	58.2	58.5	65.6	7.4	-
12-44	1	66.0	58.4	58.7	65.1	6.7	-
12-45	1	66.0	58.5	58.7	64.9	6.4	-
12-46	1	66.0	58.7	58.9	65.0	6.3	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
12-47	1	66.0	58.5	58.7	64.6	6.1	-
12-48	1	66.0	58.5	58.7	64.3	5.8	-
NSA Summary (Totals/Averages)	***48***		***60.4***	***60.7***	***65.8***	***5.4***	***15***
NSA 13: (West) - Illustrated on Page D2-7 - Appendix D							
13-1	1	66.0	62.4	62.8	66.3	3.9	*YES*
NSA Summary (Totals/Averages)	***1***		***62.4***	***62.8***	***66.3***	***3.9***	***1***
NSA 14: (East) - Illustrated on Page D2-7 and D2-8 - Appendix D							
14-1	1	66.0	63.8	64.2	66.6	2.8	*YES*
14-2	1	66.0	62.8	63.7	66.6	3.8	*YES*
14-3	1	66.0	62.7	62.9	66.3	3.6	*YES*
14-4	1	66.0	61.6	62.8	66.3	4.7	*YES*
14-5	1	66.0	61.0	61.7	65.1	4.1	-
14-6	1	66.0	61.2	61.0	64.9	3.7	-
14-7	1	66.0	60.8	60.6	65.3	4.5	-
14-8	1	66.0	60.5	60.9	64.7	4.2	-
14-9	1	66.0	60.0	60.6	64.2	4.2	-
14-10	1	66.0	59.5	60.0	63.4	3.9	-
14-11	1	66.0	59.7	59.5	63.2	3.5	-
NSA Summary (Totals/Averages)	***11***		***61.2***	***61.6***	***65.1***	***3.9***	***4***
NSA 15: (West) - Illustrated on Page D2-8 and D2-9 - Appendix D							
15-1	1	66.0	65.8	65.8	69.8	4.0	*YES*
15-2	1	66.0	61.7	61.7	66.2	4.5	*YES*
15-3	1	66.0	60.8	60.8	66.1	5.3	*YES*
15-4	1	66.0	61.3	61.3	66.6	5.3	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
15-5 Cat C	1	66.0	62.8	62.8	67.5	4.7	*YES*
15-6	1	66.0	65.0	65.0	70.3	5.3	*YES*
15-7	1	66.0	64.9	64.9	70.0	5.1	*YES*
15-8	1	66.0	59.5	59.5	64.9	5.4	-
15-9	1	66.0	60.9	60.9	66.0	5.1	*YES*
NSA Summary (Totals/Averages)	**9**		**62.5**	**62.5**	**67.5**	**5.0**	**8**
NSA 16: (East) - Illustrated on Page D2-8 thru D2-10 - Appendix D							
16-1	1	66.0	62.4	62.4	65.8	3.4	-
16-2	1	66.0	62.3	62.3	65.8	3.5	-
16-3	1	66.0	62.1	62.1	65.5	3.4	-
16-4	1	66.0	61.5	61.5	65.0	3.5	-
16-5	1	66.0	61.8	61.8	65.5	3.7	-
16-6	1	66.0	62.2	62.2	65.9	3.7	-
16-7	1	66.0	62.9	62.9	66.9	4.0	*YES*
16-8	1	66.0	63.0	63.0	67.6	4.6	*YES*
16-9	1	66.0	63.3	63.3	69.1	5.8	*YES*
16-10	1	66.0	63.5	63.5	69.8	6.3	*YES*
16-11	1	66.0	64.0	64.0	70.5	6.5	*YES*
16-12	1	66.0	66.2	66.2	72.3	6.1	*YES*
16-13	1	66.0	62.7	62.7	69.1	6.4	*YES*
16-14	1	66.0	60.0	60.0	66.3	6.3	*YES*
16-15	1	66.0	59.7	59.7	66.2	6.5	*YES*
16-16	1	66.0	59.8	59.8	66.6	6.8	*YES*
16-17	1	66.0	60.9	60.9	67.6	6.7	*YES*
16-18	1	66.0	59.9	59.9	66.5	6.6	*YES*
16-19	1	66.0	61.5	61.5	64.8	3.3	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
16-20	1	66.0	59.3	59.3	62.8	3.5	-
16-21	1	66.0	58.5	58.5	62.7	4.2	-
16-22	1	66.0	58.2	58.2	62.9	4.7	-
16-23	1	66.0	57.1	57.2	63.1	6.0	-
16-24	1	66.0	56.7	56.7	63.0	6.3	-
16-25	1	66.0	57.0	57.0	63.3	6.3	-
16-26	1	66.0	56.8	56.8	63.1	6.3	-
16-27	1	66.0	57.1	57.1	63.3	6.2	-
16-28	1	66.0	56.3	56.3	62.3	6.0	-
16-29	1	66.0	58.0	58.0	62.2	4.2	-
16-30	1	66.0	57.7	57.7	62.5	4.8	-
16-31	1	66.0	55.4	55.4	60.6	5.2	-
16-32	1	66.0	54.8	54.8	61.3	6.5	-
16-33	1	66.0	54.7	54.7	61.4	6.7	-
16-34	1	66.0	54.4	54.4	61.1	6.7	-
16-35	1	66.0	54.7	54.7	61.4	6.7	-
16-36	1	66.0	54.6	54.6	61.2	6.6	-
NSA Summary (Totals/Averages)	***36***		***59.5***	***59.5***	***64.9***	***5.4***	***12***
NSA 17: (South) - Illustrated on Page D2-11 - Appendix D							
17-1 Cat C	1	66.0	58.3	58.4	64.3	6.0	-
17-2	1	66.0	59.8	60.4	65.2	5.4	-
17-3	1	66.0	58.0	58.6	62.9	4.9	-
NSA Summary (Totals/Averages)	***3***		***58.7***	***59.1***	***64.1***	***5.4***	***0***
NSA 18: (East) - Illustrated on Page D3-1 and D3-2 - Appendix D							
18-1 Cat C	1	66.0	61.1	61.4	63.2	2.1	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
18-2 Cat C	1	66.0	59.7	60.0	62.2	2.5	-
18-3 Cat C	1	66.0	60.9	61.3	64.0	3.1	-
18-4 Cat C	1	66.0	59.3	59.6	62.8	3.5	-
18-5 Cat C	1	66.0	63.6	64.0	66.4	2.8	-
18-6 Cat C	1	66.0	60.6	61.0	63.8	3.2	-
NSA Summary (Totals/Averages)	**6**		**60.9**	**61.2**	**63.7**	**2.8**	***0***
NSA 19: (West) - Illustrated on Page D3-1 and D3-2 - Appendix D							
19-1	1	66.0	70.9	71.1	75.6	4.7	*YES*
19-2	1	66.0	70.0	70.1	74.9	4.9	*YES*
19-3	1	66.0	69.1	69.3	74.2	5.1	*YES*
19-4	1	66.0	68.3	68.5	73.5	5.2	*YES*
19-5	1	66.0	67.6	67.7	72.8	5.2	*YES*
19-6	1	66.0	67.0	67.1	72.1	5.1	*YES*
19-7	1	66.0	64.2	64.3	69.5	5.3	*YES*
19-8	1	66.0	63.7	63.9	69.1	5.4	*YES*
19-9	1	66.0	63.3	63.5	68.7	5.4	*YES*
19-10	1	66.0	62.9	63.1	68.4	5.5	*YES*
19-11	1	66.0	62.4	62.6	68.0	5.6	*YES*
19-12	1	66.0	62.1	62.3	67.6	5.5	*YES*
19-13	1	66.0	61.4	61.6	66.9	5.5	*YES*
19-14	1	66.0	61.1	61.3	66.6	5.5	*YES*
19-15	1	66.0	60.9	61.0	66.3	5.4	*YES*
19-16	1	66.0	60.6	60.8	66.1	5.5	*YES*
19-17	1	66.0	60.4	60.6	65.9	5.5	-
19-18	1	66.0	60.2	60.4	65.7	5.5	
19-19	1	66.0	63.1	63.3	68.9	5.8	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
19-20	1	66.0	62.4	62.6	68.3	5.9	*YES*
19-21	1	66.0	62.0	62.2	67.8	5.8	*YES*
19-22	1	66.0	61.7	61.8	67.4	5.7	*YES*
19-23	1	66.0	61.1	61.3	66.9	5.8	*YES*
19-24	1	66.0	60.8	61.0	66.5	5.7	*YES*
19-25	1	66.0	60.3	60.5	66.0	5.7	*YES*
19-26	1	66.0	59.9	60.1	65.4	5.5	-
19-27	1	66.0	59.3	59.4	64.8	5.5	-
19-28	1	66.0	59.5	59.7	64.9	5.4	-
19-29	1	66.0	59.8	60.0	65.2	5.4	-
19-30	1	66.0	60.2	60.4	65.5	5.3	-
19-31	1	66.0	60.6	60.8	65.9	5.3	-
19-32	1	66.0	61.1	61.3	66.3	5.2	*YES*
19-33	1	66.0	61.6	61.8	66.7	5.1	*YES*
19-34	1	66.0	59.1	59.4	64.2	5.1	-
19-35	1	66.0	59.9	60.2	65.1	5.2	-
19-36	1	66.0	60.4	60.7	65.6	5.2	-
19-37	1	66.0	61.0	61.3	66.1	5.1	*YES*
19-38	1	66.0	61.6	61.8	66.7	5.1	*YES*
19-39	1	66.0	62.2	62.4	67.3	5.1	*YES*
19-40	1	66.0	62.7	63.0	67.7	5.0	*YES*
19-41	1	66.0	63.7	63.9	68.4	4.7	*YES*
19-42	1	66.0	64.3	64.5	68.9	4.6	*YES*
19-43	1	66.0	65.1	65.3	69.5	4.4	*YES*
19-44	1	66.0	65.9	66.1	70.2	4.3	*YES*
19-45	1	66.0	66.7	67.0	71.1	4.4	*YES*
19-46	1	66.0	67.6	67.8	71.9	4.3	*YES*
19-47 Cat C	1	66.0	68.0	68.3	72.4	4.4	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
19-48 Cat C	1	66.0	62.5	62.8	66.2	3.7	*YES*
19-49 Cat C	1	66.0	64.4	64.8	66.9	2.5	*YES*
19-50 Cat C	1	66.0	64.1	64.4	67.1	3.0	*YES*
19-51 Cat C	1	66.0	64.0	64.1	67.4	3.4	*YES*
NSA Summary (Totals/Averages)	***51***		***63.0***	***63.2***	***68.1***	***5.1***	***40***
NSA 20: (East) - Illustrated on Page D3-2 - Appendix D							
20-1 Cat C	1	66.0	66.9	66.9	70.7	3.8	-
NSA Summary (Totals/Averages)	***1***		***66.9***	***66.9***	***70.7***	***3.8***	***1***
NSA 21: (East) - Illustrated on Page D3-2 and D3-3 - Appendix D							
21-1	3	66.0	67.1	67.1	72.8	5.7	*YES*
21-2	4	66.0	68.9	68.9	73.9	5.0	*YES*
21-3	1	66.0	68.3	68.3	73.4	5.1	*YES*
21-4	1	66.0	69.3	69.3	74.0	4.7	*YES*
21-5	1	66.0	64.9	64.9	69.4	4.5	*YES*
21-6	1	66.0	63.5	63.5	69.4	5.9	*YES*
21-7	1	66.0	63.7	63.7	69.8	6.1	*YES*
21-8	1	66.0	62.9	62.9	67.9	5.0	*YES*
21-9	1	66.0	61.0	61.0	67.4	6.4	*YES*
21-10	1	66.0	61.5	61.5	67.9	6.4	*YES*
21-11	1	66.0	60.9	60.9	67.3	6.4	*YES*
21-12	1	66.0	63.1	63.1	69.1	6.0	*YES*
21-13	1	66.0	63.3	63.3	69.2	5.9	*YES*
21-14	1	66.0	62.4	62.4	68.2	5.8	*YES*
21-15	1	66.0	59.9	59.9	66.5	6.6	*YES*
21-16	1	66.0	59.7	59.7	66.3	6.6	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
21-17	1	66.0	59.0	59.0	65.2	6.2	-
21-18	1	66.0	60.1	60.1	67.0	6.9	*YES*
21-19	1	66.0	60.1	60.1	67.0	6.9	*YES*
21-20	1	66.0	60.2	60.2	67.0	6.8	*YES*
21-21	1	66.0	59.1	59.1	65.8	6.7	-
21-22	1	66.0	60.6	60.6	66.8	6.2	*YES*
21-23	1	66.0	61.1	61.1	67.0	5.9	*YES*
21-24	1	66.0	60.6	60.6	66.8	6.2	*YES*
21-25	1	66.0	59.0	59.0	65.5	6.5	-
21-26	1	66.0	59.8	59.8	65.8	6.0	-
21-27	1	66.0	59.6	59.6	65.3	5.7	-
21-28	1	66.0	59.9	59.9	65.8	5.9	-
21-29	1	66.0	60.5	60.5	66.4	5.9	*YES*
21-30	1	66.0	60.6	60.6	66.7	6.1	*YES*
21-31	1	66.0	60.6	60.6	67.0	6.4	*YES*
21-32	1	66.0	60.7	60.7	67.1	6.4	*YES*
21-33	1	66.0	61.1	61.2	67.4	6.3	*YES*
21-34	1	66.0	61.4	61.4	67.4	6.0	*YES*
21-35	1	66.0	61.9	61.9	67.8	5.9	*YES*
21-36	1	66.0	61.6	61.6	67.4	5.8	*YES*
21-37	1	66.0	61.5	61.5	67.4	5.9	*YES*
21-38	1	66.0	62.0	62.0	67.7	5.7	*YES*
21-39	1	66.0	61.2	61.2	67.0	5.8	*YES*
NSA Summary (Totals/Averages)	**44**		**61.9**	**61.9**	**67.9**	**6.0**	**38**
NSA 22: (West) - Illustrated on Page D3-2 and D3-3 - Appendix D							
22-1	1	66.0	61.4	61.4	65.5	4.1	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
22-2	1	66.0	62.2	62.2	66.1	3.9	*YES*
22-2.1	1	66.0	62.4	62.4	66.4	4.0	*YES*
22-2.2	1	66.0	61.8	61.8	66.5	4.7	*YES*
22-2.3	1	66.0	61.2	61.2	66.8	5.6	*YES*
22-2.4	1	66.0	60.8	60.8	66.4	5.6	*YES*
22-2.5	1	66.0	60.7	60.7	66.7	6.0	*YES*
22-3	1	66.0	60.3	60.3	66.6	6.3	*YES*
22-3.1	1	66.0	60.0	60.0	66.5	6.5	*YES*
22-3.2	1	66.0	60.1	60.1	66.6	6.5	*YES*
22-3.3	1	66.0	60.0	60.1	66.5	6.5	*YES*
22-4	1	66.0	61.6	61.6	65.5	3.9	-
22-5	1	66.0	58.5	58.5	61.6	3.1	-
22-6	1	66.0	58.6	58.6	61.4	2.8	-
NSA Summary (Totals/Averages)	**14**		**60.7**	**60.7**	**65.7**	**5.0**	**10**
NSA 23: (West) - Illustrated on Page D3-3 and D3-4 - Appendix D							
23-1	1	66.0	63.6	63.6	66.3	2.7	*YES*
23-2	1	66.0	62.3	62.3	65.2	2.9	-
23-3	1	66.0	60.5	60.5	63.5	3.0	-
23-4	1	66.0	59.8	59.8	62.8	3.0	-
23-5	1	66.0	60.8	60.8	64.7	3.9	-
23-6	1	66.0	64.5	64.5	70.7	6.2	*YES*
23-7	1	66.0	67.6	67.6	73.0	5.4	*YES*
NSA Summary (Totals/Averages)	**7**		**62.7**	**62.7**	**66.6**	**3.9**	**3**
NSA 24: (East) - Illustrated on Page D3-3 and D3-4 - Appendix D							
24-1.1	1	66.0	66.0	66.0	69.9	3.9	*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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
24-1.2	1	66.0	66.5	66.5	70.2	3.7	*YES*
24-1.3	1	66.0	66.6	66.6	70.4	3.8	*YES*
24-1.4	1	66.0	66.6	66.6	70.5	3.9	*YES*
24-1.5	1	66.0	66.7	66.7	70.5	3.8	*YES*
24-1.6	1	66.0	66.5	66.5	70.3	3.8	*YES*
24-1.7	1	66.0	66.2	66.2	70.0	3.8	*YES*
24-1.8	1	66.0	66.0	66.0	69.8	3.8	*YES*
24-1.9	1	66.0	64.4	64.4	68.4	4.0	*YES*
24-1.10	1	66.0	65.5	65.5	69.4	3.9	*YES*
24-1.11	1	66.0	65.1	65.1	69.0	3.9	*YES*
24-1.13	1	66.0	64.8	64.8	68.8	4.0	*YES*
24-1.14	1	66.0	64.6	64.6	68.7	4.1	*YES*
24-1.15	1	66.0	64.6	64.6	68.7	4.1	*YES*
24-1.16	1	66.0	65.0	65.0	68.8	3.8	*YES*
24-1.17	1	66.0	66.2	66.2	70.1	3.9	*YES*
24-1.18	1	66.0	66.6	66.6	70.7	4.1	*YES*
24-2.1	1	66.0	65.1	65.1	69.6	4.5	*YES*
24-2.2	1	66.0	63.2	63.2	67.7	4.5	*YES*
24-2.3	1	66.0	62.4	62.4	66.6	4.2	*YES*
24-2.4	1	66.0	61.6	61.6	65.4	3.8	-
24-2.5	1	66.0	61.5	61.5	65.2	3.7	-
24-2.6	1	66.0	60.1	60.1	64.0	3.9	-
24-2.7	1	66.0	61.2	61.2	65.2	4.0	-
24-2.8	1	66.0	59.4	59.4	63.4	4.0	-
24-2.9	1	66.0	59.2	59.2	63.9	4.7	-
24-2.10	1	66.0	61.0	61.0	65.9	4.9	-
24-3.1	1	66.0	61.2	61.2	65.5	4.3	-
24-3.2	1	66.0	60.8	60.8	65.2	4.4	-

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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
24-3.3	1	66.0	59.7	59.7	63.5	3.8	-
24-3.4	1	66.0	59.4	59.4	63.0	3.6	-
24-3.5	1	66.0	57.4	57.4	61.4	4.0	-
24-3.6	1	66.0	57.5	57.5	61.3	3.8	-
24-3.7	1	66.0	57.4	57.4	62.3	4.9	-
24-3.8	1	66.0	58.4	58.4	63.8	5.4	-
24-4.1	1	66.0	72.5	72.5	77.2	4.7	*YES*
24-4.2	1	66.0	72.2	72.2	77.0	4.8	*YES*
24-4.3	1	66.0	71.3	71.3	76.1	4.8	*YES*
24-4.4	1	66.0	70.4	70.4	75.0	4.6	*YES*
24-4.5	1	66.0	70.4	70.4	75.2	4.8	*YES*
24-4.6	1	66.0	69.9	69.9	74.5	4.6	*YES*
24-4.7	1	66.0	69.7	69.7	74.2	4.5	*YES*
24-4.8	1	66.0	69.2	69.2	73.9	4.7	*YES*
24-4.9	1	66.0	68.5	68.5	73.4	4.9	*YES*
24-4.10	1	66.0	68.4	68.4	73.0	4.6	*YES*
24-4.11	1	66.0	69.9	69.9	74.7	4.8	*YES*
24-4.12	1	66.0	69.7	69.7	74.4	4.7	*YES*
24-4.13	1	66.0	69.1	69.1	74.0	4.9	*YES*
24-4.14	1	66.0	68.5	68.5	73.3	4.8	*YES*
24-4.15	1	66.0	68.2	68.2	72.8	4.6	*YES*
24-4.16	1	66.0	68.0	68.0	72.4	4.4	*YES*
24-4.17	1	66.0	72.0	72.0	77.1	5.1	*YES*
24-4.18	1	66.0	71.0	71.0	77.1	6.1	*YES*
24-4.19	1	66.0	70.2	70.2	76.5	6.3	*YES*
24-4.20	1	66.0	69.6	69.6	74.3	4.7	*YES*
24-4.21	1	66.0	68.6	68.6	73.8	5.2	*YES*
24-4.22	1	66.0	68.3	68.3	73.0	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))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
24-4.23	1	66.0	72.3	72.3	77.2	4.9	*YES*
24-4.24	1	66.0	71.7	71.7	77.2	5.5	*YES*
24-4.25	1	66.0	70.8	70.8	77.2	6.4	*YES*
24-4.26	1	66.0	70.2	70.2	76.2	6.0	*YES*
24-4.27	1	66.0	69.0	69.0	74.4	5.4	*YES*
24-4.28	1	66.0	68.5	68.5	73.8	5.3	*YES*
24-5.1	1	66.0	62.9	62.9	67.9	5.0	*YES*
24-5.2	1	66.0	62.8	62.8	67.7	4.9	*YES*
24-5.3	1	66.0	62.7	62.7	67.7	5.0	*YES*
24-5.4	1	66.0	62.5	62.5	67.6	5.1	*YES*
24-5.5	1	66.0	62.7	62.7	67.8	5.1	*YES*
24-5.6	1	66.0	62.6	62.6	67.7	5.1	*YES*
24-5.7	1	66.0	62.4	62.4	67.6	5.2	*YES*
24-5.8	1	66.0	62.2	62.2	67.5	5.3	*YES*
24-6.1	1	66.0	62.8	62.8	68.3	5.5	*YES*
24-6.2	1	66.0	62.5	62.5	67.9	5.4	*YES*
24-6.3	1	66.0	61.9	61.9	67.4	5.5	*YES*
24-7.1	1	66.0	63.8	63.8	69.1	5.3	*YES*
24-7.2	1	66.0	62.7	62.7	67.8	5.1	*YES*
24-7.3	1	66.0	61.9	61.9	67.1	5.2	*YES*
24-7.4	1	66.0	61.3	61.3	66.5	5.2	*YES*
NSA Summary (Totals/Averages)	***78***		***65.4***	***65.4***	***70.0***	***4.6***	***63***
NSA 25: (East) - Illustrated on Page D3-5 - Appendix D							
25-1	1	66.0	65.4	65.4	67.9	2.5	*YES*
25-2	1	66.0	65.2	65.2	68.0	2.8	*YES*
25-3	1	66.0	63.6	63.6	67.0	3.4	*YES*

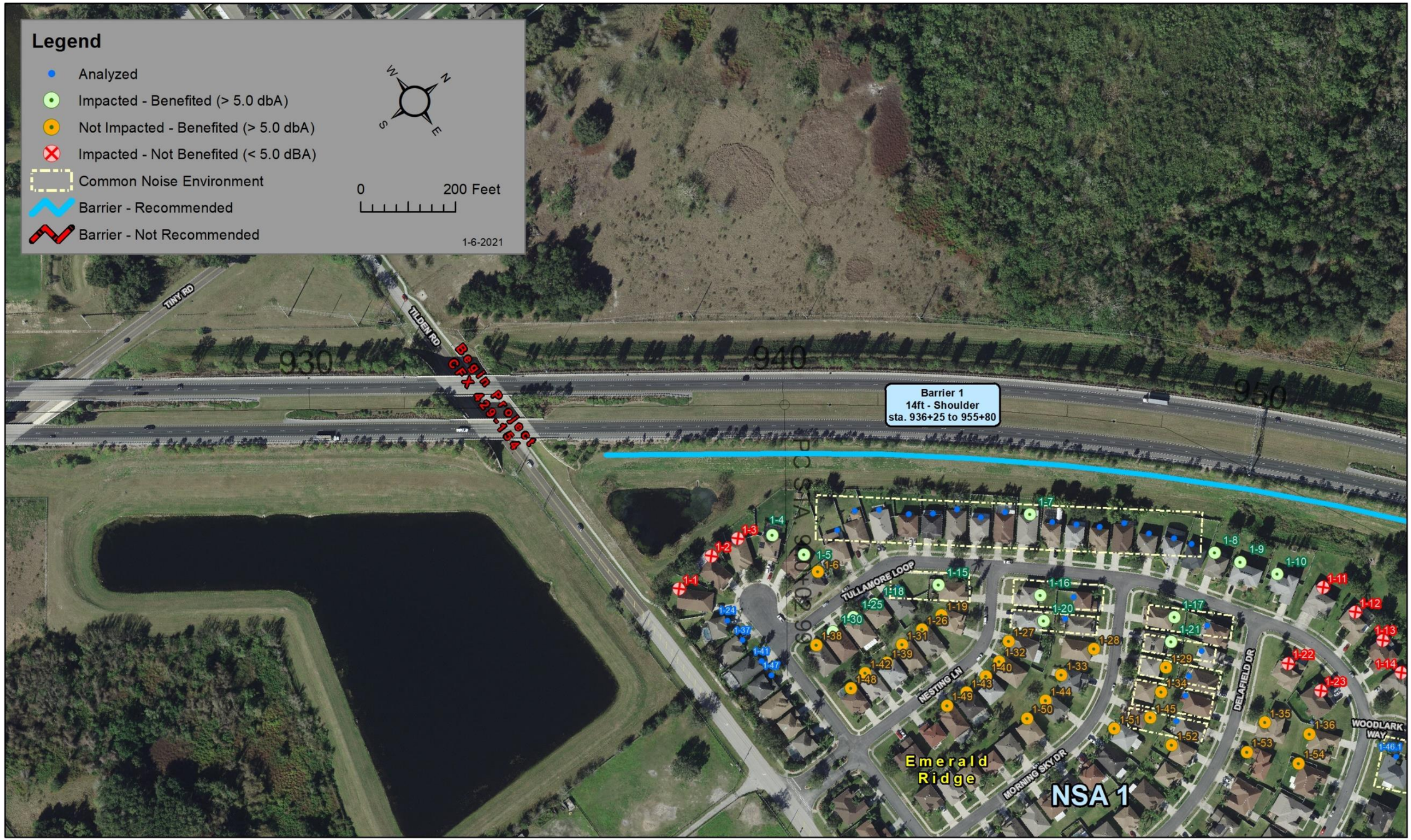
Noise Impact Comparison Matrix							
Noise Sensitive Sites			**Predicted Noise Levels (dB(A))** ***Red = Noise Level above NAC***				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
25-4	1	66.0	64.0	64.0	66.9	2.9	*YES*
25-5	1	66.0	63.9	63.9	66.3	2.4	*YES*
25-6	1	66.0	61.0	61.0	63.8	2.8	-
25-7	1	66.0	58.0	58.0	61.0	3.0	-
25-8	1	66.0	65.0	65.0	67.5	2.5	*YES*
25-9	1	66.0	64.6	64.6	67.1	2.5	*YES*
25-10	1	66.0	65.0	65.0	67.6	2.6	*YES*
25-11	1	66.0	65.6	65.6	68.0	2.4	*YES*
25-12	1	66.0	64.3	64.3	67.2	2.9	*YES*
25-13	1	66.0	68.9	68.9	71.1	2.2	*YES*
25-14	1	66.0	69.2	69.2	71.5	2.3	*YES*
25-15	1	66.0	66.0	66.0	68.9	2.9	*YES*
25-16	1	66.0	70.2	70.2	72.7	2.5	*YES*
25-17	1	66.0	69.7	69.7	73.2	3.5	*YES*
25-18	1	66.0	66.4	66.4	69.9	3.5	*YES*
25-19	1	66.0	64.9	64.9	68.8	3.9	*YES*
25-20	1	66.0	63.4	63.4	66.7	3.3	*YES*
25-21	1	66.0	62.3	62.3	65.3	3.0	-
25-22	1	66.0	60.0	60.0	63.0	3.0	-
25-23	1	66.0	61.1	61.1	64.3	3.2	-
25-24	1	66.0	62.4	62.4	65.3	2.9	-
25-25	1	66.0	62.7	62.7	65.5	2.8	-
25-26	1	66.0	61.1	61.1	64.1	3.0	-
25-27	1	66.0	61.5	61.5	64.5	3.0	-
25-28	1	66.0	61.0	61.0	64.0	3.0	-
NSA Summary (Totals/Averages)	***28***		***64.2***	***64.2***	***67.0***	***2.9***	***18***

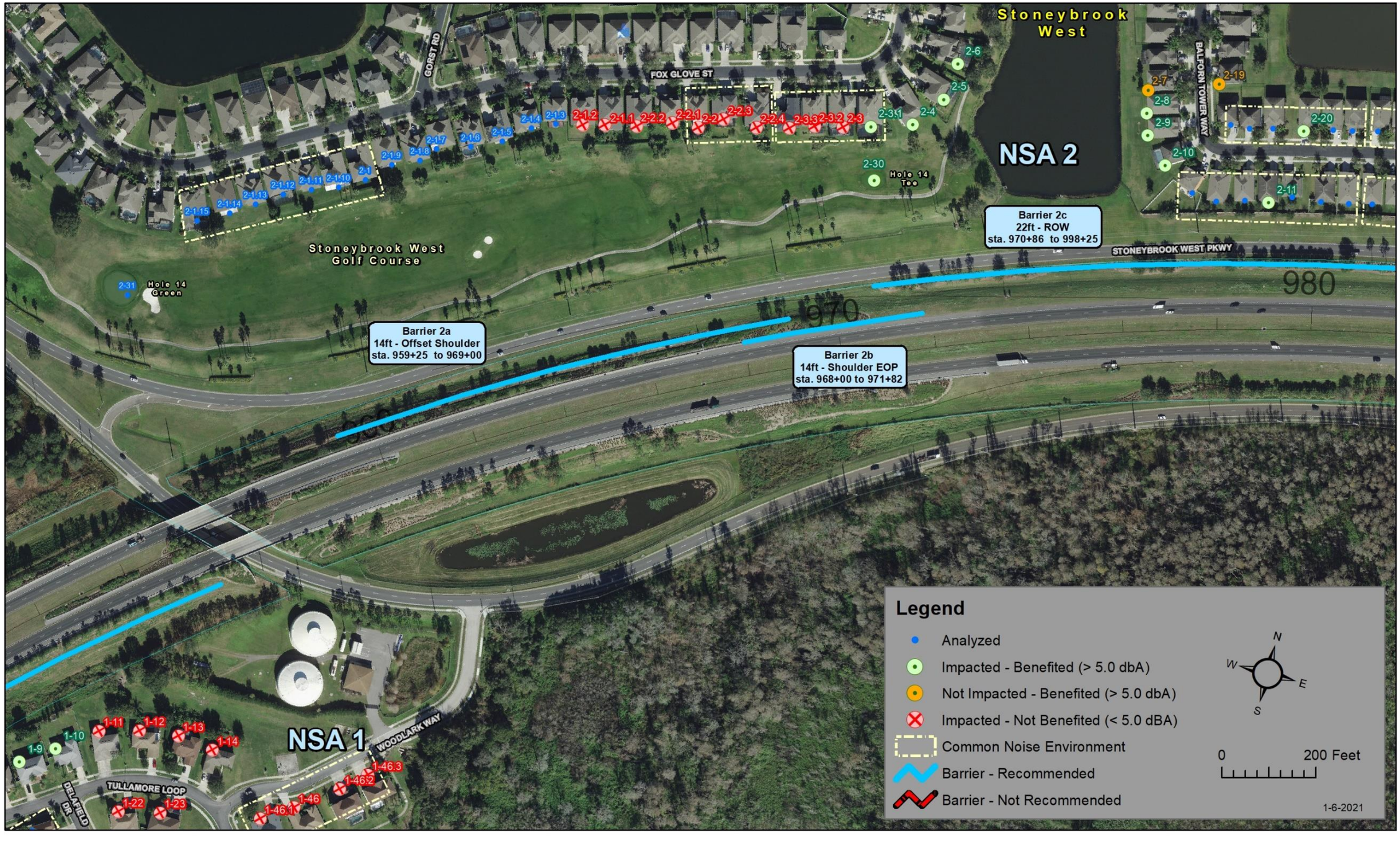
Noise Impact Comparison Matrix							
Noise Sensitive Sites			**Predicted Noise Levels (dB(A))** *Red = Noise Level above NAC*				
Receptor ID	**# Sites Represented**	**NAC Impact Criterion (dB(A))**	**2018 Existing**	**2045 No-Build Alternative**	**2045 Build Alternative**	**Build Change From Existing**	***Consider Abatement***
NSA 26: (East) - Illustrated on Page D3-9 - Appendix D							
26-1	1	66.0	57.5	57.5	58.1	0.6	-
NSA Summary (Totals/Averages)	***1***		***57.5***	***57.5***	***58.1***	***0.6***	***0***

Appendix D1:

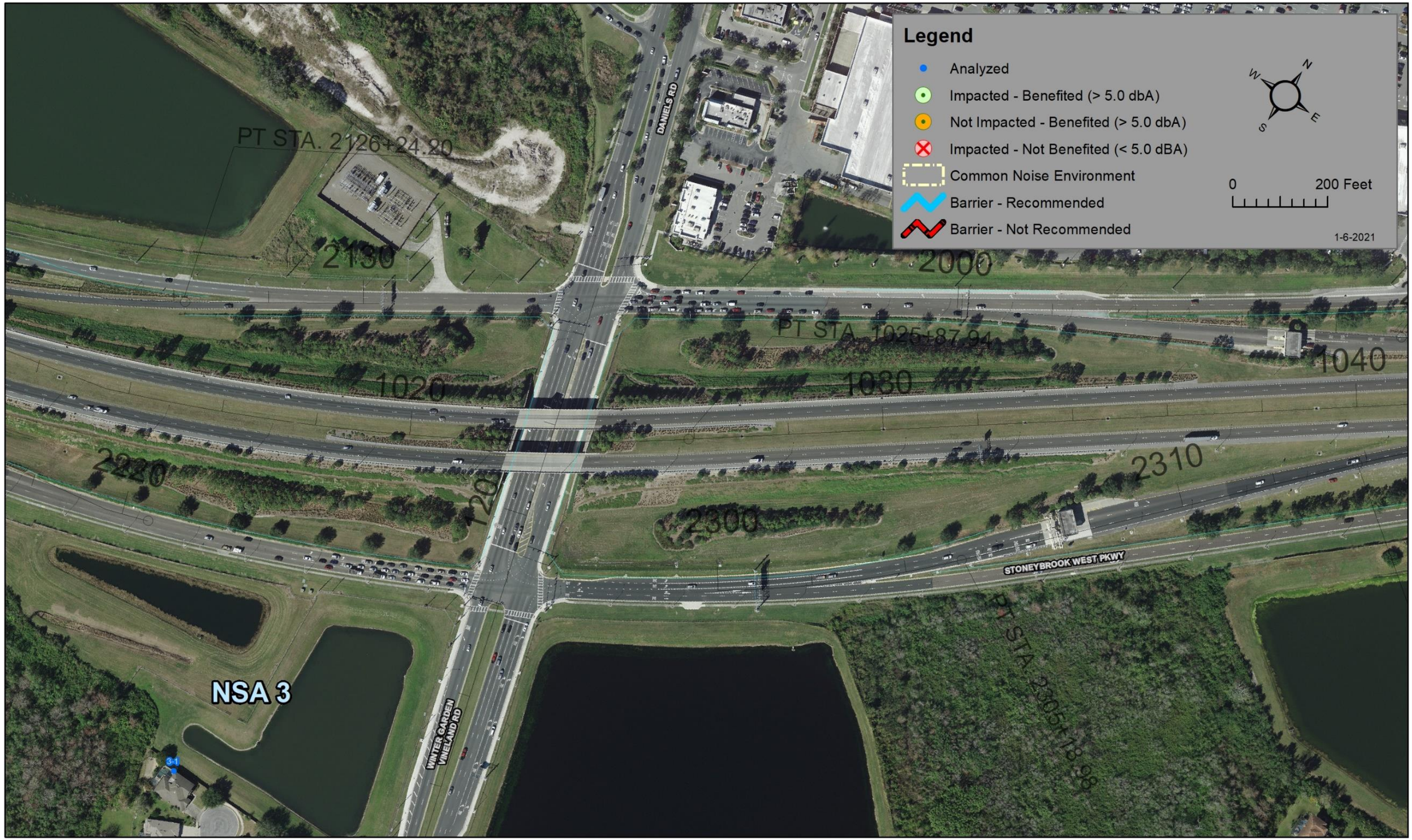
Segment #429-154 Project Aerials

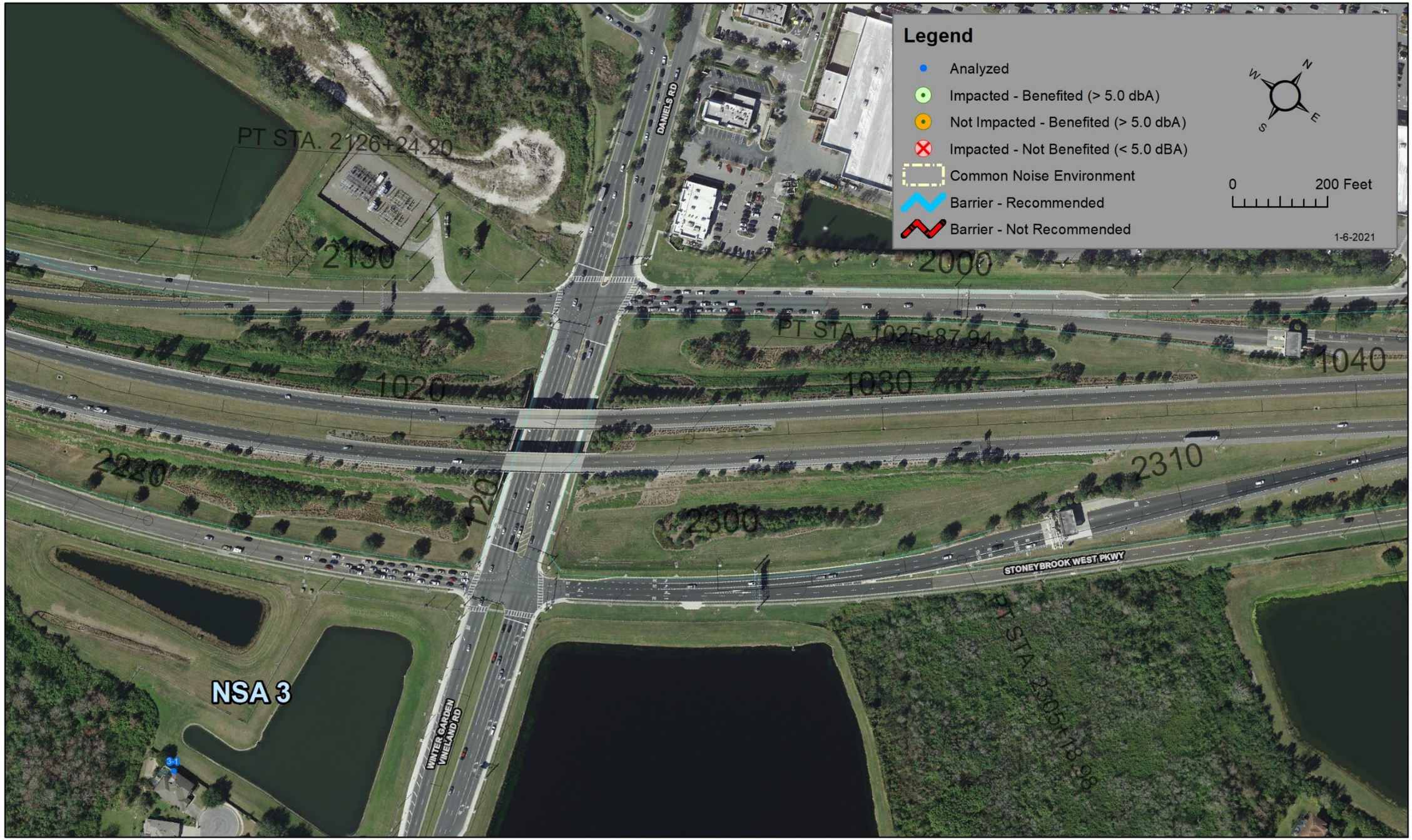
NSA 1 thru 7
Barriers 1 thru 5

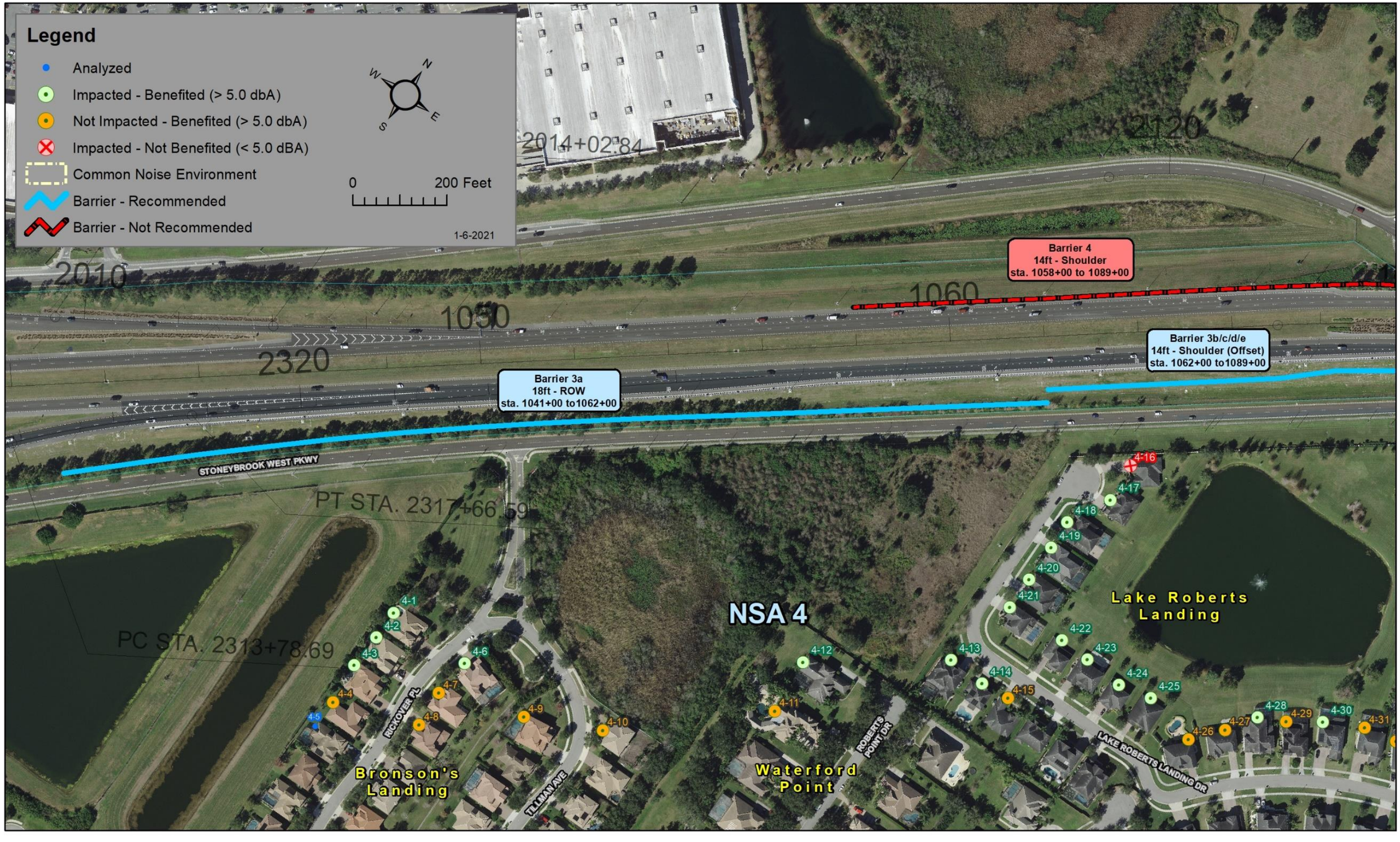

Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021
TINY RD
TILDEN RD
Begin Project
CFX 429-154
930
940
950
Barrier 1
14ft - Shoulder
sta. 936+25 to 955+80
TULLAMORE LOOP
NESTING LN
DELAFIELD DR
MORNING SKY DR
WOODLARK WAY
Emerald
Ridge
NSA 1

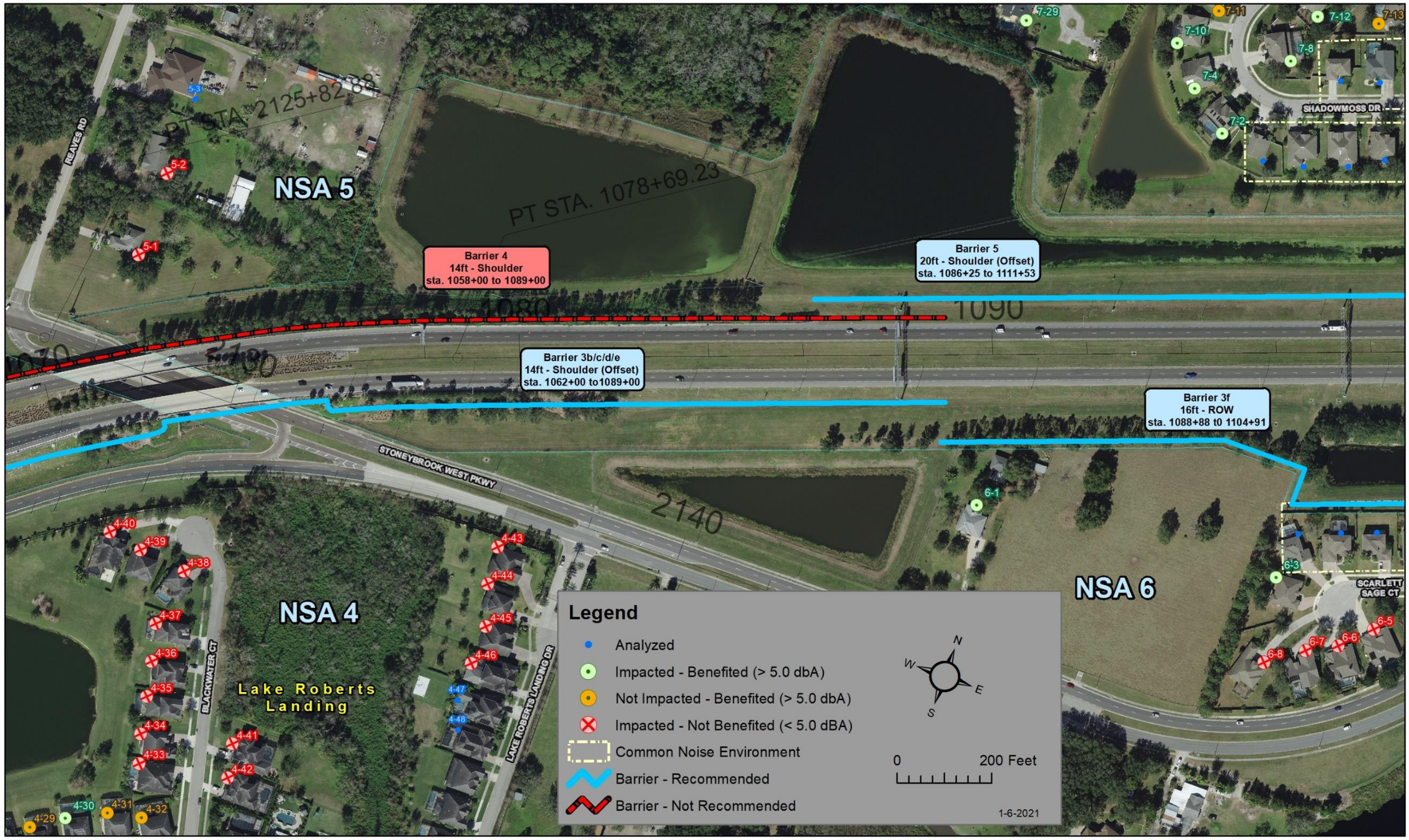

Stoneybrook West
GORST RD
FOX GLOVE ST
BALFORN TOWER WAY
NSA 2
Hole 14 Tee
Stoneybrook West Golf Course
Hole 14 Green
Barrier 2c
22ft - ROW
sta. 970+86 to 998+25
STONEYBROOK WEST PKWY
980
970
Barrier 2a
14ft - Offset Shoulder
sta. 959+25 to 969+00
Barrier 2b
14ft - Shoulder EOP
sta. 968+00 to 971+82
NSA 1
WOODLARK WAY
TULLAMORE LOOP
DELAFIELD DR
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021

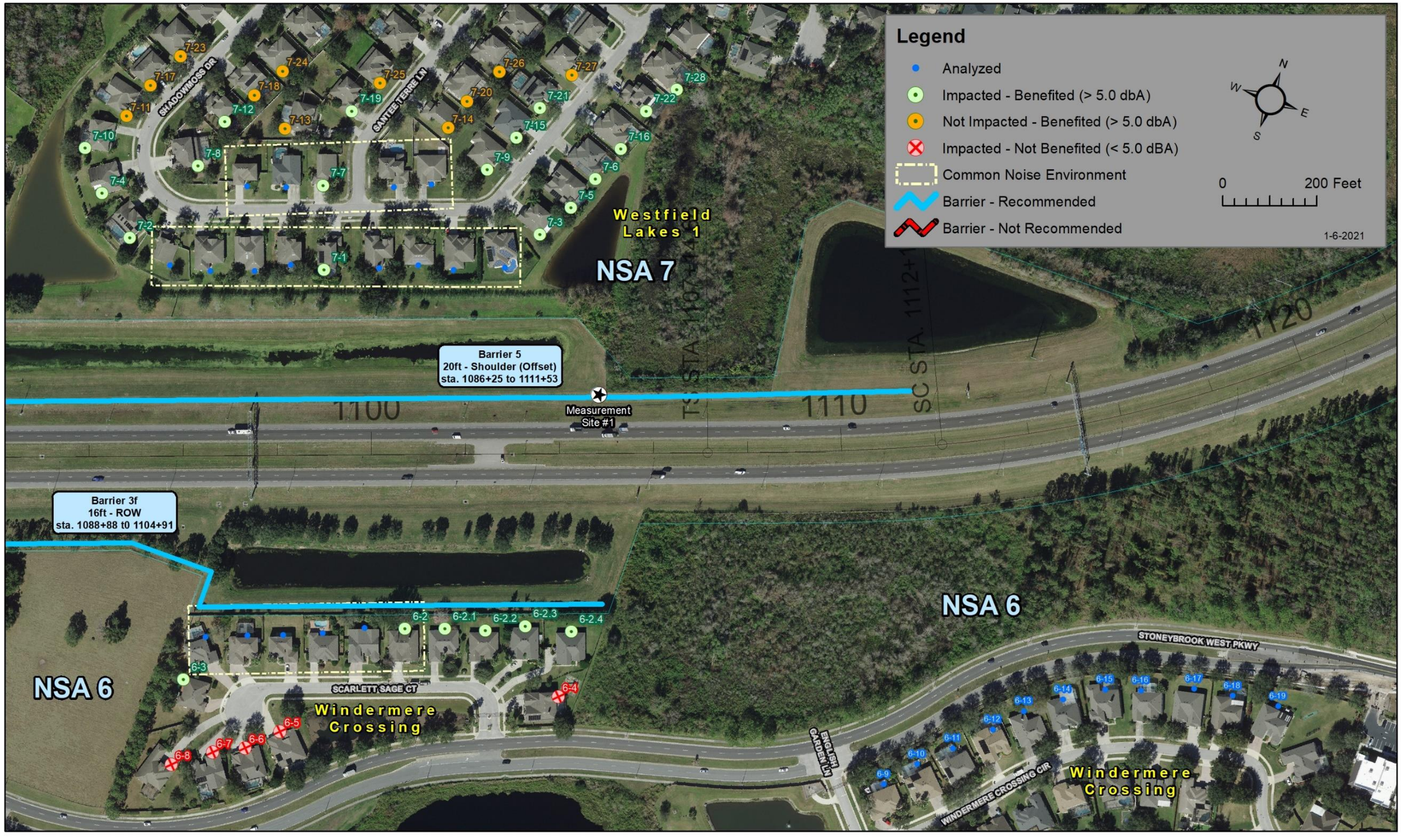

Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021
BLACK LAKE BLVD
Stoneybrook West
TENBURY WELLS WAY
BALFORN TOWER WAY
STONEYBROOK WEST PKWY
2-12
2-13
2-14
2-15
2-16
2-17
2-18
2-21
2-22
2-23
2-24
2-25
2-26
2-27
2-28
2-29
Barrier 2c
22ft - ROW
sta. 970+86 to 998+25
PC STA 2112+46.16
PC STA 1000+23.60
2100
990
2200
2110
1000
2120
2210
1070


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021
PT STA. 2126+24.20
2130
DANIELS RD
2000
PT STA. 1025+87.94
1020
1030
1040
2220
120
2300
2310
STONEYBROOK WEST PKWY
NSA 3
WINTER GARDEN VINELAND RD
3-1
PT STA. 2305+18.98


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021
PT STA. 2126+24.20
2130
DANIELS RD
2000
PT STA. 1025+87.94
1020
1030
1040
2220
120
2300
2310
STONEYBROOK WEST PKWY
PT STA. 2305+18.98
NSA 3
WINTER GARDEN VINELAND RD
3-1


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
0
200 Feet
1-6-2021
2014+02.84
2120
2010
1050
1060
2320
Barrier 4
14ft - Shoulder
sta. 1058+00 to 1089+00
Barrier 3b/c/d/e
14ft - Shoulder (Offset)
sta. 1062+00 to1089+00
Barrier 3a
18ft - ROW
sta. 1041+00 to1062+00
STONEYBROOK WEST PKWY
PT STA. 2317+66.59
PC STA. 2313+78.69
NSA 4
Lake Roberts Landing
Bronson's Landing
Waterford Point
RICKOVER PL
TILLMAN AVE
ROBERTS POINT DR
LAKE ROBERTS LANDING DR
4-1
4-2
4-3
4-4
4-5
4-6
4-7
4-8
4-9
4-10
4-11
4-12
4-13
4-14
4-15
4-16
4-17
4-18
4-19
4-20
4-21
4-22
4-23
4-24
4-25
4-26
4-27
4-28
4-29
4-30
4-31

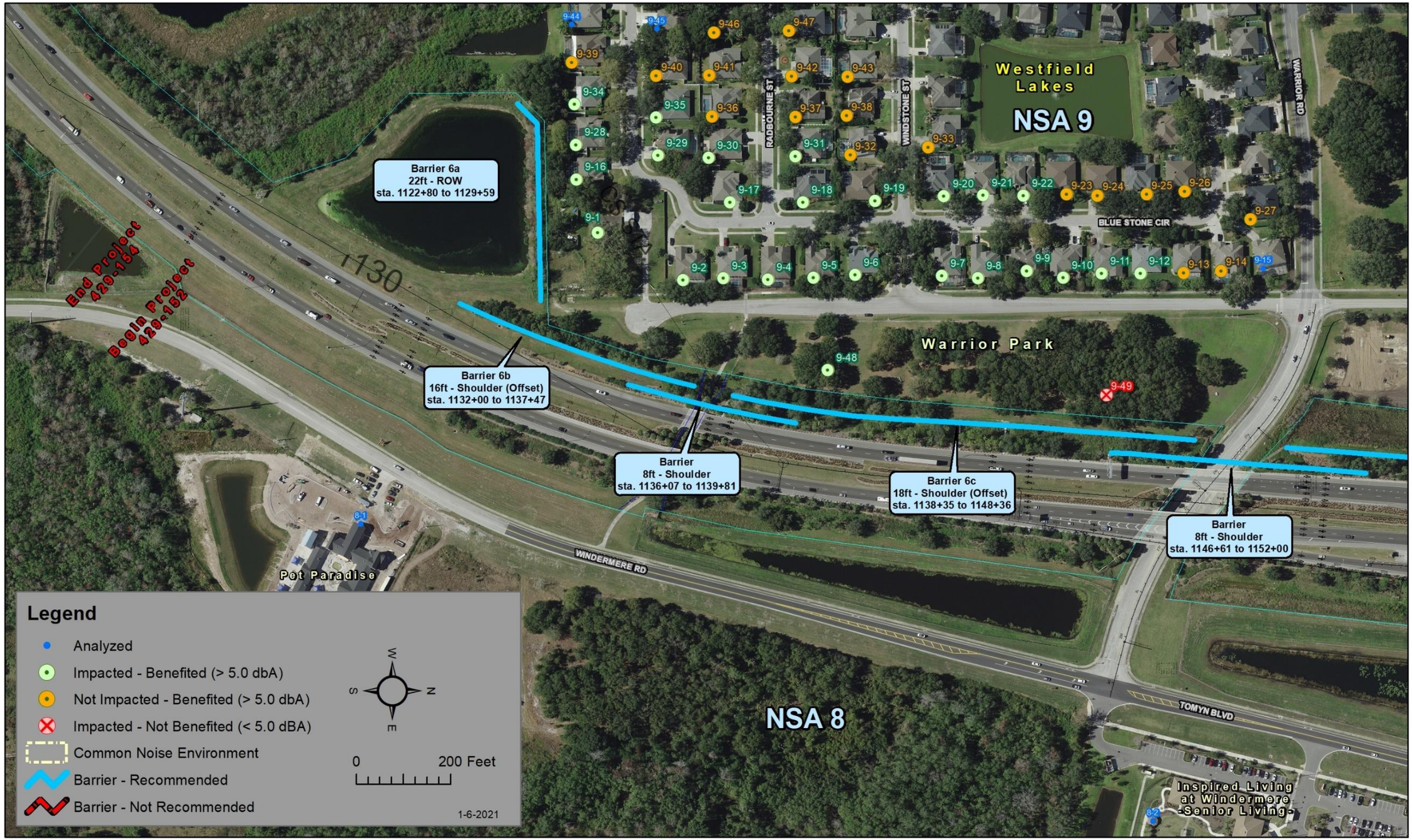

NSA 5
NSA 4
NSA 6
Lake Roberts Landing
REAVES RD
PT STA. 2125+82.68
PT STA. 1078+69.23
Barrier 4
14ft - Shoulder
sta. 1058+00 to 1089+00
Barrier 5
20ft - Shoulder (Offset)
sta. 1086+25 to 1111+53
Barrier 3b/c/d/e
14ft - Shoulder (Offset)
sta. 1062+00 to1089+00
Barrier 3f
16ft - ROW
sta. 1088+88 t0 1104+91
STONEYBROOK WEST PKWY
SHADOWMOSS DR
SCARLETT SAGE CT
BLACKWATER CT
LAKE ROBERTS LANDING DR
1070
1080
1090
2140
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021

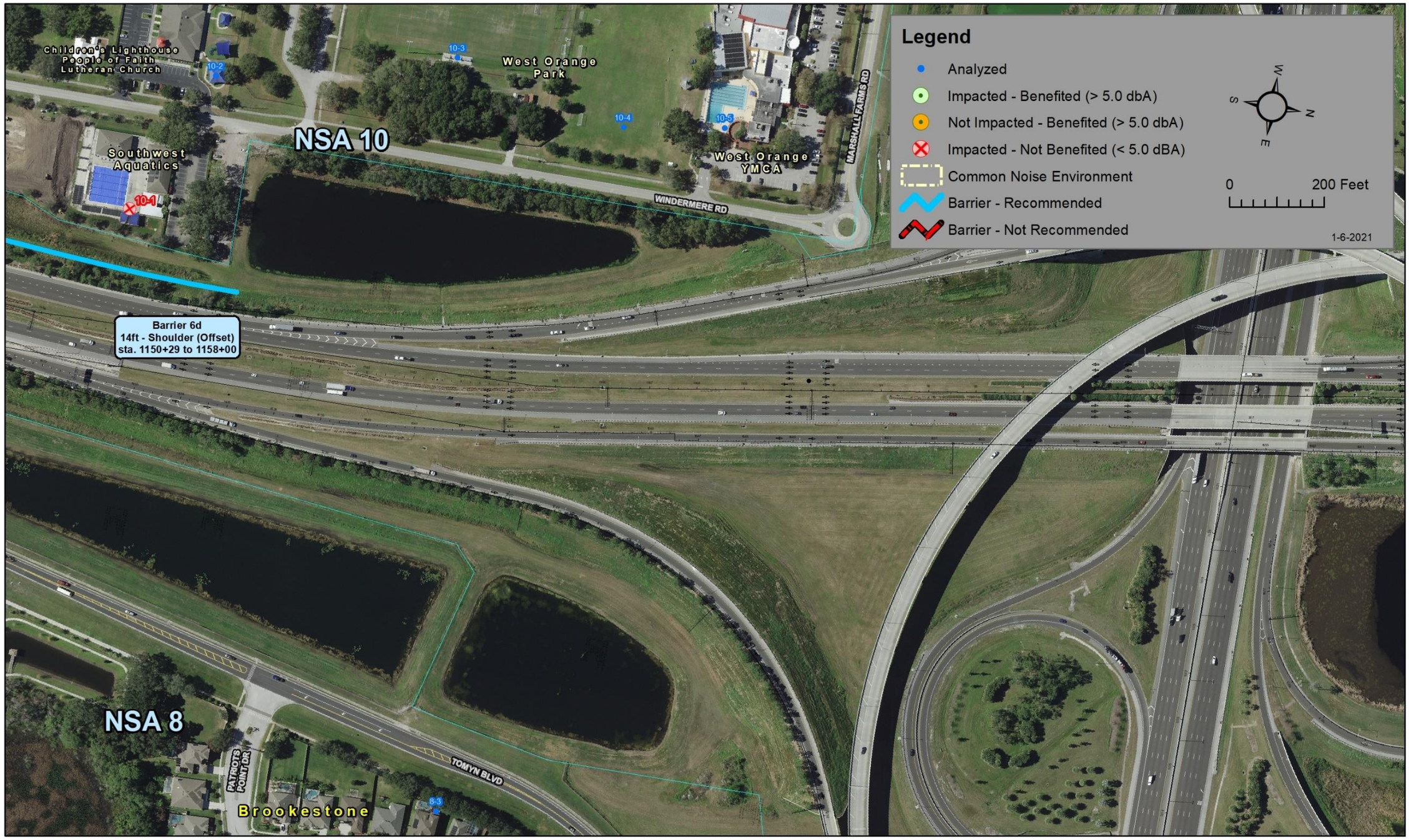

Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021
Westfield Lakes 1
NSA 7
SHADOWMOSS DR
SANTEE TERRE LN
7-1
7-2
7-3
7-4
7-5
7-6
7-7
7-8
7-9
7-10
7-11
7-12
7-13
7-14
7-15
7-16
7-17
7-18
7-19
7-20
7-21
7-22
7-23
7-24
7-25
7-26
7-27
7-28
Barrier 5
20ft - Shoulder (Offset)
sta. 1086+25 to 1111+53
Measurement Site #1
STA 1107+
SC STA 1112+
1100
1110
1120
Barrier 3f
16ft - ROW
sta. 1088+88 t0 1104+91
NSA 6
SCARLETT SAGE CT
Windermere Crossing
6-2
6-2.1
6-2.2
6-2.3
6-2.4
6-3
6-4
6-5
6-6
6-7
6-8
NSA 6
STONEYBROOK WEST PKWY
ENGLISH GARDEN LN
WINDERMERE CROSSING CIR
Windermere Crossing
6-9
6-10
6-11
6-12
6-13
6-14
6-15
6-16
6-17
6-18
6-19

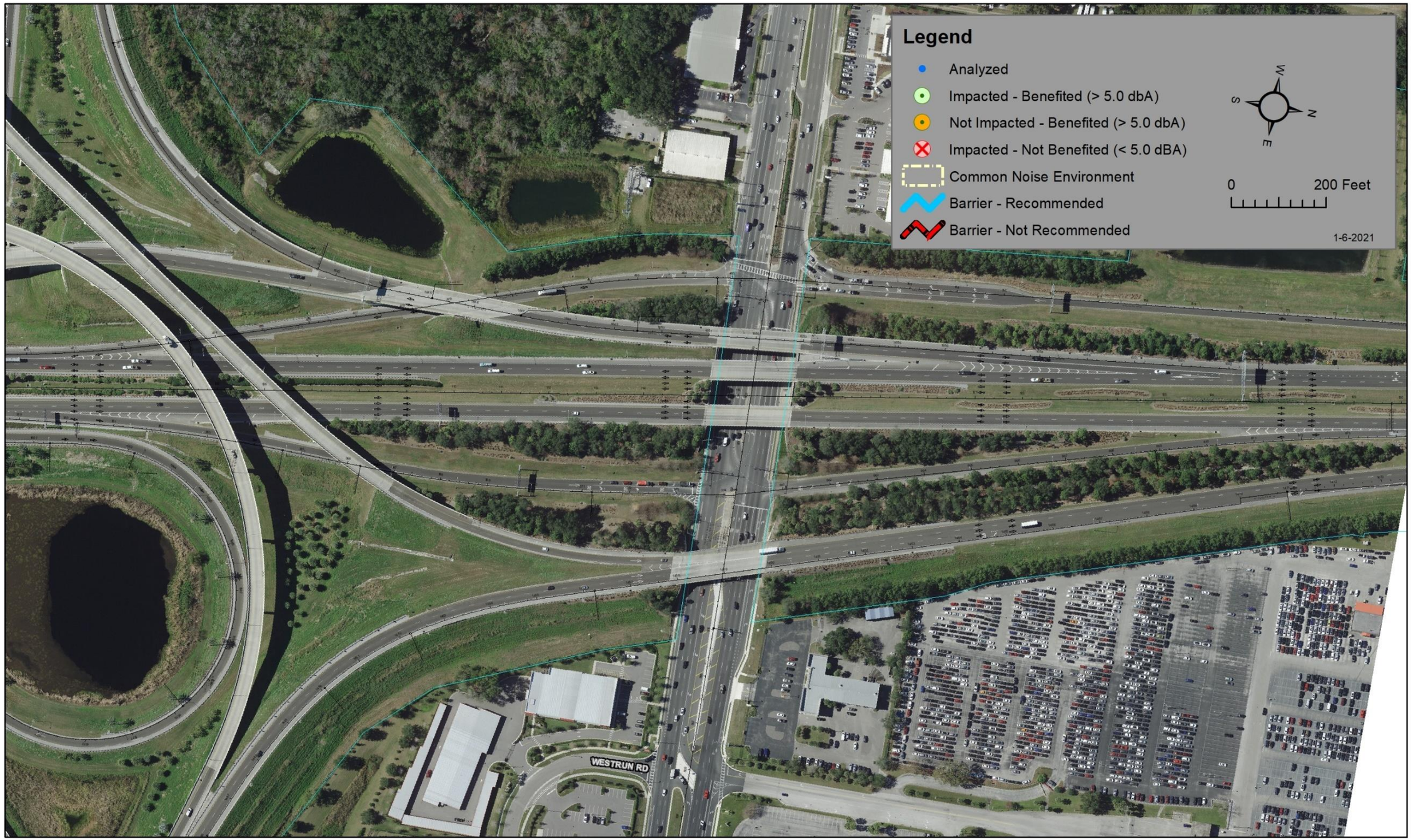
Appendix D2:

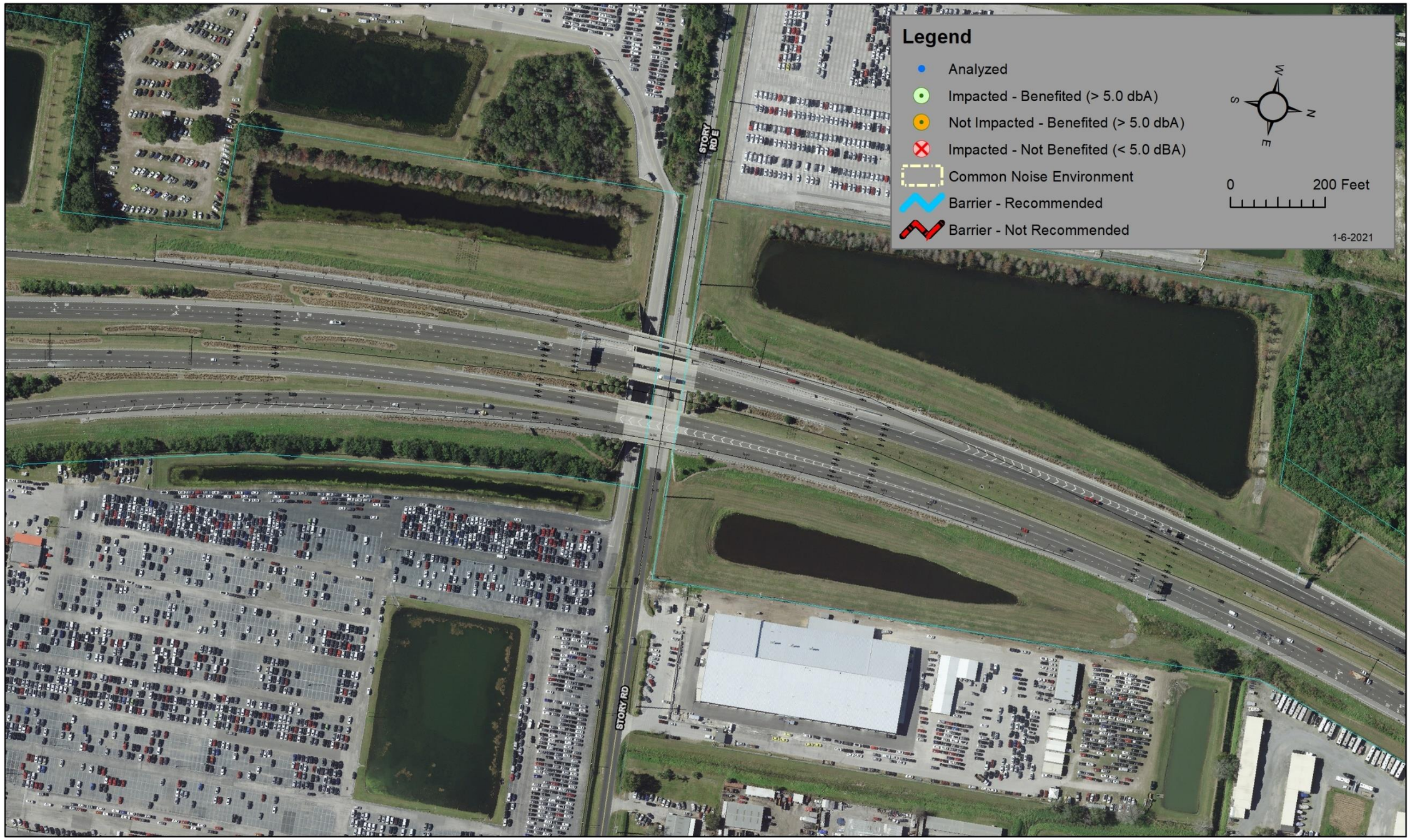
Segment #429-152 Project Aerials

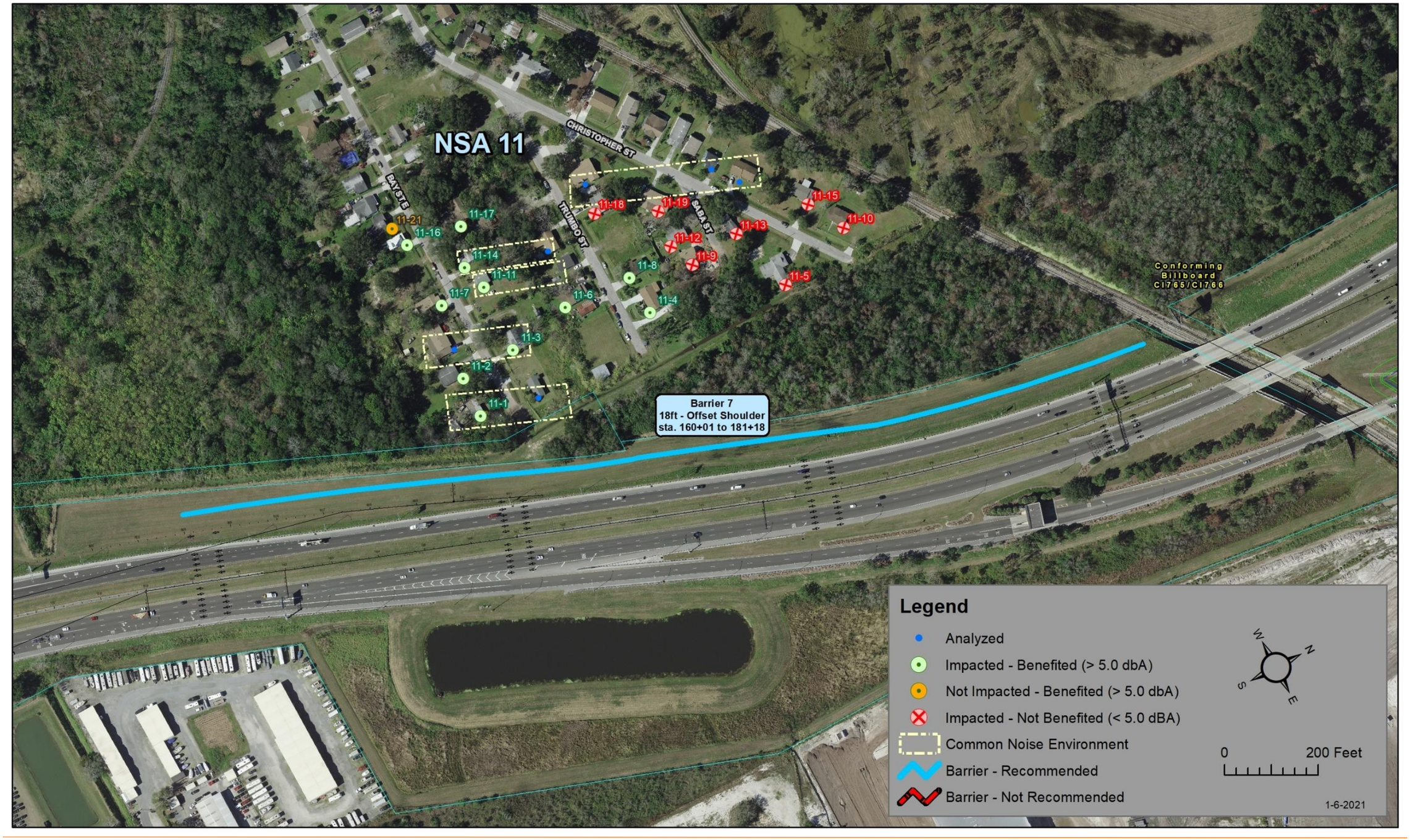
NSA 8 thru 17
Barriers 6 thru 10

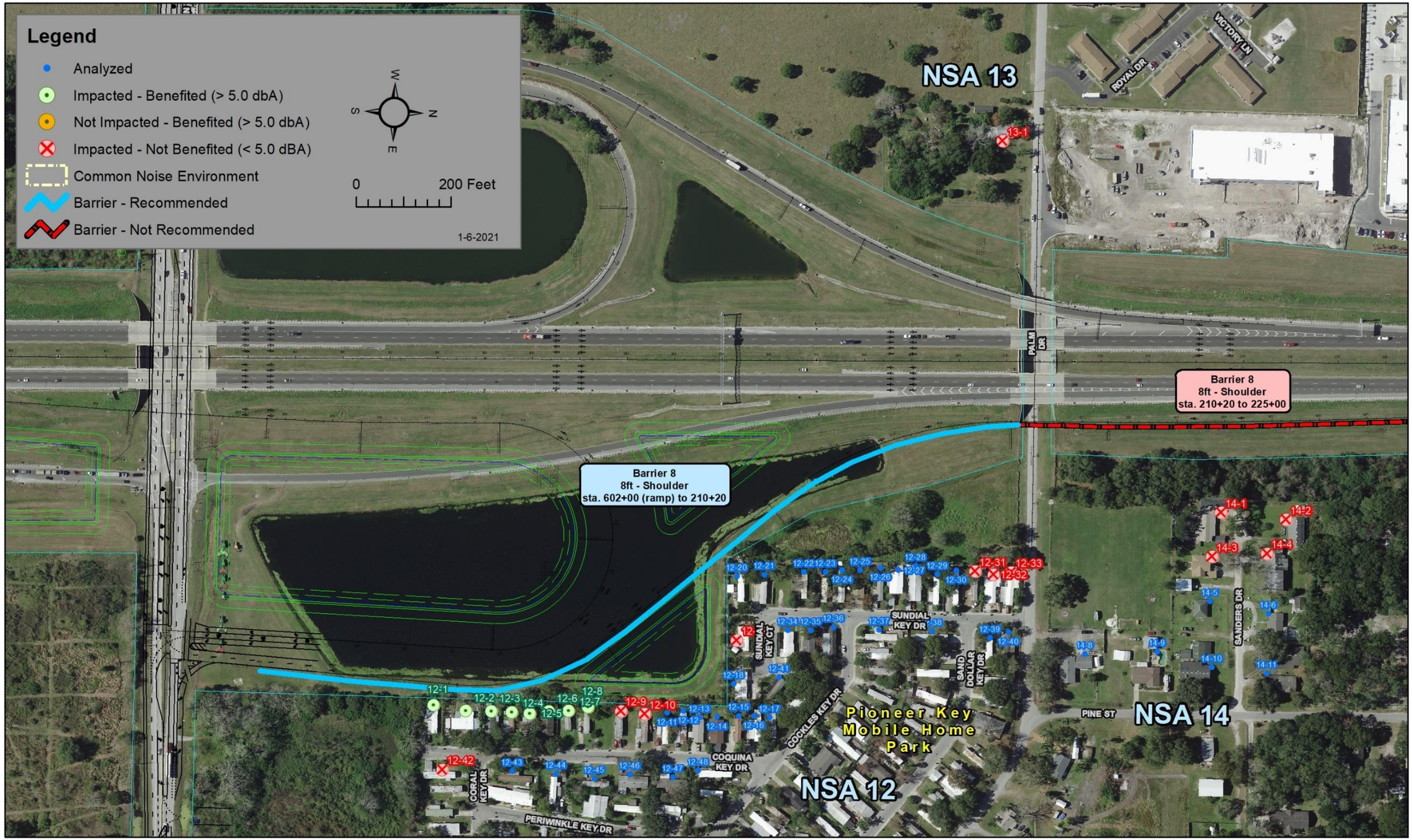

Barrier 6a
22ft - ROW
sta. 1122+80 to 1129+59
Barrier 6b
16ft - Shoulder (Offset)
sta. 1132+00 to 1137+47
Barrier
8ft - Shoulder
sta. 1136+07 to 1139+81
Barrier 6c
18ft - Shoulder (Offset)
sta. 1138+35 to 1148+36
Barrier
8ft - Shoulder
sta. 1146+61 to 1152+00
End Project
429-154
Begin Project
429-152
1130
Westfield
Lakes
NSA 9
RADBOURNE ST
WINDSTONE ST
WARRIOR RD
BLUE STONE CIR
Warrior Park
NSA 8
WINDERMERE RD
TOMYN BLVD
Pet Paradise
Inspired Living
at Windermere
-Senior Living-
9-1
9-2
9-3
9-4
9-5
9-6
9-7
9-8
9-9
9-10
9-11
9-12
9-13
9-14
9-15
9-16
9-17
9-18
9-19
9-20
9-21
9-22
9-23
9-24
9-25
9-26
9-27
9-28
9-29
9-30
9-31
9-32
9-33
9-34
9-35
9-36
9-37
9-38
9-39
9-40
9-41
9-42
9-43
9-44
9-45
9-46
9-47
9-48
9-49
8-1
8-2
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dBA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
S
N
E
0
200 Feet
1-6-2021


Children's Lighthouse
People of Faith
Lutheran Church
10-2
10-3
West Orange
Park
10-4
10-5
NSA 10
Southwest
Aquatics
10-1
West Orange
YMCA
MARSHALL FARMS RD
WINDERMERE RD
Barrier 6d
14ft - Shoulder (Offset)
sta. 1150+29 to 1158+00
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
S
N
E
0
200 Feet
1-6-2021
NSA 8
PATRIOTS POINT DR
TOMYN BLVD
Brookestone
8-3

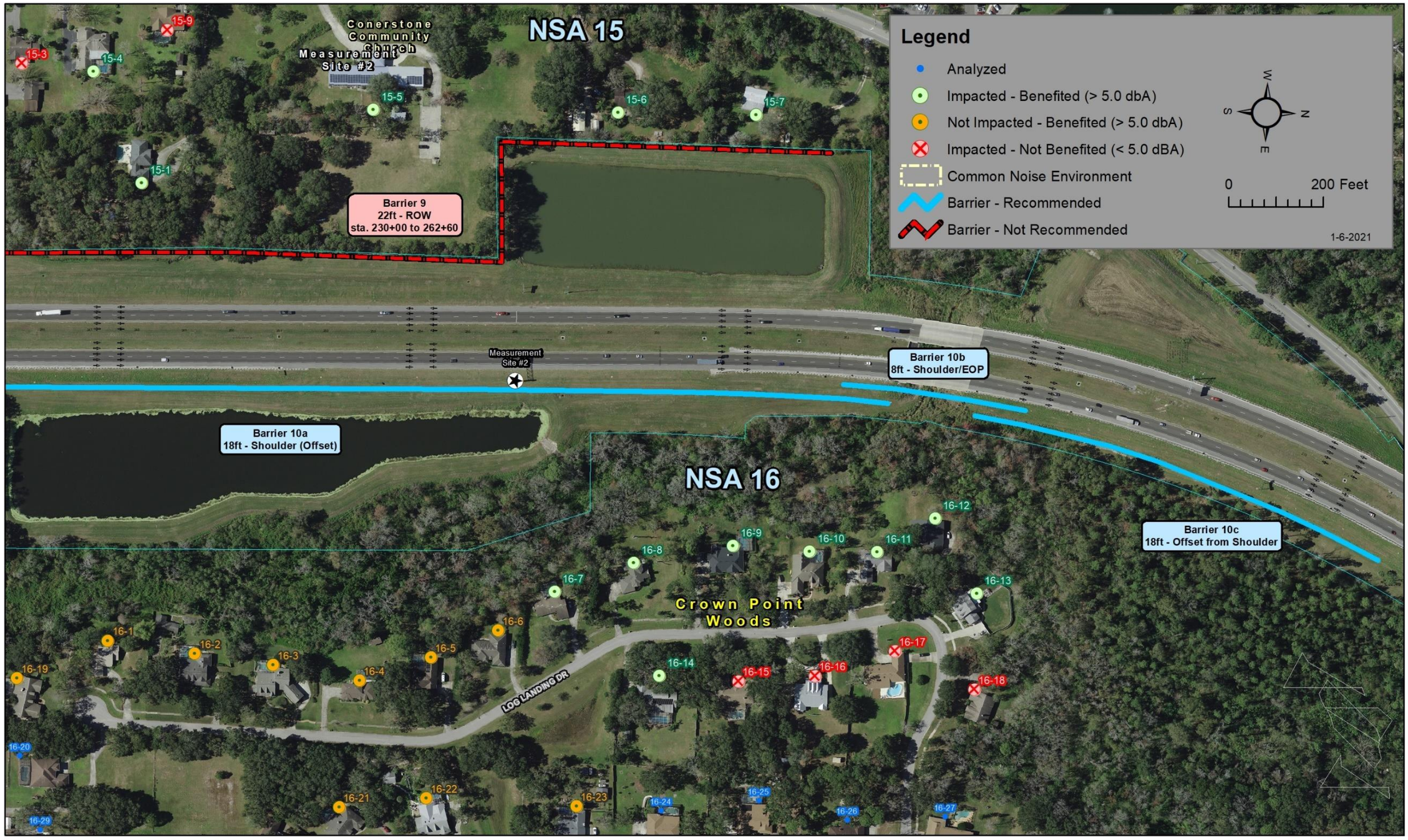

Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
S
N
E
0
200 Feet
1-6-2021
WESTRUN RD


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
S
N
E
0
200 Feet
1-6-2021
STORY RD E
STORY RD

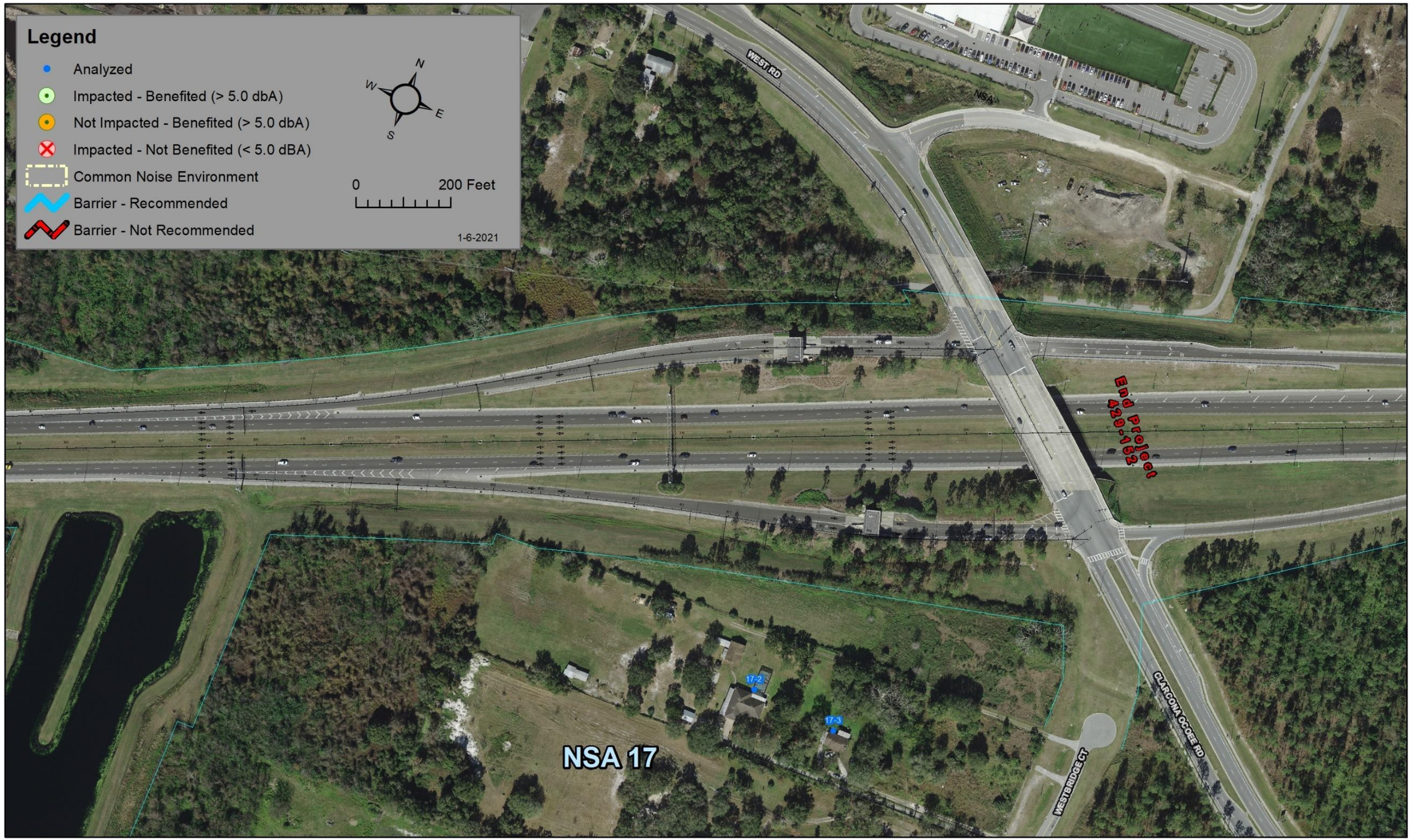

NSA 11
CHRISTOPHER ST
GAYSTE
TRUMBO ST.
SABA ST
11-21
11-16
11-17
11-14
11-11
11-7
11-6
11-8
11-4
11-3
11-2
11-1
11-18
11-19
11-12
11-9
11-13
11-15
11-10
11-5
Conforming Billboard CI765/CI766
Barrier 7
18ft - Offset Shoulder
sta. 160+01 to 181+18
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
S
E
0
200 Feet
1-6-2021


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
S
N
E
0
200 Feet
1-6-2021
NSA 13
13-1
ROYAL DR
VICTORY LN
PALM DR
Barrier 8
8ft - Shoulder
sta. 210+20 to 225+00
Barrier 8
8ft - Shoulder
sta. 602+00 (ramp) to 210+20
SUNDIAL KEY CT
SUNDIAL KEY DR
SAND DOLLAR KEY DR
SANDERS DR
COCKLES KEY DR
COQUINA KEY DR
CORAL KEY DR
PERIWINKLE KEY DR
PINE ST
Pioneer Key Mobile Home Park
NSA 12
NSA 14


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
S
N
E
0
200 Feet
1-6-2021
Barrier 9
22ft - ROW
sta. 230+00 to 262+60
NSA 15
15-8
15-3
15-2
Barrier 8
8ft - Shoulder
sta. 210+20 to 225+00
Barrier 10a
18ft - Shoulder (Offset)
sta. 231+30 to 264+00
14-7
NSA 14
16-19
16-20
PINE ST


NSA 15
Conerstone Community Church
Measurement Site #2
15-1
15-3
15-4
15-5
15-6
15-7
15-9
Barrier 9
22ft - ROW
sta. 230+00 to 262+60
Measurement Site #2
Barrier 10b
8ft - Shoulder/EOP
Barrier 10a
18ft - Shoulder (Offset)
Barrier 10c
18ft - Offset from Shoulder
NSA 16
Crown Point Woods
LOG LANDING DR
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
16-9
16-10
16-11
16-12
16-13
16-14
16-15
16-16
16-17
16-18
16-19
16-20
16-21
16-22
16-23
16-24
16-25
16-26
16-27
16-29
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
S
N
E
0
200 Feet
1-6-2021

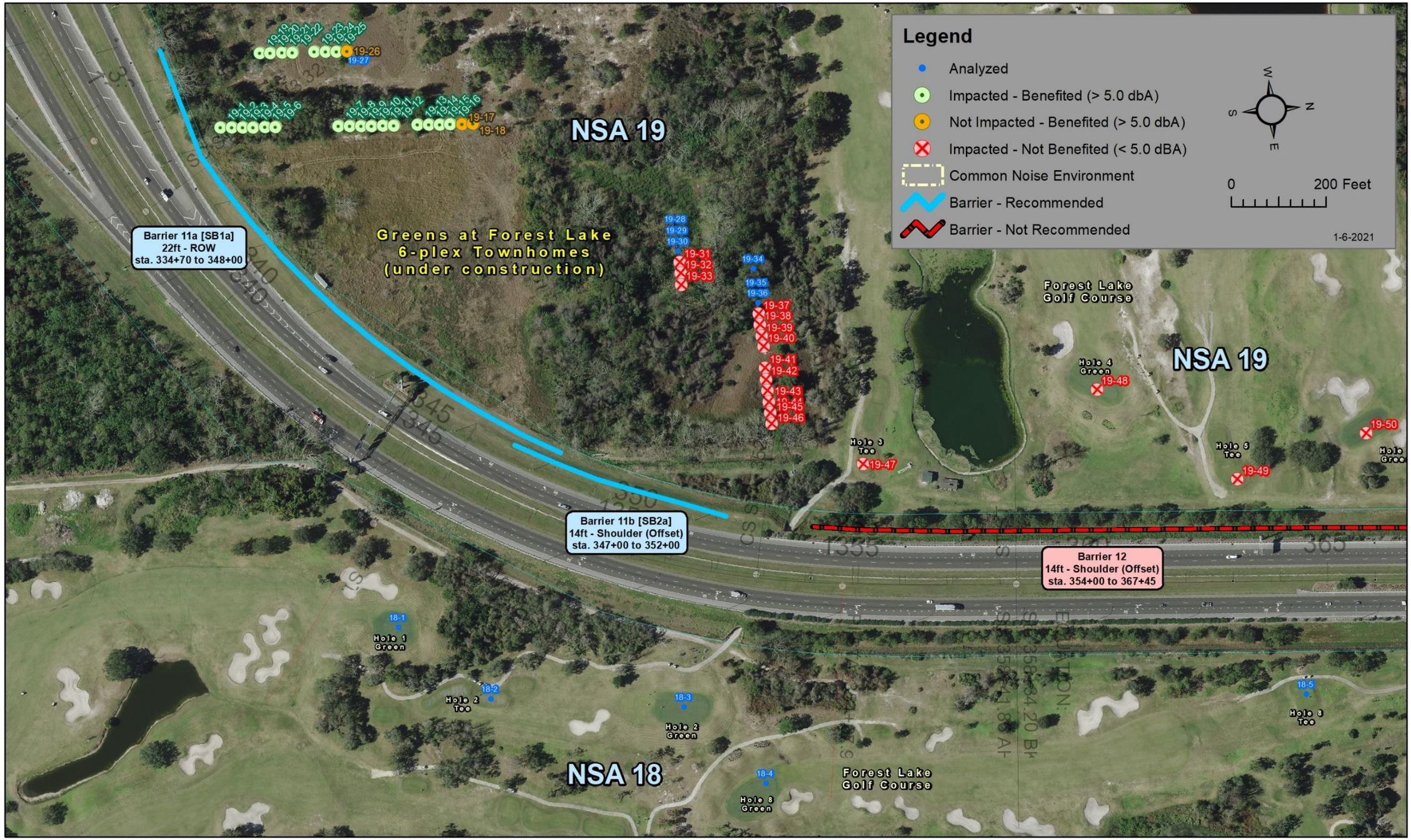

Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021
E CROWN POINT RD
E FULLERS CROSS RD
OCOEE APOPKA RD
17-1
Glad Tidings Church

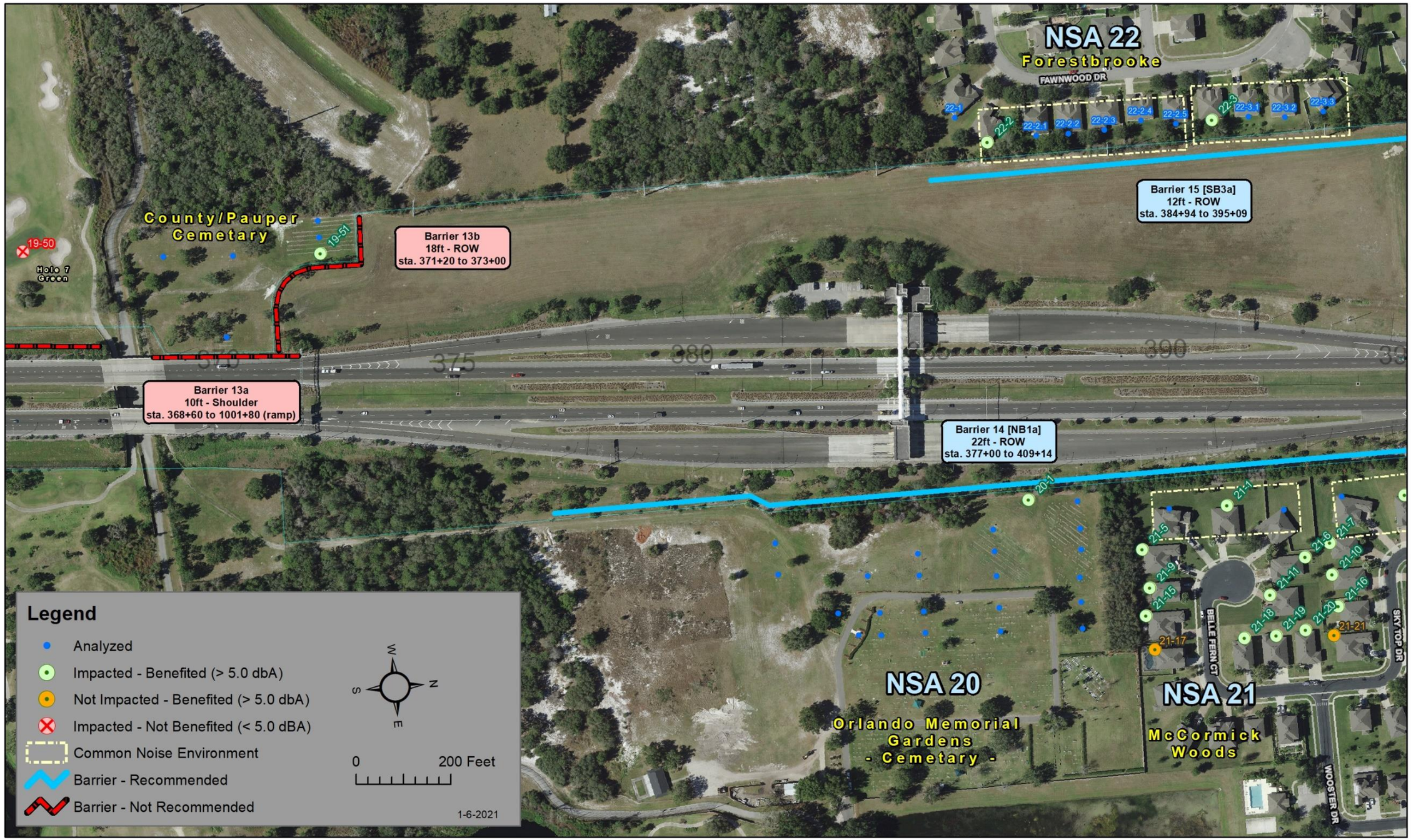

Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
W
E
S
0
200 Feet
1-6-2021
WEST RD
NSA 17
17-2
17-3
WESTBRIDGE CT
CLARCONA OCOEE RD

Appendix D3:

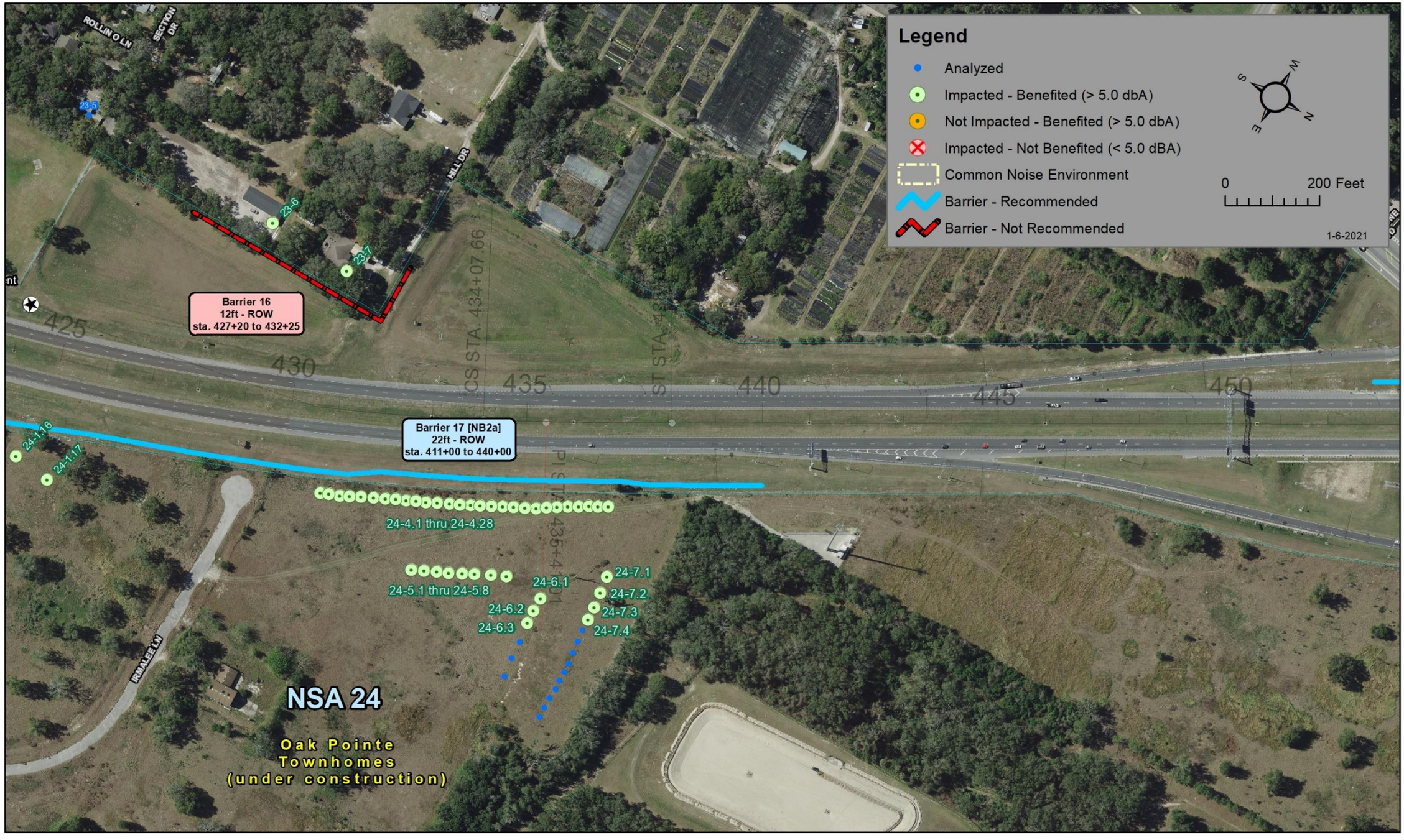
Segment #429-153 Project Aerials

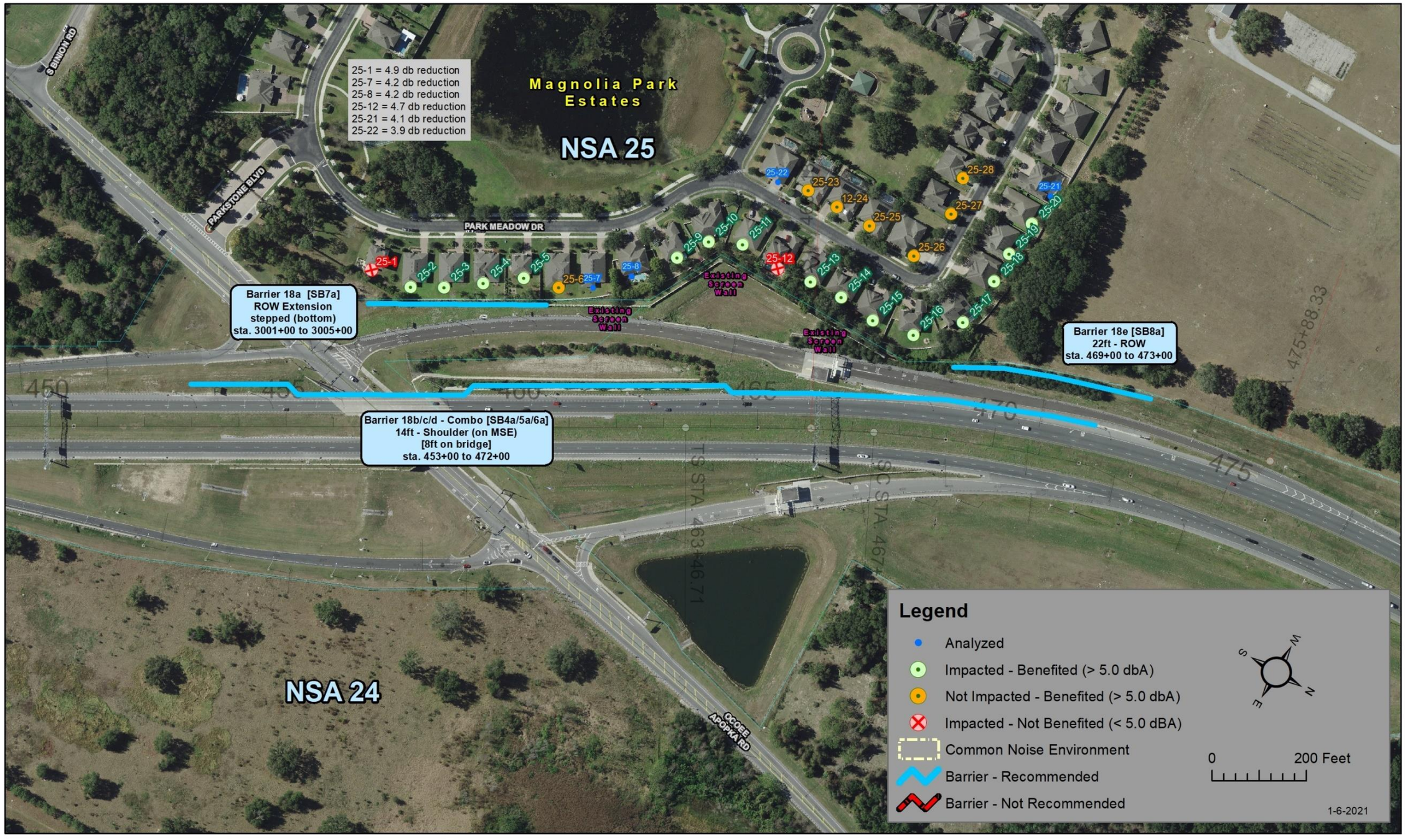
NSA 11 thru 26
Barriers 11 thru 18


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
0
200 Feet
1-6-2021
NSA 19
Greens at Forest Lake
6-plex Townhomes
(under construction)
Barrier 11a [SB1a]
22ft - ROW
sta. 334+70 to 348+00
Barrier 11b [SB2a]
14ft - Shoulder (Offset)
sta. 347+00 to 352+00
Barrier 12
14ft - Shoulder (Offset)
sta. 354+00 to 367+45
Forest Lake
Golf Course
NSA 19
Hole 4
Green
Hole 3
Tee
Hole 5
Tee
NSA 18
Hole 1
Green
Hole 2
Tee
Hole 2
Green
Hole 8
Green
Forest Lake
Golf Course
Hole 8
Tee

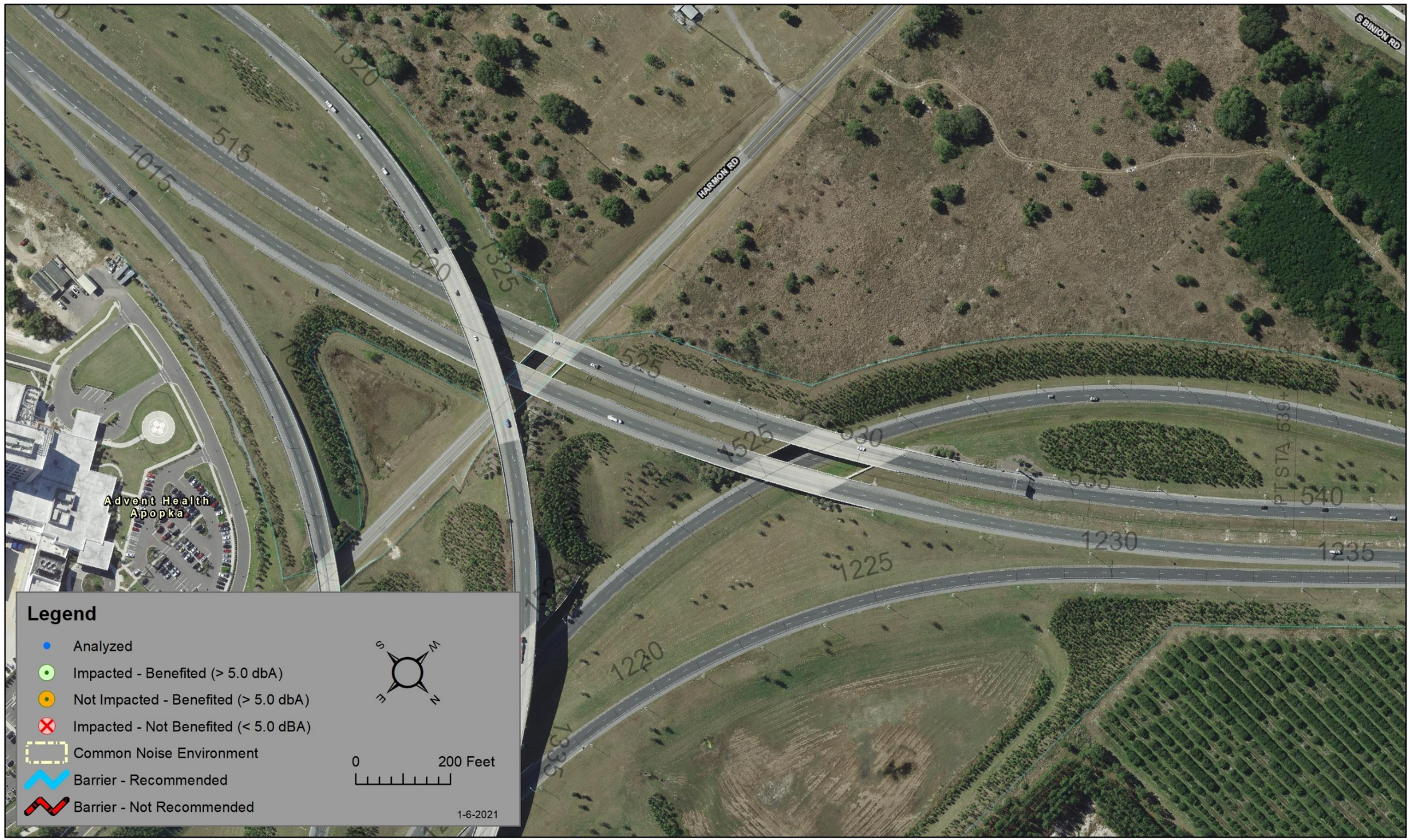

NSA 22
Forestbrooke
FAWNWOOD DR
22-1
22-2
22-2.1
22-2.2
22-2.3
22-2.4
22-2.5
22-3
22-3.1
22-3.2
22-3.3
Barrier 15 [SB3a]
12ft - ROW
sta. 384+94 to 395+09
County/Pauper
Cemetary
19-50
Hole 7
Green
19-51
Barrier 13b
18ft - ROW
sta. 371+20 to 373+00
Barrier 13a
10ft - Shoulder
sta. 368+60 to 1001+80 (ramp)
Barrier 14 [NB1a]
22ft - ROW
sta. 377+00 to 409+14
20-1
21-1
21-5
21-6
21-7
21-9
21-10
21-11
21-15
21-16
21-17
21-18
21-19
21-20
21-21
BELLE FERN CT
SKY TOP DR
WOOSTER DR
NSA 20
Orlando Memorial
Gardens
- Cemetary -
NSA 21
McCormick
Woods
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
W
N
S
E
0
200 Feet
1-6-2021


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
S
E
W
0
200 Feet
1-6-2021
NSA 22
Forestbrooke
OTTER TAIL CT
WALLROCK CT
LINBERRY LN
22-4-1
22-5-1
22-6-1
NSA 23
23-4
23-3
23-2
23-1
Measurement Site #3
Barrier 14 [NB1a]
22ft - ROW
sta. 377+00 to 409+14
Barrier 17 [NB2a]
22ft - ROW
sta. 411+00 to 440+00
MCCORMICK RD W
SKY TOP DR
MCCORMICK WOODS DR
IRMALEE LN
NSA 21
NSA 24
Oak Pointe
Single-Family Homes
(under construction)
21-2
21-3
21-4
21-8
21-12
21-13
21-14
21-22
21-23
21-24
21-25
21-26
21-27
21-28
21-29
21-30
21-31
21-32
21-33
21-34
21-35
21-36
21-37
21-38
21-39
24-1.1
24-1.2
24-1.3
24-1.4
24-1.5
24-1.6
24-1.7
24-1.8
24-1.9
24-1.10
24-1.11
24-1.12
24-1.13
24-1.14
24-2.1
24-2.2
24-2.3
24-2.4
24-2.5
24-2.6
24-2.7
24-2.8
24-3.1
24-3.2
24-3.3
24-3.4
24-3.5
24-3.6


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
0
200 Feet
1-6-2021
ROLLIN O LN
SECTION DR
HILL DR
23-5
23-6
23-7
Barrier 16
12ft - ROW
sta. 427+20 to 432+25
425
430
435
440
445
450
Barrier 17 [NB2a]
22ft - ROW
sta. 411+00 to 440+00
24-1.16
24-1.17
24-4.1 thru 24-4.28
24-5.1 thru 24-5.8
24-6.1
24-6.2
24-6.3
24-7.1
24-7.2
24-7.3
24-7.4
IKMALEE LN
NSA 24
Oak Pointe
Townhomes
(under construction)


25-1 = 4.9 db reduction
25-7 = 4.2 db reduction
25-8 = 4.2 db reduction
25-12 = 4.7 db reduction
25-21 = 4.1 db reduction
25-22 = 3.9 db reduction
Magnolia Park Estates
NSA 25
NSA 24
S EMION RD
PARKSTONE BLVD
PARK MEADOW DR
OCOEE APOPKA RD
Barrier 18a [SB7a]
ROW Extension
stepped (bottom)
sta. 3001+00 to 3005+00
Barrier 18b/c/d - Combo [SB4a/5a/6a]
14ft - Shoulder (on MSE)
[8ft on bridge]
sta. 453+00 to 472+00
Barrier 18e [SB8a]
22ft - ROW
sta. 469+00 to 473+00
Existing Screen Wall
Existing Screen Wall
Existing Screen Wall
25-1
25-2
25-3
25-4
25-5
25-6
25-7
25-8
25-9
25-10
25-11
25-12
25-13
25-14
25-15
25-16
25-17
25-18
25-19
25-20
25-21
25-22
25-23
12-24
25-25
25-26
25-27
25-28
TS STA 463+46.71
TS STA 467+
475+88.33
450
460
465
470
475
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
E
S
W
0
200 Feet
1-6-2021


PI STA. 464.46
PC STA. 496+36.80
ST STA
N 15° 16' 24" E
485
490
495
500
505
510
1000
1005
1010
1300
1305
1310
1315
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
S
E
0
200 Feet
1-6-2021


HARMON RD
S BINION RD
Advent Health Apopka
1320
515
1015
520
1325
525
530
535
540
1230
1235
1225
1220
Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
S
M
E
N
0
200 Feet
1-6-2021


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
0
200 Feet
1-6-2021
BINION RD
BOY SCOUT RD
26-1
1540
545
550
555
560
565
1240
P.C. STA. 555+
P.T. STA. 567+99


Legend
Analyzed
Impacted - Benefited (> 5.0 dbA)
Not Impacted - Benefited (> 5.0 dbA)
Impacted - Not Benefited (< 5.0 dBA)
Common Noise Environment
Barrier - Recommended
Barrier - Not Recommended
N
S
E
W
0
200 Feet
1-6-2021
575
570
End Project
429-153
26-1
BOY SCOUT RD
S BINION RD

Appendix E1:

Segment #429-154
Noise Barrier Evaluation Tables

NSA 1 thru 7
Barriers 1 thru 5

Noise Barrier 1 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1	Shoulder (Offset)	14	1,926	Sta. 936+25 to 955+80	47	21	7	6	34	29	63	6.7 (8.2)	$ 808,920	$ 12,840

*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.

Noise Barrier 2 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]	Cost per Benefited Receptor [*5]
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) [*2]	Impacted	Other [*3]	Total	Noise Reduction dB(A) Average (Max)		
Option 1	SW 2a Shoulder (Offset)	14	992	sta. 959+25 to 969+00	67	5	21	31	57	6	63	6.6 (8.4)	$2,412,480	$ 38,293
	SW 2b Shoulder (EOP)	14	385	sta. 968+00 to 971+82										
	SW 2c ROW	22	2,779	sta. 970+86 to 998+25										

*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.

Noise Barrier 3 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 [*5]	Cost per Benefited Receptor [*6]
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) [*2]	Impacted	Other [*3]	Total	Noise Reduction dB(A) Average (Max)		
Option 1	ROW	18	2,204	Sta. 1041+00 to 1062+00	50	3	13	14	30	12	42	6.6 (9.6)	$3,007,747	$ 71,613
	Shoulder (Offset) [8' on bridge]	14	2,688	Sta. 1062+00 to 1089+00										
	ROW	16	1,720	Sta. 1089+00 to 1104+91										
Option 2	ROW	20	2,204	Sta. 1041+00 to 1062+00		1	14	15	30	13	43	6.8 (9.6)	$3,133,745	$ 72,878
	Shoulder (Offset) [8' on bridge]	14	2,688	Sta. 1062+00 to 1089+00										
	ROW	16	1,720	Sta. 1089+00 to 1104+91										
Option 3	ROW	22	2,204	Sta. 1041+00 to 1062+00		1	10	19	30	13	43	7.0 (9.6)	$3,259,743	$ 75,808
	Shoulder (Offset) [8' on bridge]	14	2,688	Sta. 1062+00 to 1089+00										
	ROW	16	1,720	Sta. 1089+00 to 1104+91										

*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 = Cost as shown in TNM - accounts for the barrier transitions to/from
*6 = FDOT Reasonable Cost Guideline is $42,000.

Noise Barrier 4 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1 Not Recommended	Shoulder (8' on bridge)	14	3,117	Sta. 1058+00 to 1070+10	2	0	0	0	0	0	0	< 5.0	$1,271,700	n/a

*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.

Noise Barrier 5 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1	Shoulder Offset (on berm)	20	2,520	Sta. 1086+25 to 1111+53	30	3	3	24	30	11	41	7.5 (10.0)	$1,512,000	$ 36,878
Option 2		22	2,520	Sta. 1086+25 to 1111+53		3	3	24	30	11	41	7.7 (10.5)	$1,663,200	$ 40,566

*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.

Appendix E2:

Segment #429-152
Noise Barrier Evaluation Tables

NSA 9 thru 17
Barriers 6 thru 10

Noise Barrier 6 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]	Cost per Benefited Receptor [*5]
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) [*2]	Impacted	Other [*3]	Total	Noise Reduction dB(A) Average (Max)		
Option 1	Barrier 6a ROW	22	0	Sta. 1122+80 to 1129+59	25	3	5	11	19	14	33	6.6 (9.9)	$ 983,640	$ 29,807
	Barrier 6b offset	14	541	Sta. 1132+00 to 1137+47										
	Barrier 6 -ped bridge EOP -	8	363	Sta. 1136+07 to 1139+81										
	Barrier 6c offset	14	525	Sta. 1138+35 to 1148+36										
	Barrier 6 -Warrior Rd bridge EOP -	8	540	Sta. 1146+61 to 1152+00										
	Barrier 6d offset	14	760	Sta. 1150+29 to 1158+00										
Option 2 Recommended	Barrier 6a ROW	22	441	Sta. 1122+80 to 1129+59		6	4	15	25	17	42	6.7 (10.3)	$ 1,370,160	$ 32,623
	Barrier 6b offset	16	541	Sta. 1132+00 to 1137+47										
	Barrier 6 -ped bridge EOP -	8	363	Sta. 1136+07 to 1139+81										
	Barrier 6c offset	18	525	Sta. 1138+35 to 1148+36										
	Barrier 6 -Warrior Rd bridge EOP -	8	540	Sta. 1146+61 to 1152+00										
	Barrier 6d offset	14	760	Sta. 1150+29 to 1158+00										

*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.

Noise Barrier 7 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]	Cost per Benefited Receptor [*5]
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) [*2]	Impacted	Other [*3]	Total	Noise Reduction dB(A) Average (Max)		
Option 3 Recommended	Option 1 Offset	14	2,093	Sta. 160+01 to 181+18	23	3	4	0	7	0	7	5.7 (6.5)	$ 879,060	$ 125,580
	Option 2 Offset	16				5	3	2	10	0	10	5.9 (7.0)	$1,004,640	$ 100,464
	Option 3 Offset	**18**				**10**	**3**	**2**	**15**	**1**	**16**	**5.7 (7.6)**	**$1,130,220**	**$ 70,639**
	Option 4 Offset	20				9	2	4	15	1	16	5.9 (8.1)	$1,255,800	$ 78,488
	Option 5 Offset	22				8	2	5	15	1	16	6.2 (8.5)	$1,381,380	$ 86,336

*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.

Noise Barrier 8 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]	Cost per Benefited Receptor [*5]
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) [*2]	Impacted	Other [*3]	Total	Noise Reduction dB(A) Average (Max)		
Option 1	Shoulder	8	3,242	Sta. 602+00 to 225+00	19	8	0	0	8	0	8	5.3 (5.5)	$ 778,080	$ 97,260
Option 2	Shoulder	8	1,760	Sta. 602+00 to 210+20		8	0	0	8	0	8	5.2 (5.4)	$ 422,400	$ 52,800

*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.

Noise Barrier 9 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1 Not Recommended	Shoulder (8' on bridge)	14	4,028	Sta. 221+00 to 270+00	7	1	0	3	4	0	4	6.9 (8.5)	$1,664,760	$ 416,190
Option 2 Not Recommended	ROW	22	3,529	Sta. 230+00 to 262+60		1	0	2	3	0	3	8.5 (10.4)	$2,329,140	$ 776,380

*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.

Noise Barrier 10 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]	Cost per Benefited Receptor [*5]
Option	Location	Barrier Type	TNM Height (feet)	TNM Length (feet)	Approximate Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) [*2]	Impacted	Other [*3]	Total	Noise Reduction dB(A) Average (Max)		
1	S. of Creek [10a]	Shoulder Offset	16	2,239	Sta. 241+00 to 264+00	12	4	0	0	4	7	11	5.5 (6.1)	$1,633,920	$ 148,538
	Bridge [10b]	Shoulder/EOP	8	388	Sta. 263+00 to 267+00										
	N. of Creek [10c]	Shoulder Offset	16	971	Sta. 266+00 to 276+00										
2	S. of Creek [10a]	Shoulder Offset	18	2,251	Sta. 241+30 to 264+00		8	0	0	8	13	21	5.6 (6.6)	$1,800,060	$ 85,717
	Bridge [10b]	Shoulder/EOP	8	388	Sta. 263+00 to 267+00										
	N. of Creek [10c]	Shoulder Offset	18	910	Sta. 266+00 to 275+10										
3	S. of Creek [10a]	Shoulder Offset	20	2,189	Sta. 242+00 to 264+00		7	1	0	8	13	21	5.8 (6.6)	$1,835,520	$ 87,406
	Bridge [10b]	Shoulder/EOP	8	388	Sta. 263+00 to 267+00										
	N. of Creek [10c]	Shoulder Offset	20	715	Sta. 266+00 to 273+35										
4	S. of Creek [10a]	Shoulder Offset	22	2,138	Sta. 242+60 to 264+00		4	5	0	9	14	23	6.1 (7.2)	$2,129,220	$ 92,575
	Bridge [10b]	Shoulder/EOP	8	388	Sta. 263+00 to 267+00										
	N. of Creek [10c]	Shoulder Offset	22	947	Sta.266+00 to 275+25										

*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.

Appendix E3:

Segment #429-153 Project Aerials
Noise Barrier Evaluation Tables

NSA 18 thru 26
Barriers 11 thru 18

Noise Barrier 11 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1	ROW	22	1,233	Sta. 334+70 to 348+00	35	7	2	14	23	3	26	7.7 (12.7)	$1,010,760	$ 38,875
	Shoulder	14	469	Sta. 347+00 to 352+00										

*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.

Noise Barrier 12 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1 Not Recommended	Shoulder	14	1,331	Sta. 354+00 to 367+45	4 Special Use	0	0	0	0	0	0	<5.0 (<5.0)	$ 559,020	n/a

*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.

Special Use Reasonableness Matrix Barreir 13a/b - County/Pauper Cemetery -				
Item	**Criteria**	**Input**		**Description**
1	Enter length of proposed barrier	0	feet	See Item 3
2	Enter height of proposed barrier	0	feet	See Item 3
3	Multiply Item1 by Item 2	10640	sq. feet	Shoulder = 3,080 [10' X 308'] ROW = 7,344 [18' X 420']
4	Avg. amount of time person stays per visit	2	hours	See Assumptions
5	Avg. number people visit site per day	224	people	
6	Multiply Item 4 by Item 5	448	person-hr	
7	Divide Item 3 by Item 6	23.75	sq. ft/person-hr	
8	Multiply $42,000 by Item 7	$ 997,500	$/sq. ft/person-hr	
9	Does Item 8 exceed the "abatement cost factor" of $995,935/person-hr/ft2?	Yes		
10	If Item 9 is no, abatement is reasonable	-		
11	If Item 9 is yes, abatement is not reasonable	Not Reasonable		

In order for a barrier at this location to be cost reasonable, a minimum of 224 people need to utilize the cemetery for 2.0 hours every day of the year. This is an unrealistic expectation; therefore, the barrier is considered not reasonable.

Noise Barrier 14 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1	ROW	22	3,174	Sta. 377+00 to 409+14	38	1	2	34	37	6	43	9.3 (13.0)	$2,094,840	$ 48,717

*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.

Noise Barrier 15 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1	ROW	12	1,017	Sta. 384+94 to 395+09	10	2	7	1	10	0	10	6.4 (7.1)	$ 366,120	$ 36,612

*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.

Noise Barrier 16 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	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1 Not Recommended	ROW	10	907	Sta. 424+90 to 433+10	2	0	1	0	1	0	1	6.6 (6.6)	$ 272,100	$ 272,100
Option 2 No Recommended	ROW	12	593	Sta. 427+20 to 432+25		0	0	2	2	0	2	7.3 (7.65)	$ 213,480	$ 106,740
Option 3 Not Recommended	ROW	14	528	Sta. 427+20 to 432+00		0	0	2	2	0	2	7.3 (7.4)	$ 221,760	$ 110,880

*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.

Noise Barrier 17 Evaluation Summary

Evaluated Barrier Options					Number of Sites (no building permits)	Number of Impacted Sites Within a Noise Reduction Range			Number of Benefited Sites *1				Total Estimated Cost *4	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1	ROW	22	2,676	Sta. 411+00 to 437+00	63	2	1	45	48	13	61	10.9 (13.9)	$1,766,160	$ 28,953
Option 2	ROW	22	2,977	Sta. 411+00 to 440+00		7	8	48	63	13	76	10.5 (13.9)	$1,964,820	$ 25,853

*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.

Noise Barrier 18 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*5	Cost per Benefited Receptor *5
Option	Barrier Type	Height (feet)	Length (feet)	Approx. Location (Roadway Stationing)		5-5.9 dB(A)	6-6.9 dB(A)	≥ 7.0 dB(A) *2	Impacted	Other *3	Total	Noise Reduction dB(A) Average (Max)		
Option 1a	ROW - South Extension (SB7a)	varies	400	Sta. 3001+00 to 3005+00	18	3	2	7	12	6	18	7.0 (10.2)	$ 1,019,558	$ 56,642
	Offset Shoulder (SB4a/5a/6a)	14	2,095	Sta. 453+00 to 473+00										
Option 2 *engineering constraints w/ SB8a* on ramp shoulder	ROW - South Extension (SB7a)	varies	400	Sta. 3001+00 to 3005+00		4	1	10	15	8	23	7.1 (10.2)	$ 1,430,821	$ 62,210
	Offset Shoulder (SB4a/5a/6a)	14	2,200	Sta. 453+00 to 474+00										
	Ramp Shoulder [SB8a]	14	893	Sta. 3011+60 to 3020+50										
Option 3a	ROW - South Extension (SB7a)	varies	400	Sta. 3001+00 to 3005+00		4	1	10	15	7	22	7.2 (10.4)	$ 1,260,267	$ 57,285
	Offset Shoulder (SB4a/5a/6a)	14	1,996	Sta. 453+00 to 472+00										
	ROW - North Extension [SB8a]	22	428	Sta. 469+00 to 473+00										

*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 = Cost is from TNM - accounts for the barrier bottom stepping [south extension] and transitions to/from 8' [offset shoulder]
*6 = FDOT Reasonable Cost Guideline is $42,000.