Noise Study Report

Florida Department of Transportation

District 7

State Road (SR) 50 (US 98/Cortez Boulevard)
Project Development & Environment (PD&E) Study
From the Brooksville Bypass to west of Interstate 75

Hernando County, FL

Work Program Item Segment No. 430051-1

ETDM Project No. 13980

October 2020

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

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ETDM Project No. 13980
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Prepared for:

Florida Department of Transportation
District Seven

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October 2020

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate alternative improvements for State Road (SR) 50 (US 98/Cortez Boulevard) from the Brooksville Bypass to west of Interstate 75 (I-75) in Hernando County. The study extends to Lockhart Road on the east end of the project for a length of approximately 7.2 miles. The section along SR 50 to the east of Lockhart Road was studied as a part of a separate Federal Highway Administration (FHWA) approved PD&E study – SR 50 (Cortez Boulevard) from Lockhart Road to US 301 (SR 35/Treiman Boulevard), WPI Segment No. 416732-2, with the I-75 interchange area excepted out under Work Program Item (WPI) Segment No. 411014-1. Study objectives include: determine proposed typical sections and develop preliminary conceptual design plans for proposed improvements, while minimizing impacts to the environment; consider agency and public comments; and ensure project compliance with all applicable federal and state laws. A Type 2 Categorical Exclusion is being prepared as part of this study. The highway is expected to be improved from an existing, four-lane divided rural facility to a six-lane divided facility. The proposed improvements will include construction of stormwater management and floodplain compensation facilities and various intersection improvements, in addition to multimodal facilities (pedestrian, bicycle and transit accommodations).

This Noise Study Report (NSR) was prepared as part of the PD&E Study for the project as required by the FDOT's PD&E Manual, Part 2, Chapter 18 (*Highway Traffic Noise*, January 14, 2019) and in accordance with the Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772)—Procedures for Abatement of Highway Traffic Noise and Construction Noise (July 13, 2010).

One-hundred eighty-one noise sensitive receptors (i.e., discrete representative locations on a property that has noise sensitive land uses) were evaluated within 28 common noise environments (CNEs). The evaluated receptors within the CNEs are comprised of 175 residential properties, two places of worship, a cemetery, an office building, a motel, and the outdoor dining area of a restaurant.

Of the 181 evaluated receptors, seven are predicted to be impacted by traffic noise with existing conditions and 74 are predicted to be impacted in the future without the proposed improvements. With the proposed improvements, 91 of the 181 receptors are predicted to be impacted by traffic noise. Of the 91 receptors, 89 were evaluated for residential properties and two were evaluated for the cemetery and the restaurant.

Traffic management measures, modifications to the roadway alignment, buffer zones, and noise barriers were considered as abatement measures. With the exception of the potential noise barrier for the impacted properties within the Hill 'n Dale Subdivision (Receptors 59-100, 112-115, 130-131, 133-134), noise abatement measures were not determined to be both feasible and reasonable.

The estimated total cost to construct the noise barrier ranges from $1,414,500 to $3,018,840 depending on barrier length and height. The FDOT is committed to the construction of the noise barrier at the above location contingent upon the following:

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

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SECTION 1 INTRODUCTION

1.1 PD&E STUDY PURPOSE

The objective of this Project Development and Environment (PD&E) study is to assist the Florida Department of Transportation (FDOT) in reaching a decision on the type, location, and conceptual design of the proposed improvements for widening State Road (SR) 50 (US 98/Cortez Boulevard) from the Brooksville Bypass to west of Interstate 75 (I-75) in Hernando County.

The PD&E study satisfies all applicable state and federal requirements in order for this project to qualify for federal funding of subsequent development phases (design, right of way [ROW] acquisition, and construction). This project was screened through FDOT's Efficient Transportation Decision Making (ETDM) process as Project #13980. The *Final Programming Screen Summary Report* (PSSR) was published on January 7, 2014. A *Type 2 Categorical Exclusion* is being prepared as part of this study.

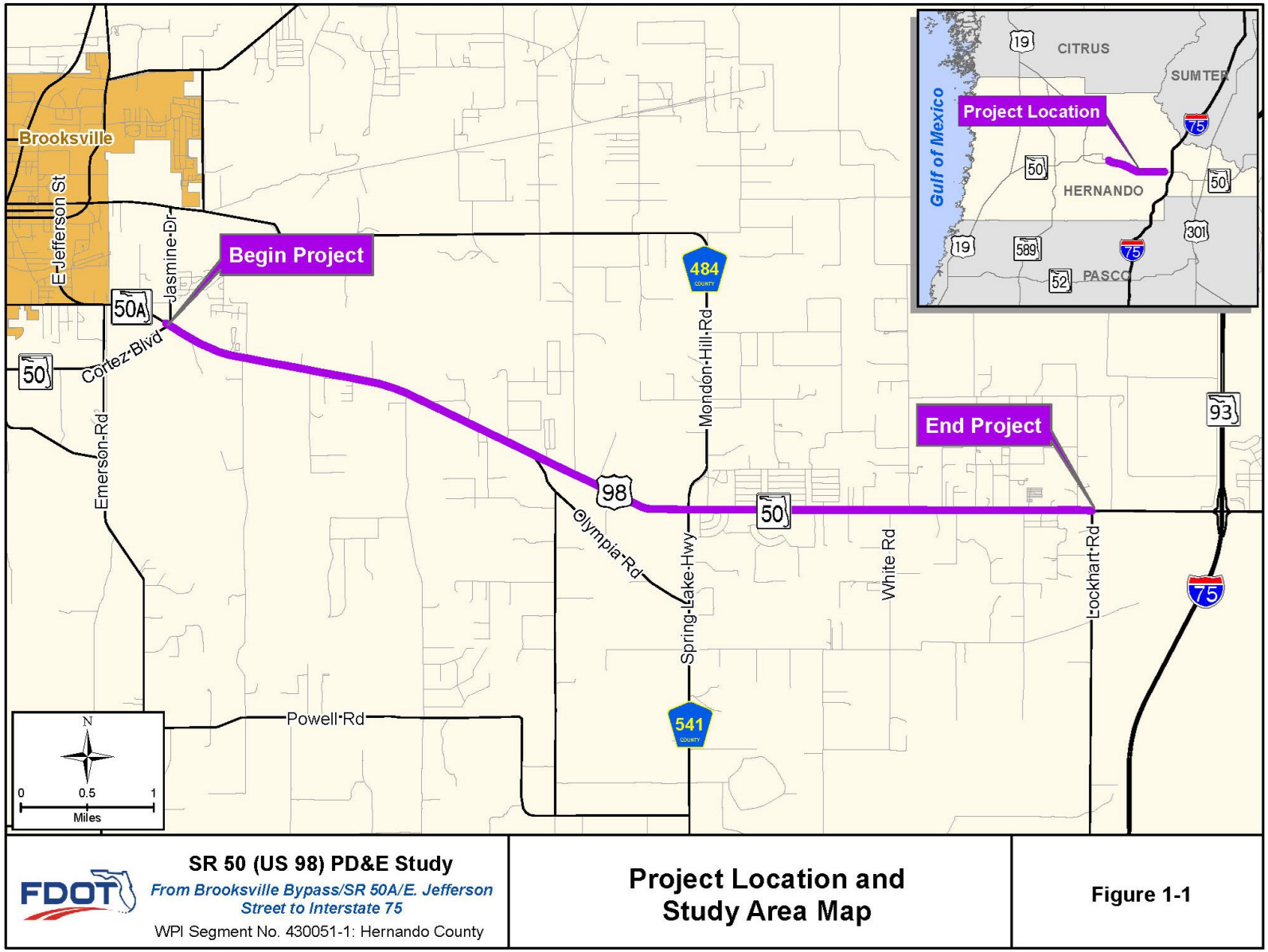
1.2 PROJECT DESCRIPTION

In order to accommodate projected traffic increases along SR 50, the FDOT is conducting a PD&E study to evaluate alternative capacity and operational improvements from the Brooksville Bypass to west of I-75 **(Figure 1-1)**.

The study area extends to Lockhart Road on the east end of the project for a length of 7.2 miles. The section along SR 50 to the east of Lockhart Road was studied as a part of a separate Federal Highway Administration (FHWA) approved PD&E study (2014) – SR 50 (Cortez Boulevard) from west of I-75 to US 301 (SR 35/Treiman Boulevard), Work Program Item (WPI) Segment No. 416732-2, with the I-75 interchange area excepted out under WPI Segment No. 411014-1. Improvements for the Lockhart Road intersection were included in WPI Segment No. 416732-2. The highway is expected to be improved from an existing, four-lane divided rural facility to a six-lane divided facility. The proposed improvements will include construction of stormwater management and floodplain compensation facilities and various intersection improvements, in addition to multimodal facilities (pedestrian, bicycle and transit accommodations).

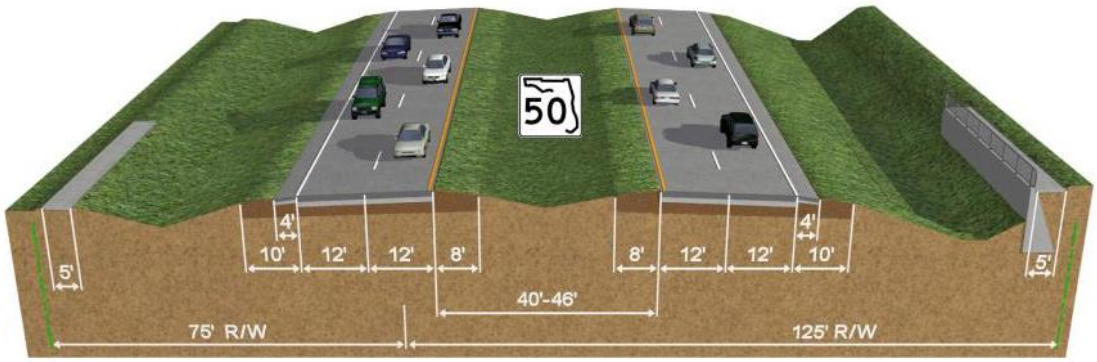
1.3 EXISTING FACILITY AND PROPOSED IMPROVEMENTS

SR 50 is currently a four-lane rural highway with 4-ft paved outside shoulders and 40 – 46-ft grassed median (**Figure 1-2**). The existing ROW is 200 feet wide. The posted speed limits vary from 45 mph to 60 mph. Major intersections within the project limits occur at Cortez Boulevard/Jasmine Drive, County Road (CR) 484/Spring Lake Highway and Lockhart Road (west of I-75). There is a short segment with existing sidewalk located near the west end of the project. There is a bridge culvert within the project limits located over the Bystream Overflow. This 53-ft bridge culvert was constructed in 1997 and has a sufficiency rating of 80 and a health index of 65.72 (inspected January 22, 2019). Expected improvements are described above in **Section 1.2**.


Brooksville
E Jefferson St
Jasmine Dr
Begin Project
50A
Cortez Blvd
50
Emerson Rd
Mondon Hill Rd
484
98
Olympia Rd
Spring Lake Hwy
541
50
White Rd
Lockhart Rd
End Project
93
75
Powell Rd
N
0
0.5
1
Miles
Gulf of Mexico
Project Location
CITRUS
SUMTER
HERNANDO
PASCO
19
589
52
301
75
50
SR 50 (US 98) PD&E Study
From Brooksville Bypass/SR 50A/E. Jefferson Street to Interstate 75
WPI Segment No. 430051-1: Hernando County
Project Location and Study Area Map
Figure 1-1

West Portion of Study Area

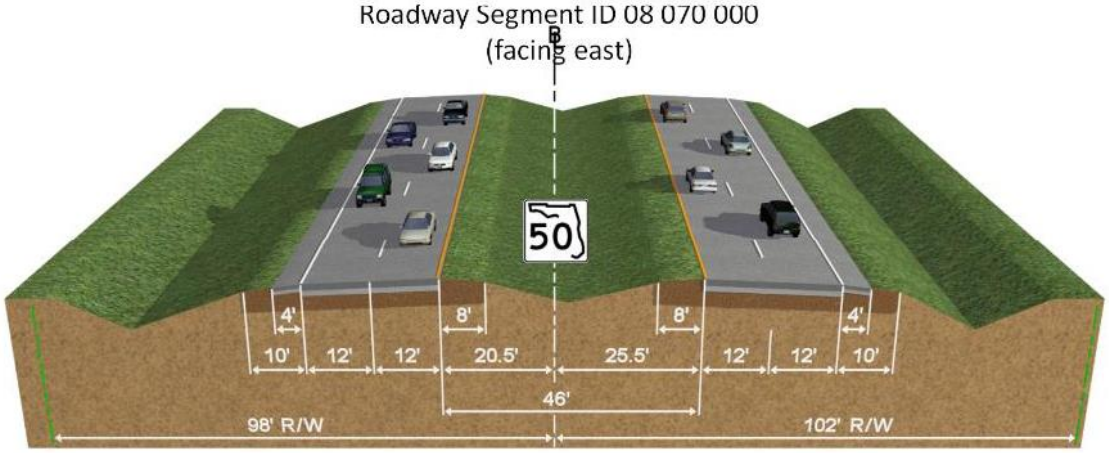
Roadway Segment ID 08 050 000
(facing east)



- From SR 50A/Brooksville Bypass/Cortez Blvd to Spring Lake Highway/Mondon Hill Road (4.2 miles)
- Posted Speed Varies: 45 mph at west end transitions to 60 mph throughout most of section
- Existing Context Classification: C2 Rural
- Sidewalks along western mile of segment

East Portion of Study Area

Roadway Segment ID 08 070 000
(facing east)



- From Spring Lake Highway/Mondon Hill Road to Lockhart Road (3.0 miles)
- Posted Speed Varies: 60 mph throughout most of section, transitions to 55 mph just west of Lockhart Road
- Existing Context Classification: C3R Suburban Residential

FDOT **State Road 50 PD&E Study** *From the Brooksville Bypass to west of Interstate 75* WPI Segment No. 430051-1 Hernando County	**Existing Roadway Typical Sections**	**Figure 1-2**

Proposed typical sections include suburban rural and rural suburban typical sections (**Figure 1-3**). A high-speed six-lane suburban rural section is proposed from the western project limits to Dorsey Smith Road, east of Mondon Hill Road/Spring Lake Highway (West Segment) and a rural suburban typical section within the 200-foot existing ROW is proposed from Dorsey Smith Road, east of Mondon Hill Road/Spring Lake Highway to Lockhart Road. No additional ROW is anticipated for the roadway improvements with the exception of small corner clips at intersections along the corridor. Additional ROW will be needed for stormwater management facilities and floodplain compensation sites. A "No-Build" Alternative is also being evaluated.

1.4 PROJECT PURPOSE AND NEED

SR 50 is a major east-west rural principal arterial that spans central Florida from coast to coast. In Hernando County, SR 50 connects to several regionally significant corridors, including US 19, SR 589 (Suncoast Parkway), US 41, I-75, and US 301. SR 50 is also a hurricane evacuation route, a designated truck route, part of the Strategic Intermodal System (SIS) and part of the West Central Florida Metropolitan Planning Organization Chairs Coordinating Committee's (CCC) Regional Roadway Network. This segment of SR 50 connects the City of Brooksville to I-75.

The purpose of this project is to address projected roadway congestion for SR 50 due to future growth along the project corridor and within Hernando County. Increasing roadway capacity along this segment of SR 50 will accommodate future growth, provide for enhanced emergency response times and emergency evacuation, and work in conjunction with other projects planned or underway to increase the capacity of SR 50. The annual average daily traffic (AADT) within the study limits varied between 18,150 and 22,700 vehicles per day (VPD) in 2014. Year 2040 AADTs based on the Tampa Bay Regional Planning Model (TBRPM Version 7.2) are predicted to range from 47,400 to 59,100 VPD. This would result in level of service (LOS) "F" at the major intersections.

Within the limits of this PD&E study, the Hernando/Citrus Metropolitan Planning Organization's (MPO) 2045 Long Range Transportation Plan (LRTP), adopted on December 4, 2019, shows a need for improving SR 50 to 6 lanes. The LRTP shows funding for the design phase and right of way for expansion to 6 lanes in the Cost Feasible Plan.

A more detailed discussion of the project's purpose and need is included in the ETDM Programming Screen Summary Report, under ETDM project number 13980.

1.5 REPORT PURPOSE

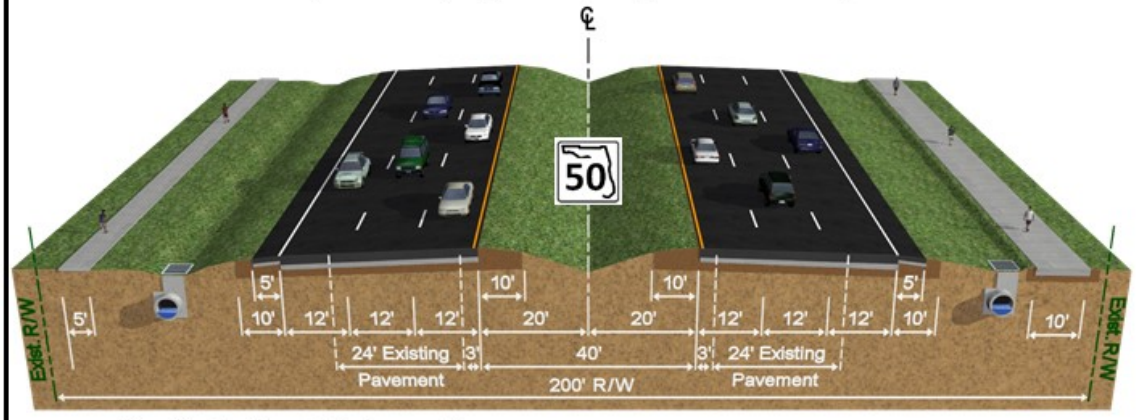
This Noise Study Report is one of several documents that is being prepared as part of this PD&E study. This report documents the traffic noise analysis methodology and the results of the analysis.

West Segment of Study Area

Roadway Segment ID 08 050 000

6-Lane Rural Typical Section – facing east

(from west limit of PD&E Study at SR 50/Brooksville Bypass to just east of Spring Lake Highway/Mondon Hill Road)



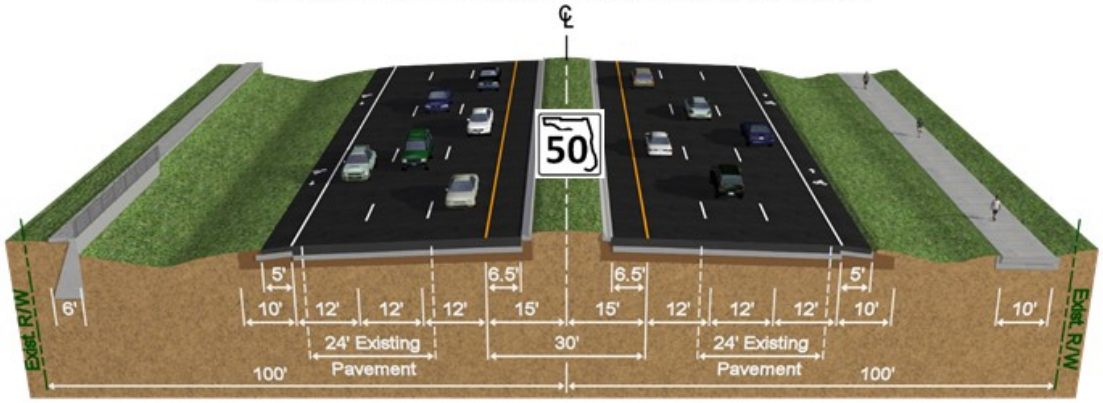
- Provides for 65 mph design speed
- Border width design variation required for left and right roadway sides (6 ft below standard)

East Segment of Study Area

Roadway Segment ID 08 070 000

6-Lane Suburban Typical Section – facing east

(from just east of Spring Lake Highway/Mondon Hill Road to east limit of PD&E study west of I-75 at Lockhart Road)



- Provides for 50 mph design speed

State Road 50 PD&E Study *From the Brooksville Bypass to west of Interstate 75* WPI Segment No. 430051 1 - Hernando County	**Preferred Roadway Typical Sections**	**Figure 1-3**

SECTION 2 METHODOLOGY

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

For properties with uses other than residential, the methodologies described in the FDOT's *A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations* were also used. Special land uses for this project include places of worship, a cemetery, the outdoor seating area at a restaurant, and a motel.

2.1 NOISE METRICS

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

2.2 TRAFFIC DATA

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

The traffic volumes used in the analysis were either the roadway design LOS C volume or the forecast demand volume, whichever was less, so that the predicted traffic noise levels with the improvements to SR 50 represent the maximum hourly noise level during the project's design year. The Existing (year 2014), Future No-Build (year 2040) and Future Build (year 2040) traffic data used in the analysis are provided in Appendix A of this Noise Study Report (NSR).

2.3 NOISE ABATEMENT CRITERIA

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

When predicted traffic noise levels "approach" or exceed the NAC, or when predicted future noise levels increase substantially from existing levels, the FHWA requires that noise abatement measures be considered. FDOT defines the word "approach" to mean within 1 dB(A) of the NAC. The FDOT's NAC are also shown in **Table 2-1**.

Table 2-1 FHWA Noise Abatement Criteria

Activity Category	Description of Activity Category	Activity Leq(h)[1]	
		FHWA	FDOT
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	57 (Exterior)	56 (Exterior)
B[2]	Residential	67 (Exterior)	66 (Exterior)
C[2]	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails and trail crossings.	67 (Exterior)	66 (Exterior)
D	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools and television studios.	52 (Interior)	51 (Interior)
E[2]	Hotels, motels, offices, restaurants/bars and other developed lands, properties or activities not included in A-D or F.	72 (Exterior)	71 (Exterior)
F	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical) and warehousing.	--	--
G	Undeveloped lands that are not permitted.	--	--

Sources: Table 1 of 23 CFR Part 772 and Table 18.1 of Chapter 18 of the FDOT's PD&E Manual (dated 1-14-19).

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

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

Note: FDOT defines that a substantial noise increase occurs when the existing noise level is predicted to be exceeded by 15 decibels or more as a result of the transportation improvement project. When this occurs, the requirement for abatement consideration will be followed.

Table 2-2 Typical Noise Levels

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

Source: California Dept. of Transportation Technical Noise Supplement, Nov. 2009, Page 2-21.

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

2.4 NOISE ABATEMENT MEASURES

When traffic noise impacts are predicted, noise abatement measures are considered for the impacted properties and the feasibility and reasonableness of providing an abatement measure are considered.

Feasibility factors are related to the acoustical and engineering properties of an abatement measure while reasonableness factors relate to the social, economic and environmental properties of a measure.

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

2.4.1 Traffic Management

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

2.4.2 Alignment Modifications

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

2.4.3 Buffer Zones

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

2.4.4 Noise Barriers

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

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

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

- Cost Effective Limit – At a cost of $30 per square foot, a barrier should not cost more than $42,000 per benefited noise sensitive receptor (a benefited receptor is one that receives at least a 5 dB(A) reduction in noise from a mitigation measure). For special land uses (e.g., the outdoor eating area of a restaurant), the cost of a barrier should not be more than $995,935 per person-hour per square foot (dollars/person-ft^2).

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

SECTION 3 TRAFFIC NOISE ANALYSIS

3.1 NOISE SENSITIVE RECEPTORS

As previously stated, noise sensitive receptors are representative locations of a noise sensitive land use. The locations of the receptors evaluated for the SR 50 improvements are shown on aerials provided in **Appendix B**. One-hundred eighty-one noise sensitive receptors (i.e., discrete representative locations on a property that has noise sensitive land uses) were evaluated within 28 common noise environments (CNEs). The evaluated receptors are comprised of 175 residential properties, two places of worship, a cemetery (Lang's Memorial Cemetery), benches outside of an office building, a motel (Budget Inn) and the outdoor dining area at a restaurant (Deep South BBQ).

Table 3-1 lists and describes each NSA and provides the number of evaluated noise sensitive receptors for each NSA.

Table 3-1 Common Noise Environments

CNE	Receptor IDs	Name and/or Location of Noise Sensitive Properties	Sheet No. (See Appendix B)	Activity Category	Number of Evaluated Receptors
1	1	Budget Inn	1	E – Motel	1
2	2-8b	Residences west of Jasmine Drive (north of SR 50)	1-2	B – Residential	10
3	9-11a	Residences east of Sardis Street (south of SR 50)	1	B – Residential	4
4	12	Brooksville Wesleyan Church	3	C – Place of Worship	1
5	13	Receptor east of Jasmine Drive (westbound)	4	E – Office (Exterior)	1
6	14-17	Hidden Valley Campground	4	B – Residential	4
7	18-22	Residences in the vicinity of Griffin Road (south of SR 50)	4-6	B - Residential	5
8	23-25	Residences in the vicinity of Singer Lane (south of SR 50)	7	B - Residential	2
9	25-28	Gundermans Subdivision	7-8	B - Residential	4
10	29	Deep South BBQ	9	E - Restaurant	1
11	30	Receptor at Cedar Lane	9	B - Residential	1
12	31	Receptor across from Cedar Lane (north of SR 50)	9	B - Residential	1

CNE	Receptor IDs	Name and/or Location of Noise Sensitive Properties	Sheet No. (See Appendix B)	Activity Category	Number of Evaluated Receptors
13	32-34	Receptors east of Cedar Lane (south of SR 50)	10	B - Residential	3
14	35-38a	Receptors east of Dorsey Smith Road (north of SR 50)	10-11	B - Residential	5
15	39-39a	Residence east of Dorsey Smith Road (north of SR 50)	11	B - Residential	2
16	40-41	Residences in Highpoint Gardens Subdivision (south of SR 50)	12	B - Residential	2
17	42	Residence west of Tall Oaks Lane (north of SR 50)	13	B - Residential	1
18	43	Cemetery at WPA Road (north of SR 50)	14	C – Cemetery	1
19	44	Residence east of Olympia Road (south of SR 50)	15	B - Residential	1
20	45-57	Rolling Acres Subdivision	19-20	B - Residential	14
21	58	Grace Brethren Subdivision	20	C – Place of Worship	1
22	59-146	Hill n Dale Subdivision	20-23	B - Residential	88
23	147	Residence west of Emmanuels Way (north of SR 50)	24	B - Residential	1
24	148	Residence west of Rupe Road (south of SR 50)	26	B - Residential	1
25	149-149a	Residences west of Hadley Drive (north of SR 50)	27	B - Residential	2
26	150-166	Braewood Mobile Home Park	28-29	B - Residential	17
27	167	Residence east of Thistlebrook Lane (north of SR 50)	28	B - Residential	1
28	168-173	Potterfield Sunny Acres Subdivision	29-30	B - Residential	6
Total					181

Following FHWA/FDOT guidance, the residences were evaluated as Activity Category "B" (i.e. abatement considered at a predicted traffic noise level of 66 dB(A)). The areas of use at the cemetery and places of worship were evaluated as Activity Category "C" (i.e., abatement considered at a predicted traffic noise level of 66 dB(A)) and the office building, motel, and restaurant were evaluated as Activity Category "E" ((i.e., abatement considered at a predicted traffic noise level of 71 dB(A)).

3.2 MEASURED NOISE LEVELS

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

The field measurements were conducted in accordance with the FHWA's *Noise Measurement Handbook*. The measurements were obtained using a Larson Davis Model 831, Type II integrating sound level meter (SLM). The SLM was calibrated before and after the measurement period with a Larson Davis CAL200 calibrator.

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

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

Table 3-2 Validation Data

Location	Site	Measurement Period	Modeled (dB(A))	Measured (dB(A))	Difference
SR 50 at Lockhart Rd. SW Corner	1	1	65.6	64.7	0.9
		2	65.7	63.9	1.8
		3	66.0	64.1	1.9
SR 50 at Frampton Ave. NE Corner	2	1	63.5	60.6	2.9
		2	65.3	62.5	2.8
		3	63.3	62.5	0.8

3.3 PREDICTED TRAFFIC NOISE LEVELS

Table 3-3 presents the results of the traffic noise analysis for the proposed improvements. As shown, of the 181 evaluated receptors, seven are predicted to be impacted by traffic noise with existing conditions and 74 are predicted to be impacted in the future without the proposed improvements. With the proposed improvements, 91 of the 181 receptors are predicted to be impacted by traffic noise. Of the 91 receptors predicted to be impacted with the proposed improvements, 89 are residential properties and the remaining 2 are a cemetery and the outdoor dining area of a restaurant.

Table 3-3 Traffic Noise Analysis Results

CNE	Receptor ID	Description of Activity Category	Activity Category	FDOT NAC	Existing (2014)	No Build (2040)	Build (2040)	Increase over Existing	Approaches, Meets, or Exceeds the NAC?
Motel west of Jasmine Drive (north of SR 50)									
1	1	Motel (Budget Inn Motel)	E	71	54.1	57.6	61.6	7.5	--
Receptors west of Jasmine Drive (north of SR 50)									
2	2	Residential	B	66	57.4	60.9	62.9	5.5	--
2	3	Residential	B	66	57.2	60.8	62.1	4.9	--
2	4	Residential	B	66	56.6	60.1	61.1	4.5	--
2	5	Residential	B	66	64.2	67.7	68.3	4.1	Yes
2	6	Residential	B	66	64.4	67.9	68.5	4.1	Yes
2	7	Residential	B	66	64.2	67.8	68.8	4.6	Yes
2	7a	Residential	B	66	63.6	67.1	68.8	5.2	Yes
2	8	Residential	B	66	63.6	67.1	71.1	7.5	Yes
2	8a	Residential	B	66	61.2	64.7	67.1	5.9	Yes
2	8b	Residential	B	66	57.3	60.8	61.1	3.8	--
Residences east of Sardis Street (south of SR 50)									
3	9	Residential	B	66	65.6	69.1	72.4	6.8	Yes
3	10	Residential	B	66	65.2	68.7	71.7	6.5	Yes
3	11	Residential	B	66	65.1	68.7	71.3	6.2	Yes
3	11a	Residential	B	66	58.9	62.4	65.2	6.3	--

CNE	Receptor ID	Description of Activity Category	Activity Category	FDOT NAC	Existing (2014)	No Build (2040)	Build (2040)	Increase over Existing	Approaches, Meets, or Exceeds the NAC?
Office building east of Jasmine Drive (north of SR 50)									
4	12	Office building (benches)	E	71	61.6	65.1	70.1	8.5	--
Brooksville Wesleyan Church									
5	13	Place of Worship - Exterior	C	66	56	59.5	63	7	--
Hidden Valley Campground									
6	14	Residential	B	66	57.3	60.8	64.7	7.4	--
6	15	Residential	B	66	57.3	60.8	64.6	7.3	--
6	16	Residential	B	66	57.2	60.7	64.5	7.3	--
6	17	Residential	B	66	60.6	64.1	68.4	7.8	Yes
Residences in the vicinity of Griffin Road (south of SR 50)									
7	18	Residential	B	66	59.8	63.3	66.0	6.2	Yes
7	19	Residential	B	66	59.7	63.2	66.2	6.5	Yes
7	20	Residential	B	66	61.0	64.3	65.5	4.5	
7	21	Residential	B	66	62.6	65.8	66.5	3.9	Yes
7	22	Residential	B	66	59.1	62.4	63.5	4.4	--
Residences in the vicinity of Singer Lane (south of SR 50)									
8	23	Residential	B	66	59.2	62.4	63.9	4.7	--
8	24	Residential	B	66	63.1	66.3	67.7	4.6	Yes
Gundermans Subdivision									
9	25	Residential	B	66	65.9	69.1	70.3	4.4	Yes
9	26	Residential	B	66	59.5	62.7	64.4	4.9	--
9	27	Residential	B	66	62.2	65.5	66.8	4.6	Yes
9	28	Residential	B	66	58.2	61.4	62.6	4.4	--
Deep South BBQ									
10	29	Restaurant (outdoor seating)	E	71	67.6	70.9	71.3	3.7	Yes
Receptor at Cedar Lane (south of SR 50)									
11	30	Residential	B	66	61.4	64.6	66	4.6	Yes
Receptor across from Cedar Lane (north of SR 50)									
12	31	Residential	B	66	66.3	69.6	72.3	6.0	Yes
Receptors east of Cedar Lane (south of SR 50)									
13	32	Residential	B	66	63.8	67.1	67.8	4.0	Yes
13	33	Residential	B	66	70.6	73.8	74.3	3.7	Yes
13	34	Residential	B	66	70.0	73.3	73.9	3.9	Yes
Receptors east of Dorsey Smith Road (north of SR 50)									
14	35	Residential	B	66	64.7	67.9	70.3	5.6	Yes
14	36	Residential	B	66	62.2	65.4	67.8	5.6	Yes
14	37	Residential	B	66	63.3	66.6	69.3	6.0	Yes
14	38	Residential	B	66	61.3	64.6	67.2	5.9	Yes
14	38a	Residential	B	66	57.6	60.9	62.8	5.2	
Residences east of Dorsey Smith Road (north of SR 50)									

CNE	Receptor ID	Description of Activity Category	Activity Category	FDOT NAC	Existing (2014)	No Build (2040)	Build (2040)	Increase over Existing	Approaches, Meets, or Exceeds the NAC?
15	39	Residential	B	66	67.7	71.0	72.8	5.1	Yes
15	39	Residential	B	66	54.2	57.4	58.7	4.5	--
Residences in Highpoint Gardens Subdivision (south of SR 50)									
16	40	Residential	B	66	61.4	64.6	65.4	4.0	--
16	41	Residential	B	66	61.8	65.1	65.9	4.1	--
Residence west of Tall Oaks Lane (north of SR 50)									
17	42	Residential	B	66	60.4	63.7	65.8	5.4	--
Cemetery at WPA Road (north of SR 50)									
18	43	Cemetery (Lang's Memorial Cemetery)	C	66	62.9	66.2	68.8	5.9	Yes
Residence east of Olympia Road (south of SR 50)									
19	44	Residential	B	66	68.4	71.7	72.5	4.1	Yes
Rolling Acres Subdivision									
20	45	Residential	B	66	61.0	65.1	66.5	5.5	Yes
20	45a	Residential	B	66	60.5	64.7	66.1	5.6	Yes
20	46	Residential	B	66	60.0	64.3	62.9	2.9	--
20	47	Residential	B	66	62.8	67.1	63.2	0.4	--
20	48	Residential	B	66	65.6	69.9	67.7	2.1	Yes
20	49	Residential	B	66	60.2	64.5	63.9	3.7	--
20	50	Residential	B	66	56.8	61	61.6	4.8	--
20	51	Residential	B	66	60.6	64.9	65.8	5.2	--
20	52	Residential	B	66	65.4	69.7	70.0	4.6	Yes
20	53	Residential	B	66	64.8	69.1	69.4	4.6	Yes
20	54	Residential	B	66	58.0	62.4	63.3	5.3	--
20	55	Residential	B	66	58.4	62.7	63.7	5.3	--
20	56	Residential	B	66	61.0	65.3	66.1	5.1	Yes
20	57	Residential	B	66	65.8	70.1	70.4	4.6	Yes
Grace Brethren Church									
21	58	Place of Worship (outdoor recreation area)	C	66	59.0	63.4	63.5	4.5	--
	Hill 'n Dale Subdivision								
22	59	Residential	B	66	64.0	68.4	69.9	5.9	Yes
22	60	Residential	B	66	63.6	68.0	69.3	5.7	Yes
22	61	Residential	B	66	63.4	67.8	69.2	5.8	Yes
22	62	Residential	B	66	63.5	67.8	69.4	5.9	Yes
22	63	Residential	B	66	63.4	67.8	69.5	6.1	Yes
22	64	Residential	B	66	63.8	68.1	69.9	6.1	Yes
22	65	Residential	B	66	63.6	68.0	69.7	6.1	Yes
22	66	Residential	B	66	63.7	68.0	69.9	6.2	Yes
22	67	Residential	B	66	63.7	68.0	69.9	6.2	Yes
22	68	Residential	B	66	63.6	68.0	69.9	6.3	Yes

CNE	Receptor ID	Description of Activity Category	Activity Category	FDOT NAC	Existing (2014)	No Build (2040)	Build (2040)	Increase over Existing	Approaches, Meets, or Exceeds the NAC?
22	69	Residential	B	66	63.8	68.2	70.1	6.3	Yes
22	70	Residential	B	66	63.6	68.0	69.8	6.2	Yes
22	71	Residential	B	66	63.5	67.8	69.6	6.1	Yes
22	72	Residential	B	66	63.8	68.1	69.6	5.8	Yes
22	73	Residential	B	66	63.7	68.1	69.4	5.7	Yes
22	74	Residential	B	66	63.9	68.3	69.4	5.5	Yes
22	75	Residential	B	66	64.2	68.5	69.6	5.4	Yes
22	76	Residential	B	66	64.2	68.6	69.7	5.5	Yes
22	77	Residential	B	66	64.3	68.7	69.9	5.6	Yes
22	78	Residential	B	66	64.2	68.6	69.9	5.7	Yes
22	79	Residential	B	66	64.2	68.6	69.8	5.6	Yes
22	80	Residential	B	66	64.3	68.6	69.8	5.5	Yes
22	81	Residential	B	66	64.1	68.5	69.6	5.5	Yes
22	82	Residential	B	66	63.8	68.2	69.2	5.4	Yes
22	83	Residential	B	66	63.8	68.2	69.1	5.3	Yes
22	84	Residential	B	66	63.8	68.2	69.1	5.3	Yes
22	85	Residential	B	66	63.6	68.0	68.9	5.3	Yes
22	86	Residential	B	66	63.4	67.7	68.7	5.3	Yes
22	87	Residential	B	66	63.8	68.2	69.1	5.3	Yes
22	88	Residential	B	66	63.9	68.2	69.2	5.3	Yes
22	89	Residential	B	66	63.7	68.1	69.0	5.3	Yes
22	90	Residential	B	66	63.5	67.9	68.4	4.9	Yes
22	91	Residential	B	66	63.2	67.6	68.1	4.9	Yes
22	92	Residential	B	66	63.7	68.0	68.6	4.9	Yes
22	93	Residential	B	66	63.7	68.0	68.7	5.0	Yes
22	94	Residential	B	66	64.1	68.5	69.2	5.1	Yes
22	95	Residential	B	66	64.0	68.3	68.9	4.9	Yes
22	96	Residential	B	66	63.9	68.2	68.7	4.8	Yes
22	97	Residential	B	66	63.8	68.1	68.6	4.8	Yes
22	98	Residential	B	66	63.4	67.7	68.2	4.8	Yes
22	99	Residential	B	66	63.4	67.8	68.3	4.9	Yes
22	100	Residential	B	66	63.0	67.3	67.8	4.8	Yes
22	101	Residential	B	66	58.2	62.5	63.7	5.5	--
22	102	Residential	B	66	57.8	62.1	63.3	5.5	--
22	103	Residential	B	66	58.6	62.9	64.1	5.5	--
22	104	Residential	B	66	58.3	62.6	63.8	5.5	--
22	105	Residential	B	66	59.3	63.6	65.0	5.7	--
22	106	Residential	B	66	59.9	64.2	65.7	5.8	--
22	107	Residential	B	66	59.5	63.9	65.4	5.9	--
22	108	Residential	B	66	59.4	63.7	65.3	5.9	--
22	109	Residential	B	66	59.4	63.8	65.6	6.2	--
22	110	Residential	B	66	59.7	64.0	65.9	6.2	--

CNE	Receptor ID	Description of Activity Category	Activity Category	FDOT NAC	Existing (2014)	No Build (2040)	Build (2040)	Increase over Existing	Approaches, Meets, or Exceeds the NAC?
22	111	Residential	B	66	59.6	63.9	65.9	6.3	--
22	112	Residential	B	66	60.0	64.3	66.2	6.2	Yes
22	113	Residential	B	66	60.4	64.8	66.6	6.2	Yes
22	114	Residential	B	66	60.4	64.8	66.6	6.2	Yes
22	115	Residential	B	66	59.9	64.2	66.0	6.1	Yes
22	116	Residential	B	66	59.3	63.7	65.2	5.9	--
22	117	Residential	B	66	59.5	63.8	65.0	5.5	--
22	118	Residential	B	66	59.5	63.8	65.0	5.5	--
22	119	Residential	B	66	59.7	64.0	65.2	5.5	--
22	120	Residential	B	66	59.8	64.2	65.3	5.5	--
22	121	Residential	B	66	59.7	64.0	65.1	5.4	--
22	122	Residential	B	66	59.8	64.1	65.0	5.2	--
22	123	Residential	B	66	59.4	63.8	64.4	5.0	--
22	124	Residential	B	66	59.2	63.6	64.0	4.8	--
22	125	Residential	B	66	59.3	63.6	64.0	4.7	--
22	126	Residential	B	66	59.1	63.5	64.0	4.9	--
22	127	Residential	B	66	59.1	63.5	64.1	5.0	--
22	128	Residential	B	66	58.8	63.1	63.8	5.0	--
22	129	Residential	B	66	58.6	62.9	63.6	5.0	--
22	130	Residential	B	66	61.6	66.0	66.4	4.8	Yes
22	131	Residential	B	66	63.3	67.6	68.2	4.9	Yes
22	132	Residential	B	66	60.5	64.8	64.9	4.4	--
22	133	Residential	B	66	67.6	72.0	71.9	4.3	Yes
22	134	Residential	B	66	66.0	70.3	70.9	4.9	Yes
22	135	Residential	B	66	52.9	57.2	58.3	5.4	--
22	136	Residential	B	66	54.7	59.0	61.3	6.6	--
22	137	Residential	B	66	54.5	58.8	60.6	6.1	--
22	138	Residential	B	66	56.5	60.8	61.1	4.6	--
22	139	Residential	B	66	56.4	60.7	60.6	4.2	--
22	140	Residential	B	66	56.9	61.2	61.0	4.1	--
22	141	Residential	B	66	56.4	60.7	60.6	4.2	--
22	142	Residential	B	66	57.1	61.4	61.1	4.0	--
22	143	Residential	B	66	60.8	65.1	65.1	4.3	--
22	144	Residential	B	66	57.4	61.7	61.5	4.1	--
22	145	Residential	B	66	57.5	61.8	61.8	4.3	--
22	146	Residential	B	66	57.8	62.1	62.1	4.3	--
Residence west of Emmanuels Way (north of SR 50)									
23	147	Residential	B	66	59.3	63.7	63.4	4.1	--
Residence west of Rupe Road (south of SR 50)									
24	148	Residential	B	66	57.5	61.8	63.2	5.7	--
Residences west of Hadley Drive (north of SR 50)									
25	149	Residential	B	66	53.5	57.8	58.5	5.0	--
25	149a	Residential	B	66	58.6	63.0	64.2	5.6	

CNE	Receptor ID	Description of Activity Category	Activity Category	FDOT NAC	Existing (2014)	No Build (2040)	Build (2040)	Increase over Existing	Approaches, Meets, or Exceeds the NAC?
Braewood Mobile Home Park									
26	150	Residential	B	66	57.8	62.2	62.0	4.2	--
26	151	Residential	B	66	57.9	62.3	62.5	4.6	--
26	152	Residential	B	66	58.2	62.5	62.9	4.7	--
26	153	Residential	B	66	58.2	62.5	63.1	4.9	--
26	154	Residential	B	66	58.2	62.5	63.3	5.1	--
26	155	Residential	B	66	58.2	62.6	63.3	5.1	--
26	156	Residential	B	66	58.2	62.6	63.4	5.2	--
26	157	Residential	B	66	52.5	56.8	57.2	4.7	--
26	158	Residential	B	66	58.0	62.4	63.1	5.1	--
26	159	Residential	B	66	58.0	62.4	63.0	5.0	--
26	160	Residential	B	66	58.1	62.5	63.0	4.9	--
26	161	Residential	B	66	58.3	62.6	62.9	4.6	--
26	162	Residential	B	66	58.3	62.7	63.0	4.7	--
26	163	Residential	B	66	58.3	62.6	62.9	4.6	--
26	164	Residential	B	66	58.3	62.6	62.8	4.5	--
26	165	Residential	B	66	58.2	62.5	62.8	4.6	--
26	166	Residential	B	66	58.0	62.4	62.6	4.6	--
Residence east of Thistlebrook Lane (north of SR 50)									
27	167	Residential	B	66	58.3	62.7	63.9	5.6	--
Potterfield Sunny Acres Subdivision									
28	168	Residential	B	66	55.9	60.2	60.3	4.4	--
28	169	Residential	B	66	62.9	67.3	69.2	6.3	Yes
28	170	Residential	B	66	63.2	67.5	69.4	6.2	Yes
28	171	Residential	B	66	63.4	67.8	69.5	6.1	Yes
28	172	Residential	B	66	63.6	67.9	69.3	5.7	Yes
28	173	Residential	B	66	63.6	67.9	69.2	5.6	Yes

3.4 ABATEMENT CONSIDERATIONS

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

3.4.1 Traffic Management

Reducing traffic speeds and/or the traffic volume or changing the motor vehicle fleet on SR 50 is inconsistent with the goal of improving the ability of the roadway to handle the forecast traffic volume. Therefore, traffic management measures are not considered to be a reasonable noise abatement measure for the SR 50 project.

3.4.2 Alignment Modifications

The proposed improvements would be constructed to follow the existing roadway alignment. Because shifting the alignment horizontally would require ROW acquisitions and, because noise sensitive land uses are located on both sides of the roadway, a modification to the alignment of SR 50 for the purpose of reducing traffic noise impacts is not considered to be a reasonable noise abatement measure.

3.4.3 Buffer Zones

As previously stated, to abate predicted traffic noise at an existing noise sensitive land use, the property would have to be acquired. The same cost-effective limit that applies to noise barriers (i.e., $42,000 per benefited noise sensitive receptor) would apply to the purchase price of any impacted noise sensitive property. A review of data from the Hernando County Appraisers Office indicates that the cost to acquire the developed properties adjacent to SR 50 exceed the cost-effective limit. Therefore, creating a buffer zone by acquiring existing noise sensitive properties is not considered to be a reasonable noise abatement measure.

3.4.4 Noise Barriers

The TNM was used to evaluate the ability of noise barriers to reduce traffic noise levels for the impacted noise sensitive receptors adjacent to SR 50. The barriers were evaluated on the FDOT's ROW at heights from eight to 22 feet (in two-foot increments). The length of each barrier was optimized to determine if at least the minimum noise reduction requirements (i.e., a minimum reduction of 5 dB(A) for at least two impacted receptors and a minimum reduction of 7 dB(A) for at least one impacted receptor) could be achieved.

Barriers were not considered for the impacted properties listed in **Table 3-4** because these areas only envelope one impacted receptor each and, in order for a barrier to be considered acoustically feasible and reasonable, at least two receptors are required to be benefited by a barrier.

Table 3-4 Isolated Impacted Noise Sensitive Receptors

NSA	Receptor ID	Description/Location
4	17	Residence in the Hidden Valley Campground
8	30	Residence at Cedar Lane (south of SR 50)
9	31	Residence across from Cedar Lane (north of SR 50)
12	39	Residence east of Dorsey Smith Road (north of SR 50)
16	44	Residence east of Olympia Road (south of SR 50)

The following provides the results of the noise barrier evaluation and discusses the potential amount of noise reduction and the cost effectiveness of providing barriers as an abatement measure for the areas in which traffic noise has been predicted to impact noise sensitive properties.

Barrier 1 - Residences west of Jasmine Drive, North of SR 50 (Receptors 5-8a)

A noise barrier was evaluated for the six impacted residences west of Jasmine Drive, north of SR 50 (Receptors 5-8b). The barrier was evaluated on the existing ROW and in four segments to accommodate access to/from the properties.

Due to constraints on the lengths of the barrier segments because of access requirements, the noise reduction design goal of 7 dB(A) could not be achieved at any of the evaluated barrier heights. Therefore, the barrier is not considered a reasonable noise abatement measure.

Barrier 2 - Residences between Jefferson St. and Cobb Rd, South of SR 50 (Receptors 9-11)

A noise barrier was evaluated for the three impacted residences between Jefferson Street and Cobb Road, south of SR 50 (Receptors 9-11). The barrier was evaluated on the existing ROW and in four segments to accommodate access to/from the properties.

The results of the barrier analysis are provided in **Table 3-5**. As shown, at barrier heights between 12 and 22 feet, two of the impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved. However, because the cost of the barrier at all barrier heights would be above the FDOT's cost reasonable limit, Barrier 2 is not considered a reasonable noise abatement measure.

Table 3-5 Barrier 2: Results for Impacted Residences between Jefferson Street and Cobb Road, South of SR 50 (Receptors 9-11)

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 -5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Receptors = 3										
8	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
10	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
12	466	1	0	1	2	0	2	$167,760	$83,880	No
14	386	1	0	1	2	0	2	$162,120	$81,060	No
16	346	1	0	1	2	0	2	$166,080	$83,040	No
18	334	1	0	1	2	0	2	$180,360	$90,180	No
20	314	1	0	1	2	0	2	$188,400	$94,200	No
22	294	1	0	1	2	0	2	$194,040	$97,020	No

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

Barrier 3 - Residences in the vicinity of Griffin Road, South of SR 50 (Receptors 18-21)

A noise barrier was evaluated for the three impacted residences in the vicinity of Griffin Road, south of SR 50 (Receptors 18-19, 21). The barrier was evaluated on the existing ROW and in four segments to accommodate access to/from the properties.

Due to constraints on the lengths of the barrier segments due to access requirements, the noise reduction design goal of 7 dB(A) could not be achieved at any of the evaluated barrier heights. Therefore, the barrier is not considered a reasonable noise abatement measure.

Barrier 4 - Residences in the vicinity of Singer Lane and in the Gundermans Subdivision (Receptors 24, 25 and 27)

A noise barrier was evaluated for the three impacted residences in the vicinity of Singer Lane and in the Gundermans Subdivision (Receptors 24, 25 and 27). The barrier was evaluated on the existing ROW and in three segments to accommodate access to/from the properties.

The results of the barrier analysis are provided in **Table 3-6**. As shown, at barrier heights between 14 and 22 feet, two of the impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved. However, because the cost of the barrier at all barrier heights would be above the FDOT's cost reasonable limit, Barrier 4 is not considered a reasonable noise abatement measure.

Table 3-6 Barrier 4: Results for Impacted Residences in the vicinity of Singer Lane and in the Gundermans Subdivision

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 -5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Receptors = 3										
8	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
10	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
12	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
14	895	1	0	1	2	0	2	$375,900	$187,950	No
16	735	1	0	1	2	0	2	$352,800	$176,400	No
18	711	1	0	1	2	0	2	$383,940	$191,970	No
20	691	1	0	1	2	0	2	$414,600	$207,300	No
22	651	1	0	1	2	0	2	$429,660	$214,830	No

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

Barrier 5 – Deep South BBQ Outdoor Seating Area (Receptor 29)

A noise barrier was evaluated for the impacted area of the Deep South BBQ restaurant. The impacted frequent use area is the outdoor dining area which can be described as a screened-in porch with six tables. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal length of 140 feet and an optimal height of 12 feet, a barrier would reduce predicted traffic noise levels within the impacted area a minimum of seven

dB(A). Because it is not known how frequently the impacted and benefited area of the restaurant would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Based on the optimal barrier length and height, to be considered cost effective, the minimum required daily use of the impacted area that would be benefited by a barrier is 83 persons (i.e., 83 people remaining in the outdoor area one hour every day that the restaurant is open). Because it is not reasonable to assume that this level of activity would occur within the impacted/benefited area, a barrier is not considered a reasonable noise abatement measure for the restaurant.

Barrier 6 – Receptors East of Cedar Lane, South of SR 50 (Receptors 32-34)

A noise barrier was evaluated for the three impacted residences east of Cedar Lane (Receptors 32-34). The barrier was evaluated on the existing ROW and in three segments to accommodate access to/from the properties.

The results of the barrier analysis are provided in **Table 3-7**. As shown, at barrier heights between 10 and 22 feet, two of the three impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved. However, because the cost of the barrier at all barrier heights would be above the FDOT's cost reasonable limit, Barrier 6 is not considered a reasonable noise abatement measure.

Table 3-7 Barrier 6: Results for Impacted Residences East of Cedar Lane, South of SR 50

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 -5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Receptors = 3										
8	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
10	336	1	0	1	2	0	2	$100,800	$50,400	No
12	336	1	0	1	2	0	2	$120,960	$60,480	No
14	336	1	0	1	2	0	2	$141,120	$70,560	No
16	336	1	0	1	2	0	2	$161,280	$80,640	No
18	336	1	0	1	2	0	2	$181,440	$90,720	No
20	336	1	0	1	2	0	2	$201,600	$100,800	No
22	336	1	0	1	2	0	2	$221,760	$110,880	No

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

Barrier 7 – Receptors East of Dorsey Smith Road, North of SR 50 (Receptors 35-38)

A noise barrier was evaluated for the four impacted residences east of Dorsey Smith Road (Receptors 35-38). The barrier was evaluated on the existing FDOT ROW.

The results of the barrier analysis are provided in **Table 3-8**. As shown, at barrier heights between 14 and 22 feet, all four of the impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved. However, because the cost of the barrier at all barrier heights would be above the FDOT's cost reasonable limit, Barrier 7 is not considered a reasonable noise abatement measure.

Table 3-8 Barrier 7: Results for Impacted Residences East of Dorsey Smith Road, North of SR 50

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 -5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Receptors = 4										
8	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
10	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
12	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
14	800	3	0	1	4	0	4	$336,000	$84,000	No
16	733	3	0	1	4	0	4	$351,840	$87,960	No
18	733	3	0	1	4	0	4	$395,820	$98,955	No
20	693	3	0	1	4	0	4	$415,800	$103,950	No
22	693	3	0	1	4	0	4	$457,380	$114,345	No

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

Barrier 8 – Lang's Memorial Cemetery (Receptor 43)

A noise barrier was evaluated for the impacted area of the Lang's Memorial Cemetery. The area of the cemetery closest to SR 50 is predicted to be impacted by traffic noise. The FDOT's special land use procedures were used to determine if a noise barrier could be considered a potential abatement measure for the impacted area.

For the purpose of this special land use evaluation, the optimal length and height for a noise barrier was determined using TNM. At an optimal length of 529 feet and an optimal height of 18 feet, a barrier would reduce predicted traffic noise levels within the impacted area a minimum of seven dB(A). Because it is not known how frequently the impacted and benefited area of the cemetery would be used and by how many people, the minimum number of person-hours of use on an average day in order for a barrier to be considered cost effective was calculated.

The cost effectiveness calculations were based on the formulas from the special land use procedures. Based on the optimal barrier length and height, to be considered cost effective, the minimum required daily use of the impacted area that would be benefited by a barrier is 569 persons (i.e., 569 people remaining in the impacted and benefited area one hour every day). Because it is not reasonable to assume that this level of activity would occur within the impacted/benefited area, a barrier is not considered a reasonable noise abatement measure for the impacted area of Lang's Memorial Cemetery.

Barrier 9 – Rolling Acres Subdivision (Receptors 45, 45a, 48, 52-53, and 56-57)

A noise barrier was evaluated for the seven impacted residences in the Rolling Acres Subdivision (Receptors 45, 45a, 48, 52-53, and 56-57). The barrier was evaluated five feet inside the existing ROW and in three segments to accommodate access to/from the properties.

The results of the barrier analysis are provided in **Table 3-9**. As shown, at barrier heights between 14 and 22 feet, two of the impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more and the noise reduction design goal of 7 dB(A) would be achieved. However, because the cost of the barrier at all barrier heights would be above the FDOT's cost reasonable limit, Barrier 9 is not considered a reasonable noise abatement measure.

Table 3-9 Barrier 9: Results for Impacted Residences in the Rolling Acres Subdivision, South of SR 50

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 -5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Receptors = 7										
8	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
10	1,073	1	0	2	3	0	3	$321,900	$107,300	No
12	1,280	1	1	2	4	1	5	$460,800	$92,160	No
14	1,112	2	1	2	5	1	6	$467,040	$77,840	No
16	1,032	2	2	1	5	1	6	$495,360	$82,560	No
18	1,012	2	2	1	5	1	6	$546,480	$91,080	No
20	972	2	2	1	5	1	6	$583,200	$97,200	No
22	952	2	1	2	5	1	6	$628,320	$104,750	No

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

Barrier 10 – Hill 'n Dale Subdivision (Receptors 59-100, 112-115, 130-131, and 133-134)

A noise barrier was evaluated for the 50 impacted residences in the Hill 'n Dale Subdivision (Receptors 59-100, 112-115, 130-131, and 133-134). The barrier was evaluated on the proposed FDOT ROW and in six segments.

The results of the barrier analysis are provided in **Table 3-10**. As shown, at barrier heights between 12 and 22 feet, at least 44 impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit. Because Barrier 10 is predicted to provide the minimum noise reduction requirements at a cost below the cost-effective limit, the barrier was evaluated further. The results of the evaluation are provided in **Table 3-11**.

Table 3-10 Barrier 10: Results for Impacted Residences in the Hill 'n Dale Subdivision

Barrier Height (feet)	Barrier Length (feet)	Noise Reduction at Impacted Receptors (dB(A))[1]			Number of Benefited Receptors[2]			Total Estimated Cost[3]	Cost per Benefited Receptor[4]	Cost Reasonable Yes/No
		5 -5.9	6 – 6.9	≥7	Impacted	Not Impacted	Total			
Number of Impacted Receptors = 50										
8	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]
10	4,448	14	6	6	26	0	26	$1,334,400	$51,323	No
12	3,997	8	14	22	44	3	47	$1,438,920	$30,615	Yes
14	4,586	3	2	40	45	22	67	$1,926,120	$28,748	Yes
16	4,579	4	1	41	46	23	69	$2,197,920	$31,854	Yes
18	4,459	6	2	39	47	26	73	$2,393,280	$32,785	Yes
20	4,399	7	1	39	47	27	74	$2,647,200	$35,773	Yes
22	4,379	6	2	39	47	28	75	$2,911,920	$38,826	Yes

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

Table 3-11 Barrier 10: Additional Barrier Considerations

Type of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	Safety concerns associated with a noise barrier at this location will be addressed during the project's design phase.
	Accessibility	The barrier would be located within the FDOT's ROW for SR 50 and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/ maintenance would be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be design so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase. Notably, there are existing poles within the FDOT ROW that may cause a conflict with a noise barrier.
Reasonable-ness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Barrier 11 – Receptors in the Potterfield Sunnyside Acres Subdivision, North of SR 50 (Receptors 169-173)

A noise barrier was evaluated for the five impacted residences in the Potterfield Sunnyside Acres Subdivision, north of SR 50 (Receptors 169-173). The barrier was evaluated on the existing ROW and in six segments to accommodate access to/from the properties.

Due to constraints on the length of the barrier segments due to access requirements, the noise reduction design goal of 7 dB(A) could not be achieved at any of the evaluated barrier heights. Therefore, the barrier is not considered a reasonable noise abatement measure.

SECTION 4 CONCLUSIONS

As previously stated, future traffic noise levels with the proposed improvements are predicted to approach, meet, or exceed the NAC at 92 noise sensitive receptors. These sites are predicted to experience future traffic noise levels with the proposed improvements to SR 50 that would range from 66.0 to 74.3 dB(A).

The results of the evaluation indicate that construction of a noise barrier is a potentially reasonable and feasible noise abatement method to reduce the predicted traffic noise levels for up to 47 of the 92 impacted receptors. The benefitted residences are located in the Hill 'n Dale Subdivision (Receptors 59-100, 112-115, 130-131, and 133-134). The estimated total cost to construct the noise barrier ranges from $1,438,920 to $2,911,920 depending on barrier length and height.

4.1 STATEMENT OF LIKELIHOOD

The FDOT is committed to the construction of a noise barrier at the location above, contingent upon the following:

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

SECTION 5 NOISE CONTOURS

Land uses such as residences and recreational areas are considered incompatible with highway noise levels that approach or exceed the NAC. To reduce the possibility of additional traffic noise-related impacts, noise level contours were developed for the future improved roadway facility. These noise contours delineate the extent of the predicted traffic noise impact area from the improved roadway's edge-of-travel lane for each of the land use Activity Categories (**Table 2-1**). **Table 5-1** provides the distance from the edge-of-travel lane at which traffic noise levels are predicted to be 56 dB(A)—the NAC for land uses classified as Activity Category A, to 66 dB(A)—the NAC for land uses classified as Activity Category B and C, and to 71 dB(A)—the NAC for land uses classified as Activity Category E.

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

Table 5-1 Noise Contour Limits

SR 50 Roadway Segment	Distance from Improved Roadway's Edge-of-Travel Lane (ft)*		
	Activity Category A 56 dB(A)	Activity Category B/C 66 dB(A)	Activity Category E 71 dB(A)
Cortez Blvd/Jasmine Dr to Griffin Rd/Redbud Ln	695	230	120
Griffin Rd/Redbud Ln to Spring Lake Hwy/Mondon Hill Rd	675	220	110
Spring Lake Hwy/Mondon Hill Rd to Lockhart Rd	635	190	85

* See Table 2-1 for a description of the activities that occur within each category. Distances do not reflect any reduction in noise levels that would occur from existing structures (shielding) and should be used for planning purposes only.

SECTION 6 CONSTRUCTION NOISE AND VIBRATION

Some land uses adjacent SR 50 are identified on the FDOT listing of noise- and vibration-sensitive sites (e.g., residential use). Construction of the proposed roadway improvements is not expected to have a significant noise or vibration effect. Additionally, the application of the ***FDOT Standard Specifications for Road and Bridge Construction*** may minimize or eliminate potential issues. Should unanticipated noise or vibration issues arise during the construction process, the Project Engineer, in coordination with the District Noise Specialist and the Contractor, will investigate additional methods of controlling these impacts.

SECTION 7 COMMUNITY COORDINATION

A public hearing for the PD&E was held on December 10, 2019. This public hearing was conducted to give interested persons an opportunity to express their views concerning the conceptual design, and social, economic, and environmental effects of the proposed improvements. Three public comments were received at or following the hearing specific to noise. These comments will be addressed further during the design phase once a detailed noise analysis for this project has been completed. Additional public coordination specific to potential noise barriers may be conducted during this time.

SECTION 8 REFERENCES

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

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

Federal Highway Administration. December 2011. Highway Traffic Noise: Analysis and Abatement Guidance.

Federal Highway Administration. June 2018. Noise Measurement Handbook. FHWA-HEP-18-065.

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

Florida Department of Transportation. July 1, 2017. Plans Preparation Manual, Volume 1, Chapter 32 – Noise Walls and Perimeter Walls.

Florida Department of Transportation. 2019. Standard Specifications for Road and Bridge Construction.

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

Appendix A
Traffic Data

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project:	SR 50 PD&E Study	Date:	10/23/2019
State Project Number(s):		Prepared By:	American (AG)
Financial Project ID:	430051-1		
Federal Aid Number(s):			
Segment Description:	From Cortez Blvd/Jamine Dr to Griffin Rd/Redbud Ln		

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

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

Existing Facility			No-Build (Design Year)			Build (Design Year)		
Lanes:	4		Lanes:	4		Lanes:	6	
Year:	2014		Year:	2040		Year:	2040	
ADT: LOS (C)	51,800		ADT: LOS (C)	51,800		ADT: LOS (C)	77,700	
Demand	22,700		Demand	51,450		Demand	51,450	
Speed:	45	mph	Speed:	45	mph	Speed:	60	mph
	72	kmh		72	kmh		97	kmh
K=	9.0	%	K=	9.0	%	K=	9.0	%
D=	52.4	%	D=	52.4	%	D=	52.4	%
T=	20.2	% for 24 hrs.	T=	20.2	% for 24 hrs.	T=	20.2	% for 24 hrs.
T=	10.0	% Design hr	T=	10.0	% Design hr	T=	10.0	% Design hr
4.7	% Medium Trucks DHV		4.7	% Medium Trucks DHV		4.7	% Medium Trucks DHV	
5.3	% Heavy Trucks DHV		5.3	% Heavy Trucks DHV		5.3	% Heavy Trucks DHV	
0.8	% Buses DHV		0.8	% Buses DHV		0.8	% Buses DHV	
0.2	% Motorcycles DHV		0.2	% Motorcycles DHV		0.2	% Motorcycles DHV	

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

Existing Facility Model:		Demand	No-Build (Design Year) Model:		Demand	Build (Design Year) Model:		Demand
LOS (C)			LOS (C)			LOS (C)		
Southbound:	Autos	2173	Southbound:	Autos	2173	Southbound:	Autos	3260
	Med Trucks	115		Med Trucks	115		Med Trucks	172
	Hvy Trucks	129		Hvy Trucks	129		Hvy Trucks	194
	Buses	20		Buses	20		Buses	29
	Motorcycles	4		Motorcycles	4		Motorcycles	6
Northbound:	Autos	1978	Northbound:	Autos	1978	Northbound:	Autos	2967
	Med Trucks	104		Med Trucks	104		Med Trucks	157
	Hvy Trucks	118		Hvy Trucks	118		Hvy Trucks	177
	Buses	18		Buses	18		Buses	27
	Motorcycles	3		Motorcycles	3		Motorcycles	5
Demand			Demand			Demand		
Southbound:	Autos	952	Southbound:	Autos	2159	Southbound:	Autos	2159
	Med Trucks	50		Med Trucks	114		Med Trucks	114
	Hvy Trucks	57		Hvy Trucks	128		Hvy Trucks	128
	Buses	9		Buses	19		Buses	19
	Motorcycles	2		Motorcycles	4		Motorcycles	4
Northbound:	Autos	867	Northbound:	Autos	1965	Northbound:	Autos	1965
	Med Trucks	46		Med Trucks	104		Med Trucks	104
	Hvy Trucks	52		Hvy Trucks	117		Hvy Trucks	117
	Buses	8		Buses	18		Buses	18
	Motorcycles	2		Motorcycles	3		Motorcycles	3

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project:	SR 50 PD&E Study	Date:	10/23/2019
State Project Number(s):		Prepared By:	American (AG)
Financial Project ID:	430051-1		
Federal Aid Number(s):			
Segment Description:	From Griffin Rd/Redbud Ln to East of Spring Lake Hwy/Mondon Hill Rd		

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

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

Existing Facility			No-Build (Design Year)			Build (Design Year)		
Lanes:	4		Lanes:	4		Lanes:	6	
Year:	2014		Year:	2040		Year:	2040	
ADT: LOS (C)	49,600		ADT: LOS (C)	49,600		ADT: LOS (C)	77,700	
Demand	22,350		Demand	47,400		Demand	47,400	
Speed:	60	mph	Speed:	60	mph	Speed:	60	mph
	97	kmh		97	kmh		97	kmh
K=	9.0	%	K=	9.0	%	K=	9.0	%
D=	52.4	%	D=	52.4	%	D=	52.4	%
T=	20.2	% for 24 hrs.	T=	20.2	% for 24 hrs.	T=	20.2	% for 24 hrs.
T=	10.0	% Design hr	T=	10.0	% Design hr	T=	10.0	% Design hr
4.7	% Medium Trucks DHV		4.7	% Medium Trucks DHV		4.7	% Medium Trucks DHV	
5.3	% Heavy Trucks DHV		5.3	% Heavy Trucks DHV		5.3	% Heavy Trucks DHV	
0.8	% Buses DHV		0.8	% Buses DHV		0.8	% Buses DHV	
0.2	% Motorcycles DHV		0.2	% Motorcycles DHV		0.2	% Motorcycles DHV	

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

Existing Facility Model:		Demand	No-Build (Design Year) Model:		Demand	Build (Design Year) Model:		Demand
LOS (C)			LOS (C)			LOS (C)		
Southbound:	Autos	2081	Southbound:	Autos	2081	Southbound:	Autos	3260
	Med Trucks	110		Med Trucks	110		Med Trucks	172
	Hvy Trucks	124		Hvy Trucks	124		Hvy Trucks	194
	Buses	19		Buses	19		Buses	29
	Motorcycles	4		Motorcycles	4		Motorcycles	6
Northbound:	Autos	1894	Northbound:	Autos	1894	Northbound:	Autos	2967
	Med Trucks	100		Med Trucks	100		Med Trucks	157
	Hvy Trucks	113		Hvy Trucks	113		Hvy Trucks	177
	Buses	17		Buses	17		Buses	27
	Motorcycles	3		Motorcycles	3		Motorcycles	5
Demand			Demand			Demand		
Southbound:	Autos	938	Southbound:	Autos	1989	Southbound:	Autos	1989
	Med Trucks	49		Med Trucks	105		Med Trucks	105
	Hvy Trucks	56		Hvy Trucks	118		Hvy Trucks	118
	Buses	8		Buses	18		Buses	18
	Motorcycles	2		Motorcycles	3		Motorcycles	3
Northbound:	Autos	853	Northbound:	Autos	1810	Northbound:	Autos	1810
	Med Trucks	45		Med Trucks	96		Med Trucks	96
	Hvy Trucks	51		Hvy Trucks	108		Hvy Trucks	108
	Buses	8		Buses	16		Buses	16
	Motorcycles	1		Motorcycles	3		Motorcycles	3

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project:	SR 50 PD&E Study	Date:	10/23/2019
State Project Number(s):		Prepared By:	American (AG)
Financial Project ID:	430051-1		
Federal Aid Number(s):			
Segment Description:	From East of Spring Lake Hwy/Mondon Hill Rd to Lockhart Rd		

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

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

Existing Facility			No-Build (Design Year)			Build (Design Year)		
Lanes:	4		Lanes:	4		Lanes:	6	
Year:	2014		Year:	2040		Year:	2040	
ADT: LOS (C)	49,600		ADT: LOS (C)	49,600		ADT: LOS (C)	77,700	
Demand	18,150		Demand	59,100		Demand	59,100	
Speed:	60	mph	Speed:	60	mph	Speed:	50	mph
	97	kmh		97	kmh		80	kmh
K=	9.0	%	K=	9.0	%	K=	9.0	%
D=	52.4	%	D=	52.4	%	D=	52.4	%
T=	15.9	% for 24 hrs.	T=	15.9	% for 24 hrs.	T=	15.9	% for 24 hrs.
T=	8.0	% Design hr	T=	8.0	% Design hr	T=	8.0	% Design hr
3.1	% Medium Trucks DHV		3.1	% Medium Trucks DHV		3.1	% Medium Trucks DHV	
4.9	% Heavy Trucks DHV		4.9	% Heavy Trucks DHV		4.9	% Heavy Trucks DHV	
0.5	% Buses DHV		0.5	% Buses DHV		0.5	% Buses DHV	
0.2	% Motorcycles DHV		0.2	% Motorcycles DHV		0.2	% Motorcycles DHV	

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

Existing Facility Model:		Demand	No-Build (Design Year) Model:		LOS (C)	Build (Design Year) Model:		Demand
LOS (C)			LOS (C)			LOS (C)		
Southbound:	Autos	2134	Southbound:	Autos	2134	Southbound:	Autos	3343
	Med Trucks	72		Med Trucks	72		Med Trucks	113
	Hvy Trucks	115		Hvy Trucks	115		Hvy Trucks	179
	Buses	12		Buses	12		Buses	18
	Motorcycles	4		Motorcycles	4		Motorcycles	7
Northbound:	Autos	1942	Northbound:	Autos	1942	Northbound:	Autos	3043
	Med Trucks	66		Med Trucks	66		Med Trucks	103
	Hvy Trucks	104		Hvy Trucks	104		Hvy Trucks	163
	Buses	11		Buses	11		Buses	17
	Motorcycles	4		Motorcycles	4		Motorcycles	6
Demand			Demand			Demand		
Southbound:	Autos	781	Southbound:	Autos	2543	Southbound:	Autos	2543
	Med Trucks	27		Med Trucks	86		Med Trucks	86
	Hvy Trucks	42		Hvy Trucks	136		Hvy Trucks	136
	Buses	4		Buses	14		Buses	14
	Motorcycles	2		Motorcycles	5		Motorcycles	5
Northbound:	Autos	711	Northbound:	Autos	2314	Northbound:	Autos	2314
	Med Trucks	24		Med Trucks	79		Med Trucks	79
	Hvy Trucks	38		Hvy Trucks	124		Hvy Trucks	124
	Buses	4		Buses	13		Buses	13
	Motorcycles	1		Motorcycles	5		Motorcycles	5

Appendix B
Noise Sensitive Receptors

NOTE:
FPID No. 432697-1 INTERSECTION IMPROVEMENT PROJECT COMPLETED IN SEPTEMBER 2018. AERIAL DOES NOT REFLECT EXISTING CONDITIONS.

EXISTING CONCRETE TO REMAIN

EXISTING CONDITIONS (2019)

0 20 100
Feet

BEGIN PROJECT
WPI No. 430051-1

Champion Dr

Olmes Rd

Live Oak Dr

E. Jefferson St

50A 700 98

SPEED LIMIT 45 EXISTING

EXIST 5' SIDEWALK

BUDGET INN

555

550

568

75'

125'

MATCH LINE STA. 561+00.00

Sardis St

MYKONOS II RESTAURANT

5' SIDEWALK

EXIST 5' SIDEWALK

1 2 3 4 5 6 7 7a 9 10 11 11a

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
- PROPOSED TRAFFIC SEPARATOR
- POTENTIAL IMPROVEMENT BY OTHERS

American Consulting Professionals, LLC
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Jeffrey S. Novotny, P.E. No. 51083

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 1

USER: Sdevarm 6/17/2020 8:46:27 AM F:\PROJECT\5147050\4300511201\roadway\PLANRD01.DGN

NOTE:
FPID No. 432697-1 INTERSECTION IMPROVEMENT PROJECT COMPLETED IN SEPTEMBER 2018. AERIAL DOES NOT REFLECT EXISTING CONDITIONS.

EXISTING CONCRETE TO REMAIN

EXISTING CONDITIONS (2019)

0 20 100
Feet

Jasmine Dr

8b

8a

8 ST 6' SIDEWALK

50A 700 98
E. Jefferson St

50 700 98
Cortez Blvd

EXIST 5' SIDEWALK

EVERGLADES EQUIPMENT GROUP

MATCH LINE STA. 561+00.00

MATCH LINE STA. 575+00.00

565

570

75'

125'

5' SIDEWALK

SPEEDWAY GAS STATION

50
Cortez Blvd

FPID No. 430051-1
IMPROVEMENTS
CONNECT TO
FPID No. 416735-1

FDOT PARCEL

FDOT PARCEL

FDOT PARCEL

6' SIDEWALK OR
10' WIDENED SIDEWALK.
SEE PER FOR DETAILS.

8 SPEED LIMIT 45 EXISTING

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

WETLANDS OR OTHER SURFACE WATERS BOUNDARY
FLOODPLAINS AREA
PREFERRED SMF AND FPC AREA
POTENTIALLY CONTAMINATED SITE

PROPERTY LINE
EASEMENT LINE
EXISTING ROW
PROPOSED ROW TO BE ACQUIRED

EXISTING SIDEWALK
PROPOSED MSE WALL
POTENTIAL NOISE BARRIER
PROPOSED SIDEWALK

IMPROVEMENTS BY FDOT
PROPOSED MEDIAN (SOD)
PROPOSED TRAFFIC SEPARATOR
POTENTIAL IMPROVEMENT BY OTHERS

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FPI SEGMENT No.: 430651-1

SHEET NO. 2

USER: Sdevarm 6/17/2020 8:47:33 AM F:\PROJECT\5147050\4300511201\roadway\PLANR002.DGN

NOTE:
FPID No. 432697-1 INTERSECTION IMPROVEMENT PROJECT COMPLETED IN SEPTEMBER 2016. AERIAL DOES NOT REFLECT EXISTING CONDITIONS.

EXISTING CONDITIONS (2019)

0 20 100
Feet

ANIMAL MEDICAL CENTER OF BROOKSVILLE

EVERGLADES EQUIPMENT GROUP

12 TEAL PLANK WORKSHOP

COUNTRY VILLAGE COMPLEX

50 700 98
Cortez Blvd

EXIST 6' SIDEWALK

SPEED LIMIT 45 EXISTING

MATCH LINE STA. 575+00.00

MATCH LINE STA. 587+00.00

75'

125'

585

580

SPEED LIMIT 60 EXISTING

5' SIDEWALK OR
10' WIDENED SIDEWALK.
SEE PER FOR DETAILS.

COMPLETE BOAT REPAIR (ABANDONED)

SMF-1C EXTENDS APPROX. 400' FROM AERIAL BOUNDARY. FPC-1C IS LOCATED APPROX. 680' FROM EXIST. R/W. SEE SHEET 31.

SMF-1C

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
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SHEET NO. 3

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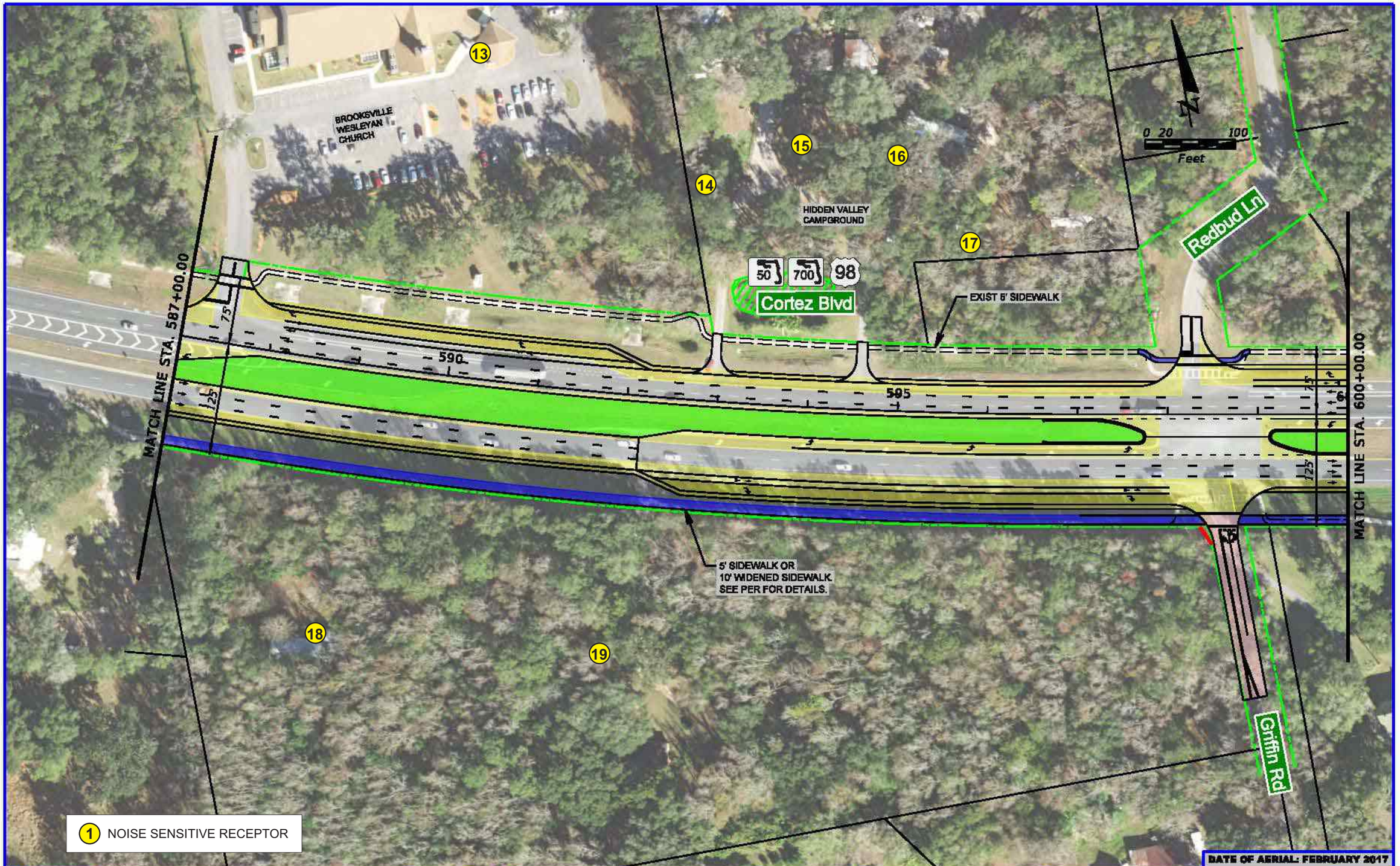

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
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From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 4

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
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WPI SEGMENT No.: 430451-1

SHEET NO. 5

USER: Sdevarm 8/17/2020 8:50:47 AM F:\PROJECT\5147050\4300312201\roadway\PLANROS.DGN

W. CLYDE DANIEL CONSTRUCTION

EXIST 5' SIDEWALK

50 700 98

Cortez Blvd

5' SIDEWALK

0 20 100

Feet

MATCH LINE STA. 614+00.00

MATCH LINE STA. 628+00.00

75'

615

620

625

125'

5' SIDEWALK OR
10' WIDENED SIDEWALK.
SEE PER FOR DETAILS.

Singer Ln
Private Road

22

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
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- PROPOSED TRAFFIC SEPARATOR
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SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 6

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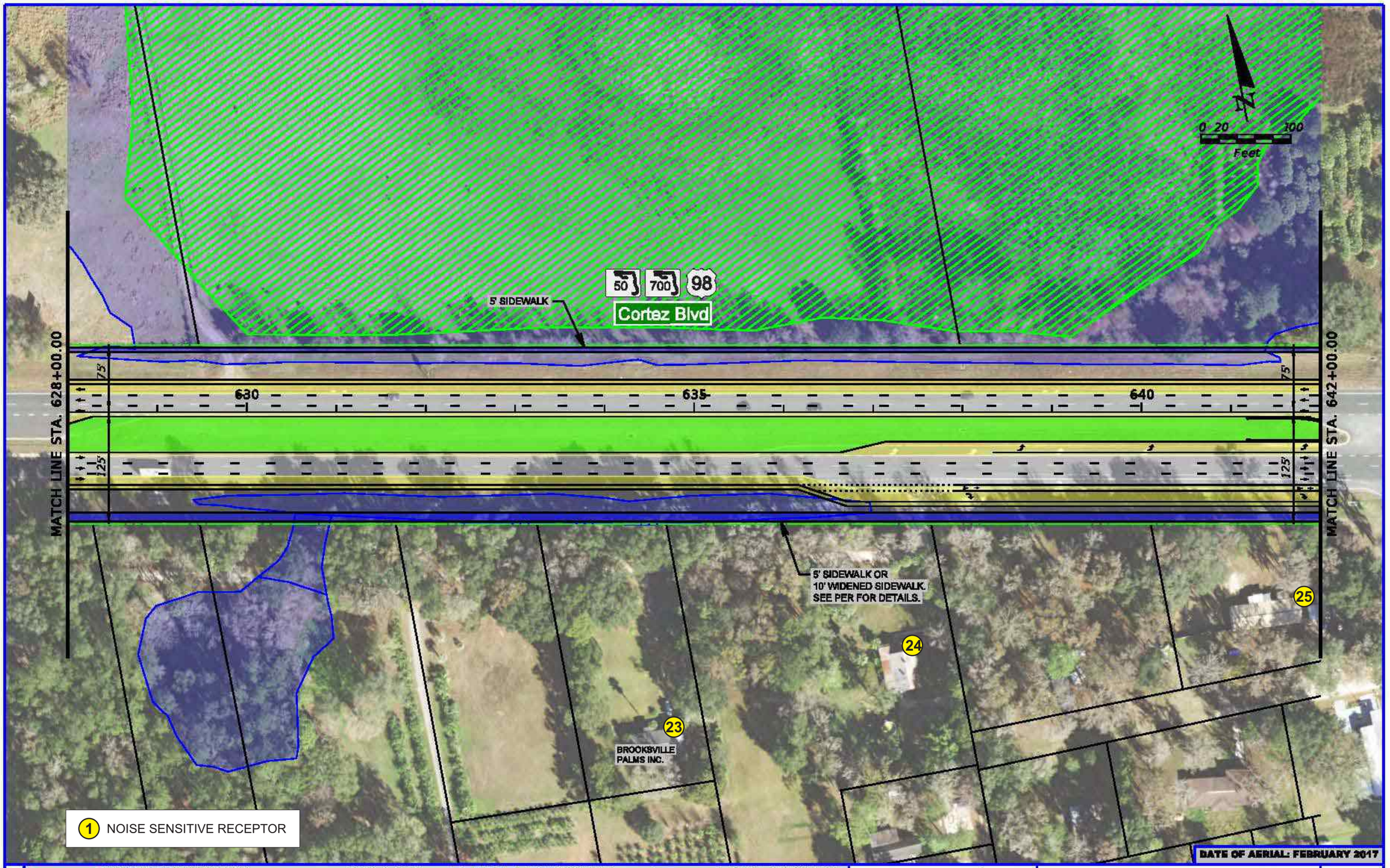

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
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SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 7

MAINTENANCE ACCESS TO SMF-2A & FPC-2A WHICH ARE LOCATED APPROX. 1100' FROM EXIST R/W. SEE SHEET 32.

0 20 100 Feet

50 700 98

Cortez Blvd

Irwin St Private Road

5' SIDEWALK

CORTEZ PROFESSIONAL CENTER

5' SIDEWALK

MATCH LINE STA. 642+00.00

645

650

MATCH LINE STA. 655+00.00

75'

125'

5' SIDEWALK OR 10' WIDENED SIDEWALK. SEE PER FOR DETAILS.

27

26

28

Landsdale St

TWIN CEDARS NURSERY

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
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SHEET NO. 8

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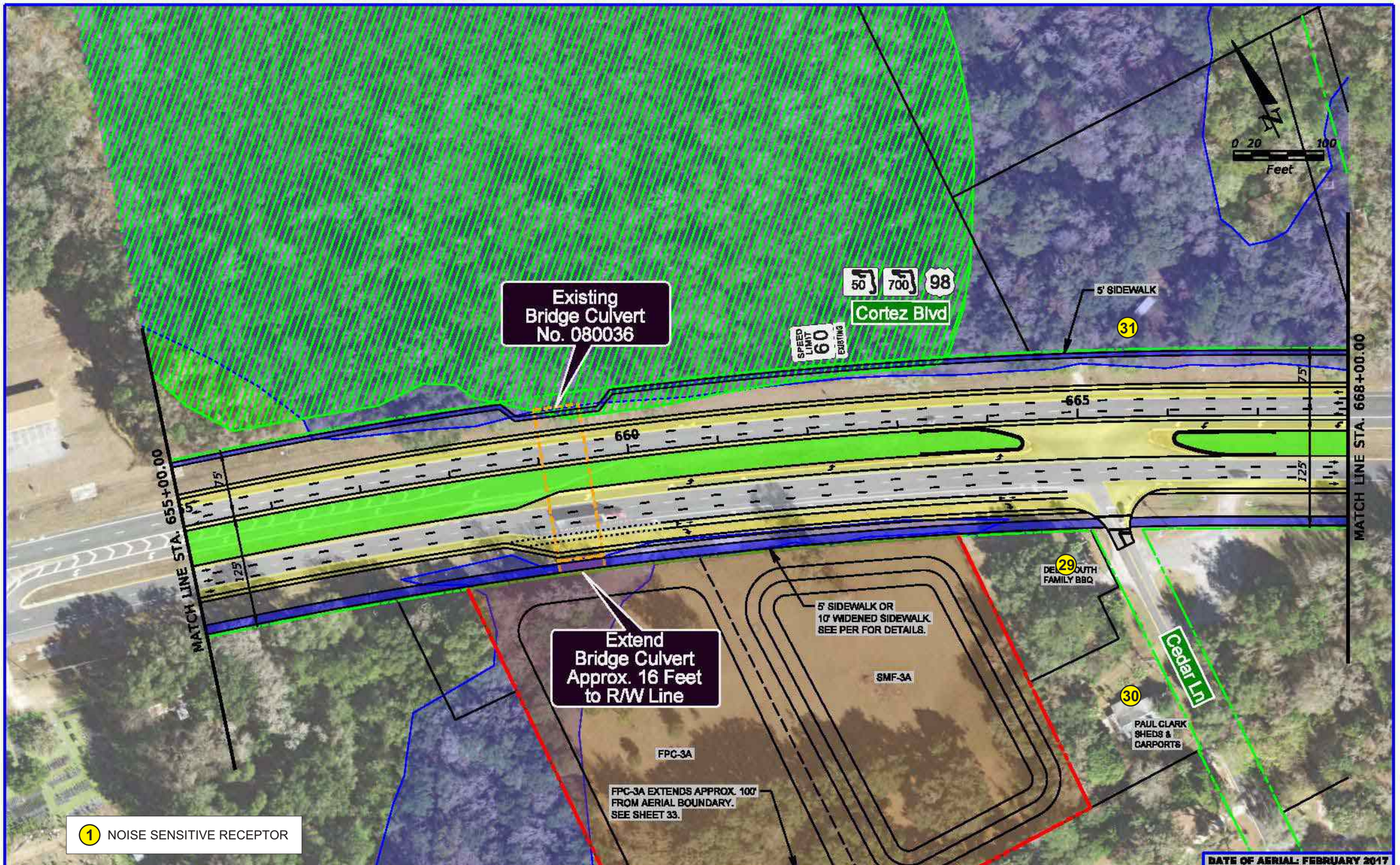

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
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From Brooksville Bypass to West of I-75
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WPI SEGMENT No.: 430651-1

SHEET NO. 9

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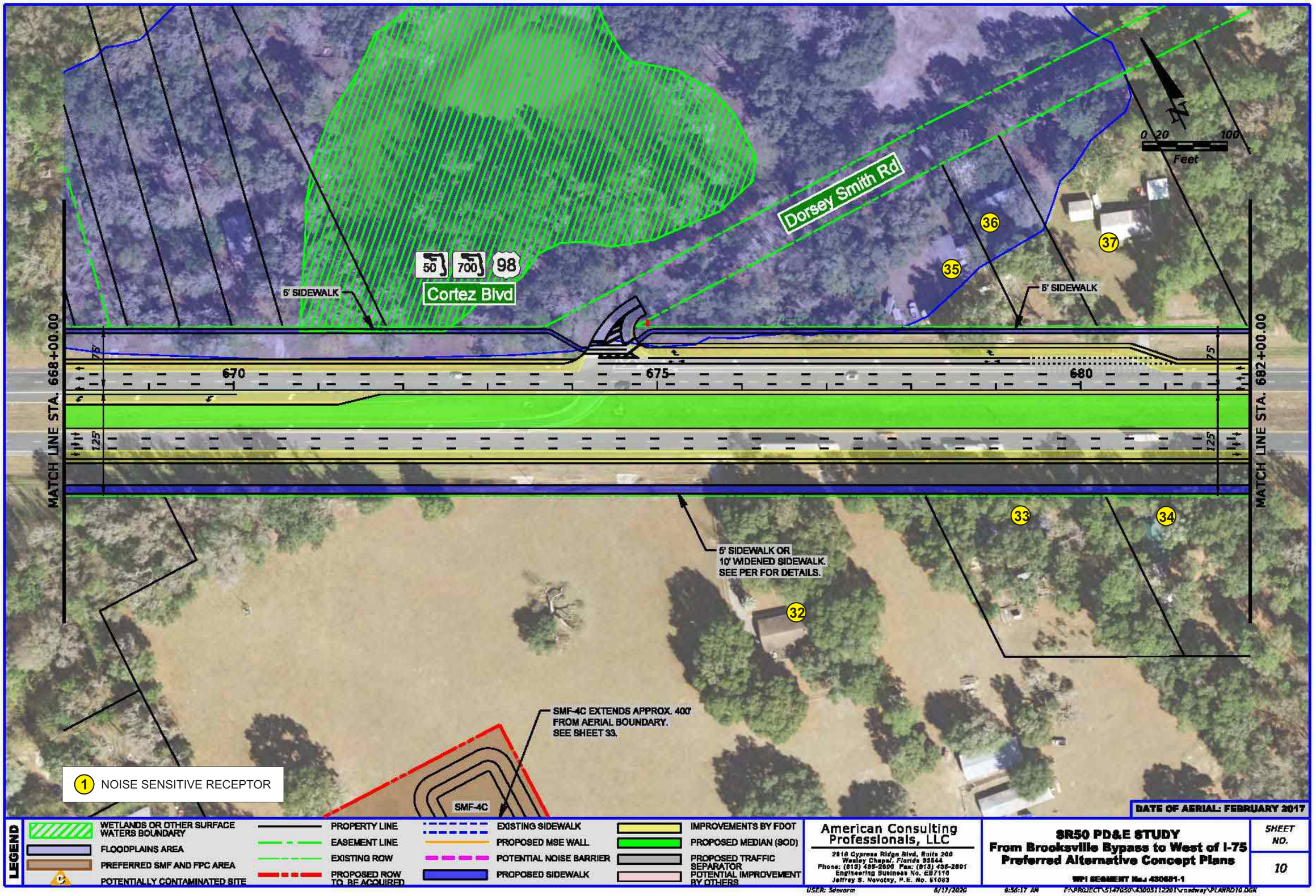

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From Brooksville Bypass to West of I-75
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WPI SEGMENT No.: 430681-1

SHEET NO. 10

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SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 11

USER: Sdevarm 8/17/2020 8:57:15 AM F:\PROJECT\5147050\4300312201\roadway\PLANRD11.DGN

Clayton Rd

0 20 100
Feet

A READY ROOFING

50 700 98
Cortez Blvd

5' SIDEWALK

MATCH LINE STA. 696+00.00

MATCH LINE STA. 710+00.00

700

705

75'

125'

Lang St

Hilton Dr

41

40

FPC-5B EXTENDS APPROX. 400' FROM AERIAL BOUNDARY. SMF-5B LOCATED APPROX. 900' FROM EXIST R/W. SEE SHEET 34.

6' SIDEWALK OR 10' WIDENED SIDEWALK. SEE PER FOR DETAILS.

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
- PROPOSED TRAFFIC SEPARATOR
- POTENTIAL IMPROVEMENT BY OTHERS

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Jeffrey S. Novotny, P.E. No. 51063

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 12

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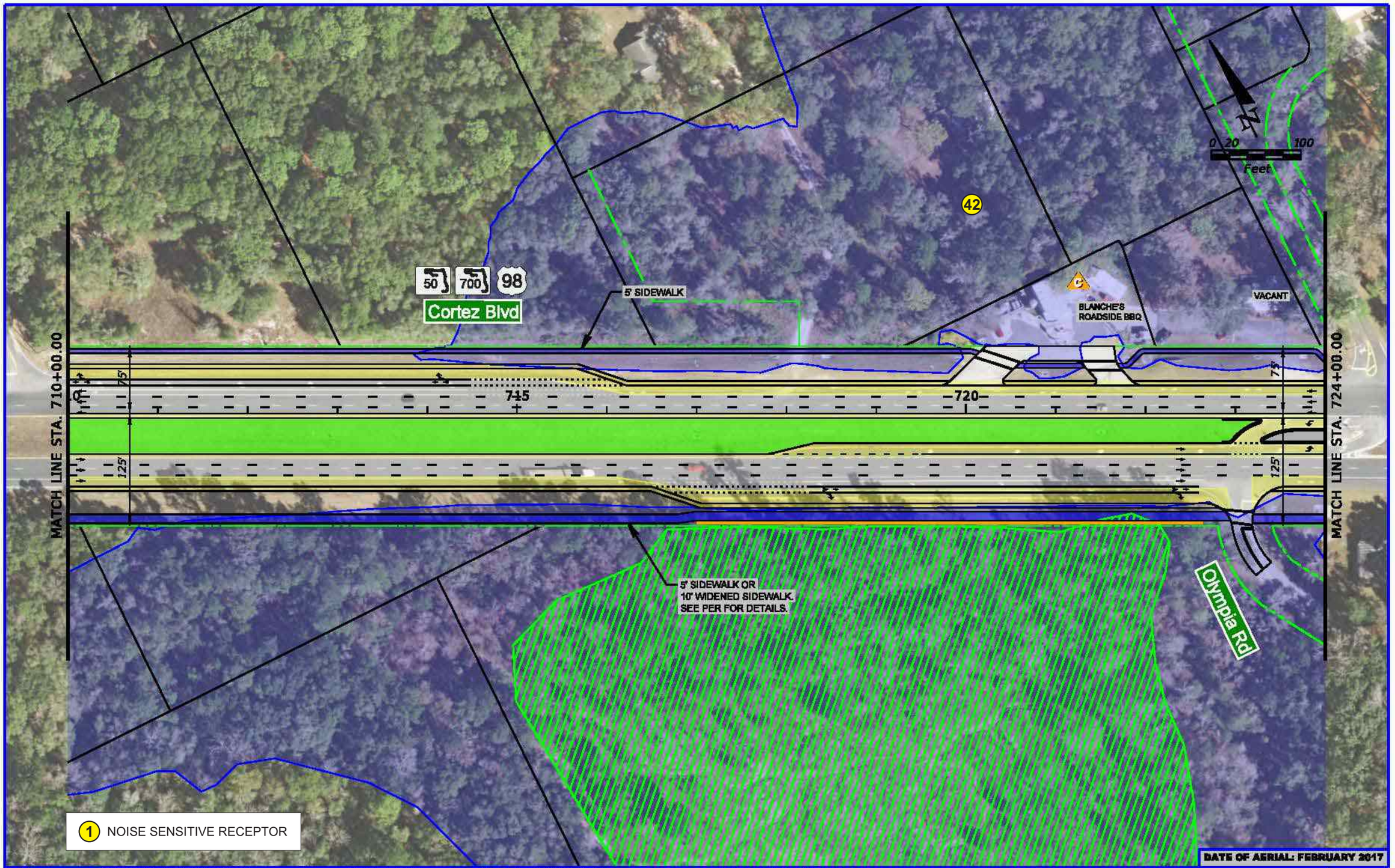

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
- PROPOSED TRAFFIC SEPARATOR
- POTENTIAL IMPROVEMENT BY OTHERS

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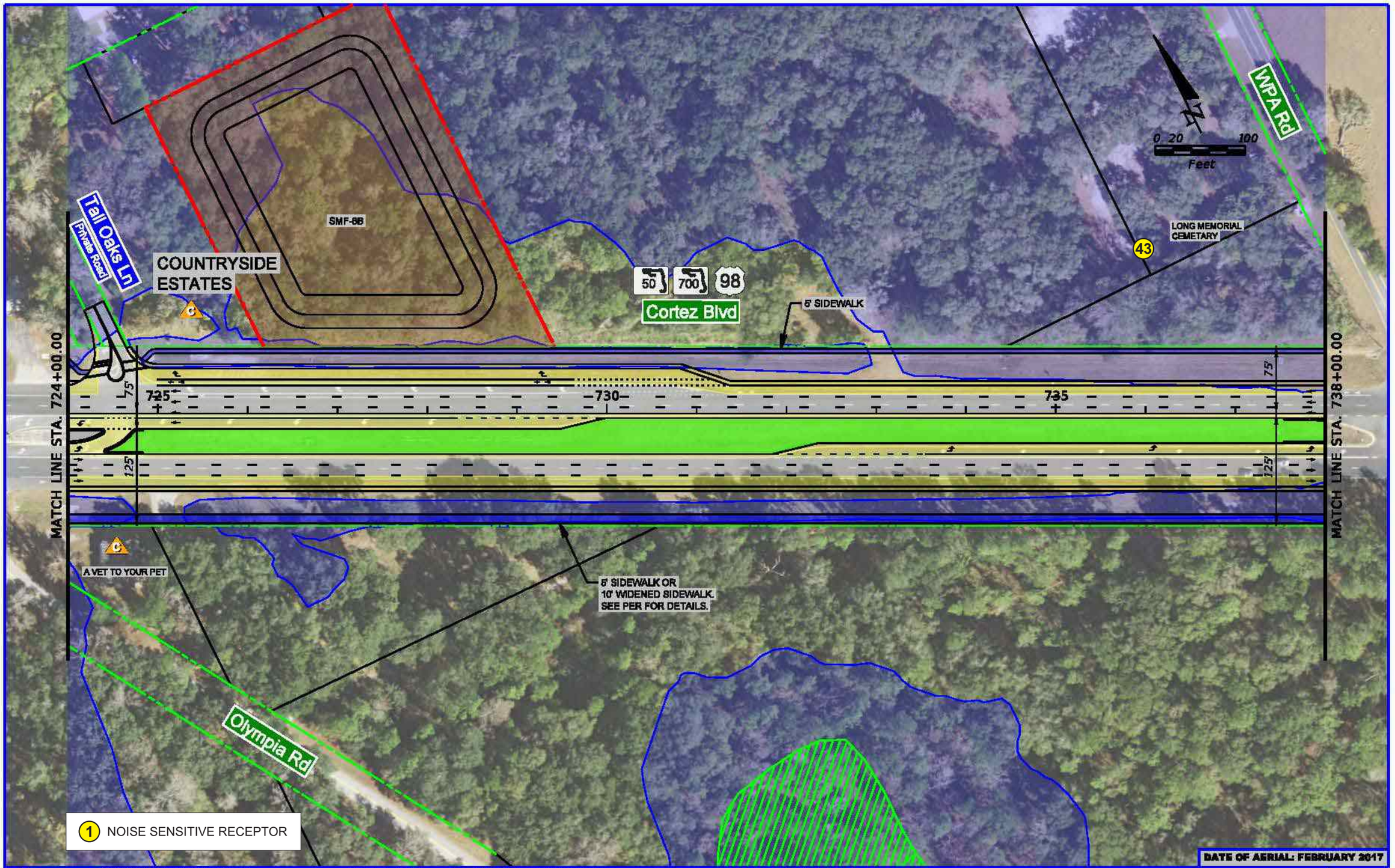
Engineering Business No. EB7116
Jeffrey S. Novotny, P.E. No. 61063

USER: Sdevorm 8/17/2020 8:55:17 AM F:\PROJECT\5147050\43005112201\roadway\PLANRD13.DGN

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 13



LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
- PROPOSED TRAFFIC SEPARATOR
- POTENTIAL IMPROVEMENT BY OTHERS

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Jeffrey S. Novotny, P.E. No. 51063

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 14

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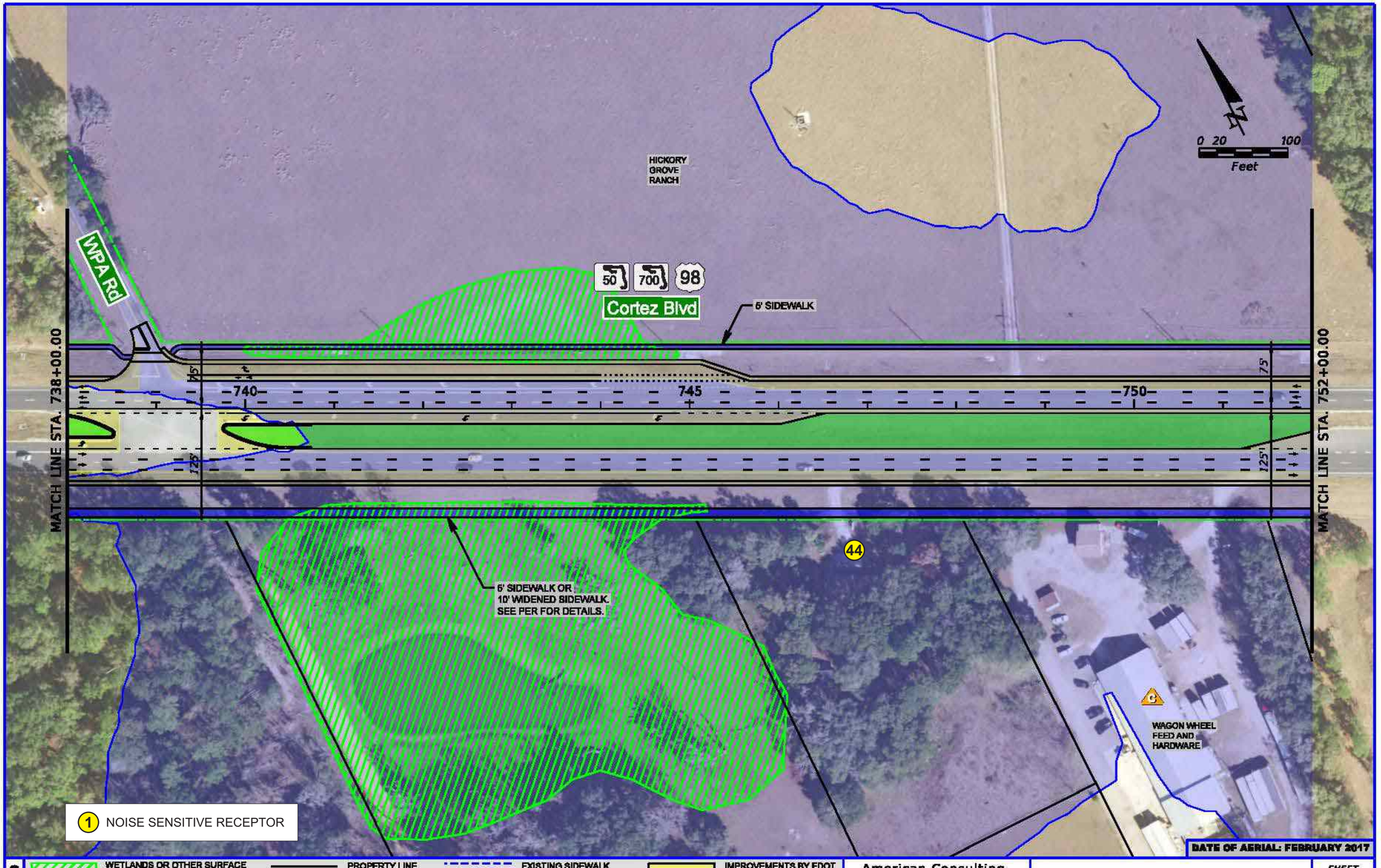

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From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 15

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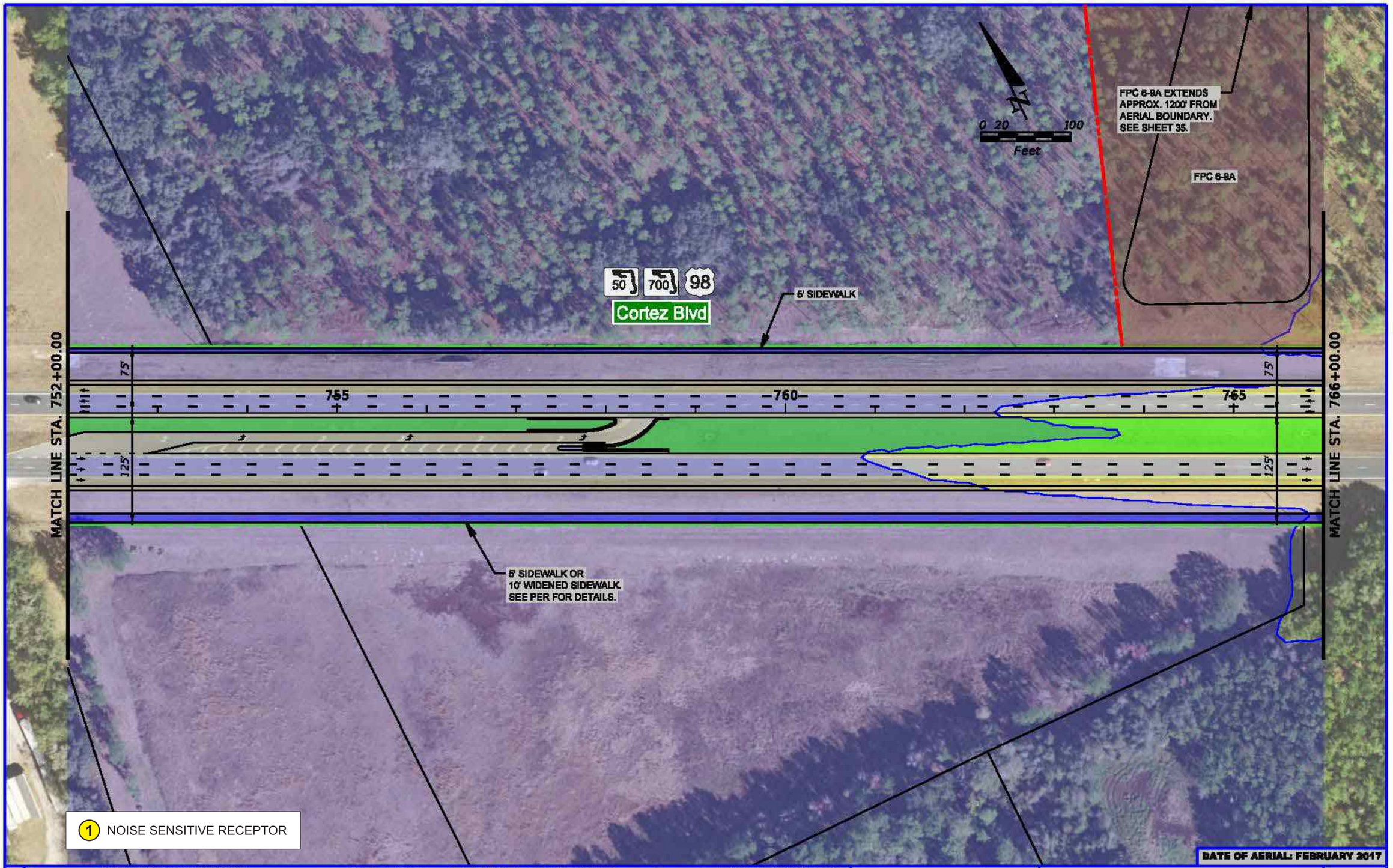

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
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USER: Sdevarm 8/17/2020 10:02:17 AM P:\PROJECT\5147050\4300511201\roadway\PLANRD16.DGN

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 16

SMF 7-8C

SMF 7-8C EXTENDS APPROX. 400' FROM AERIAL BOUNDARY. SEE SHEET 35.

MATCH LINE STA. 766+00.00

6' SIDEWALK

5' SIDEWALK OR 10' WIDENED SIDEWALK. SEE PER FOR DETAILS.

MATCH LINE STA. 776+00.00

N

0 20 100

Feet

50 700 98

Cortez Blvd

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
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SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 17

N

0 20 100
Feet

SMF-9A LOCATED APPROX. 800' FROM EXIST R/W. SEE SHEET 38.

SMF-10A EXTENDS APPROX. 200' FROM AERIAL BOUNDARY. SEE SHEET 38.

SMF-10A

STATE 484 COUNTY

Mondon Hill Rd

50 700 98

Cortez Blvd

SPEED LIMIT 60 EXISTING

5' SIDEWALK

MATCH LINE STA. 776+00.00

MATCH LINE STA. 790+00.00

75'

125'

98'

132'

780

785

SPEED LIMIT 55 EXISTING

5' SIDEWALK OR 10' WIDENED SIDEWALK. SEE PER FOR DETAILS.

SPEEDWAY GAS STATION

DUNKIN DONUTS

Spring Lake Hwy

STATE 541 COUNTY

REMINGTON OUTPOST

PAPA JOE'S ITALIAN RESTAUR

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
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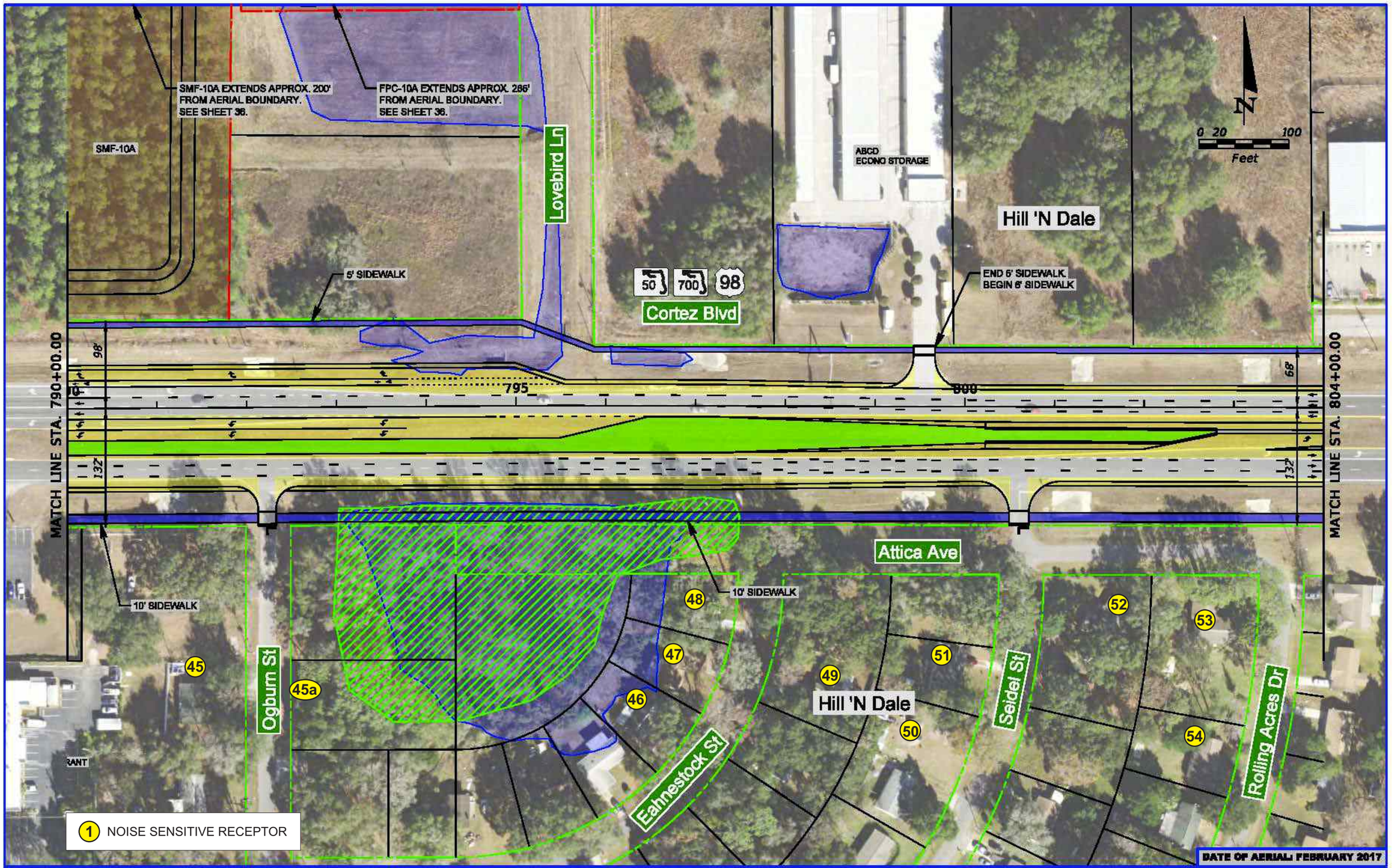
USER: Sdevarm 6/17/2020 10:04:36 AM P:\PROJECT\5147050\430051122601\roadway\PLANRD18.DGN

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 18



LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
- PROPOSED TRAFFIC SEPARATOR
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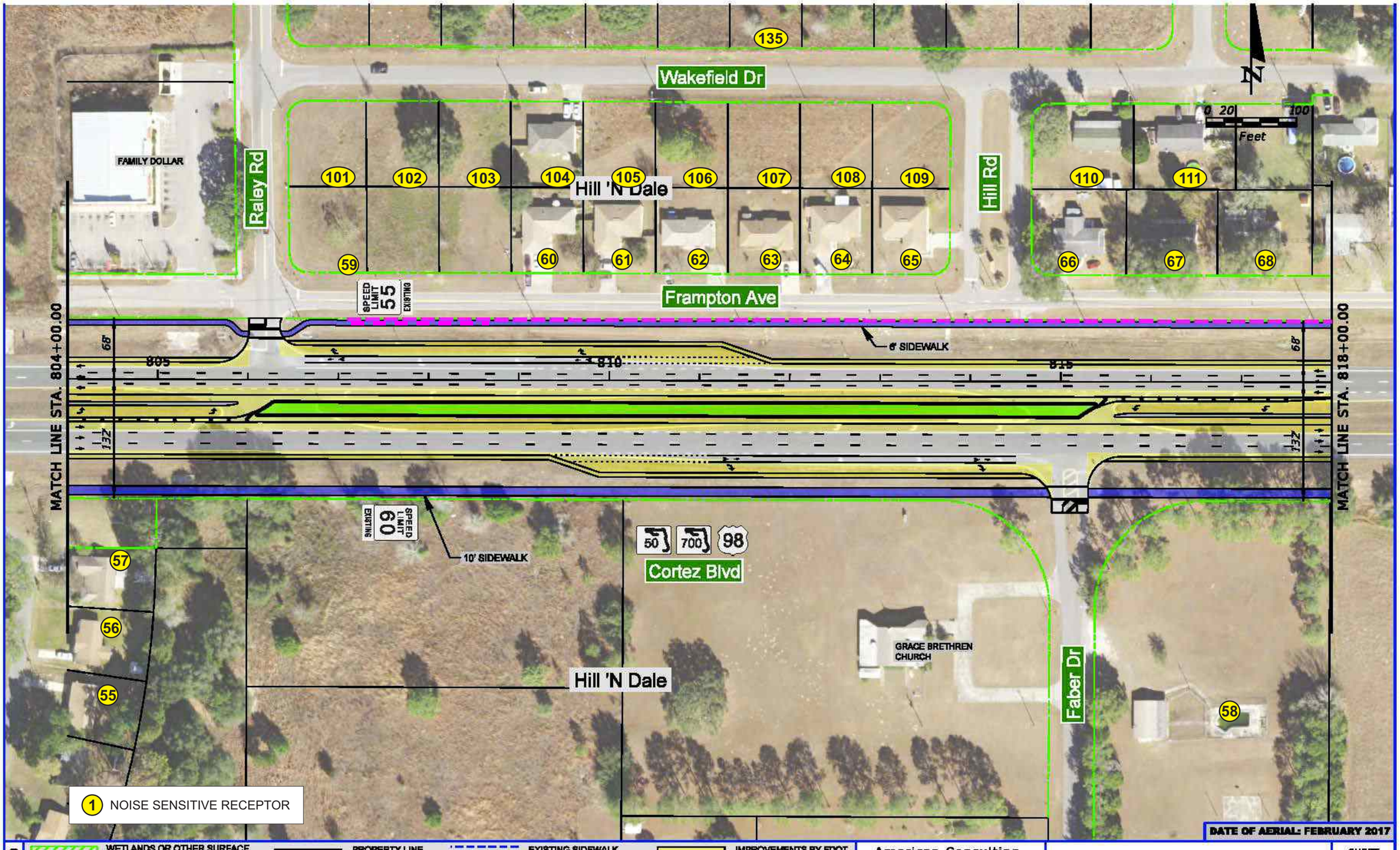
SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 19

Sdevorm 10/12/2020 2:32:39 PM F:\PROJECT\5147650\430051122201\roadway\PLANRD19.DGN



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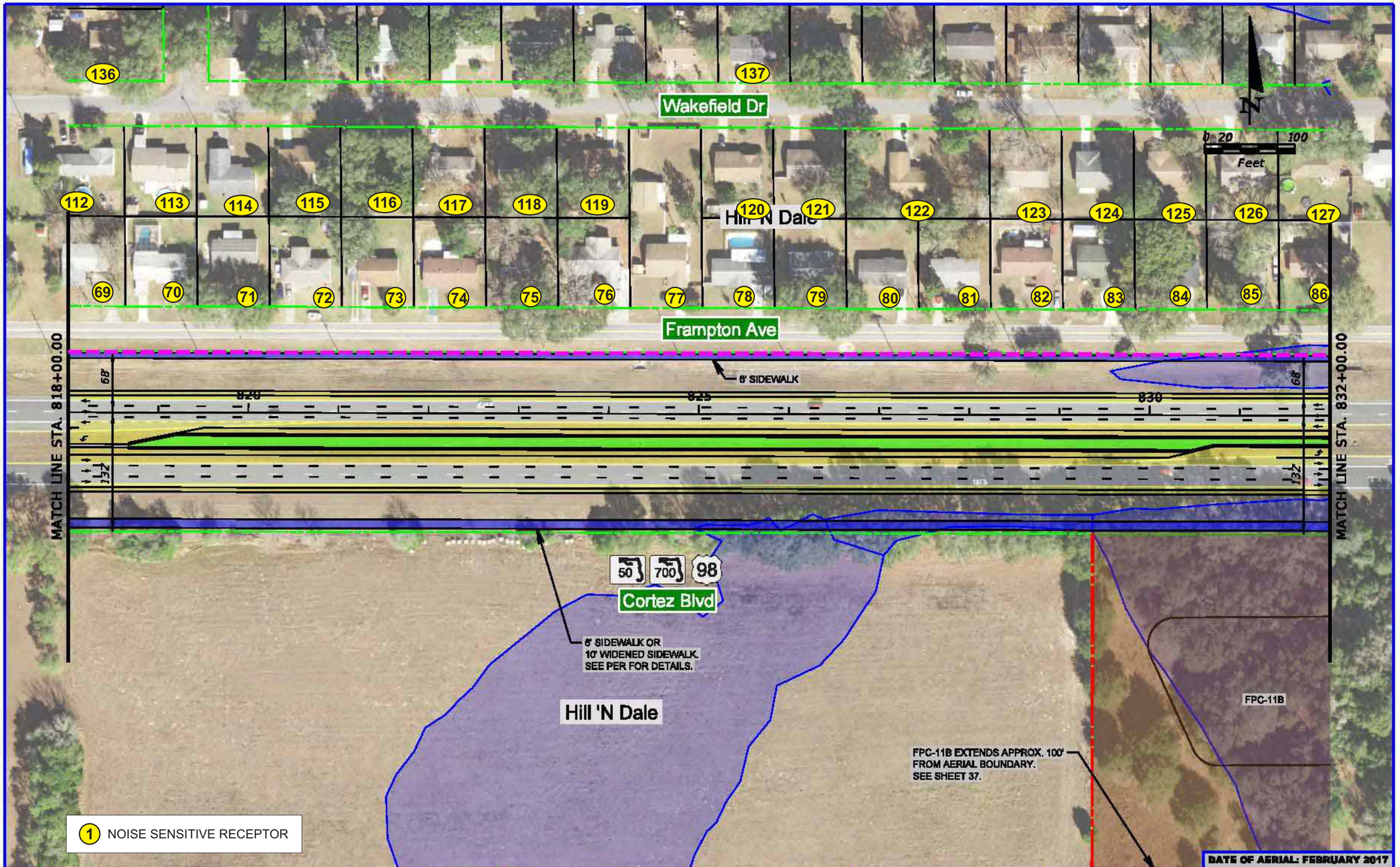
Engineering Business No. EB7116
Jeffrey S. Navolny, P.E. No. 61062

Sdevorm 10/12/2020 2:33:40 PM F:\PROJECT\5147050\430651122\01\roadway\PLANRD20.DGN

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans
WPI SEGMENT No.: 430651-1

SHEET NO. 20



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SR50 PD&E STUDY
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WPI SEGMENT No.: 430651-1

SHEET NO. 21

USER: Sdevarm 8/17/2020 10:07:45 AM P:\PROJECT\5147050\430651122\Roadway\PLANRD21.DGN

Wakefield Dr
Cammie St
Azen Lp
Hill 'N Dale
Palen Ln
Frampton Ave
Cortez Blvd
Frisco Rd
50
700
98
138
139
128
129
88
89
90
91
92
93
94
95
96
97
0 20 100
Feet
N
MATCH LINE STA. 832+00.00
MATCH LINE STA. 846+00.00
835
840
845
68'
132'
6' SIDEWALK
6' SIDEWALK OR
10' WIDENED SIDEWALK
SEE PER FOR DETAILS.
SMF-11B
SMF-11B EXTENDS APPROX. 100'
FROM AERIAL BOUNDARY.
SEE SHEET 37.
1 NOISE SENSITIVE RECEPTOR
DATE OF AERIAL: FEBRUARY 2017

LEGEND

WETLANDS OR OTHER SURFACE WATERS BOUNDARY
FLOODPLAINS AREA
PREFERRED SMF AND FPC AREA
POTENTIALLY CONTAMINATED SITE
PROPERTY LINE
EASEMENT LINE
EXISTING ROW
PROPOSED ROW TO BE ACQUIRED
EXISTING SIDEWALK
PROPOSED MSE WALL
POTENTIAL NOISE BARRIER
PROPOSED SIDEWALK
IMPROVEMENTS BY FDOT
PROPOSED MEDIAN (SOD)
PROPOSED TRAFFIC SEPARATOR
POTENTIAL IMPROVEMENT BY OTHERS

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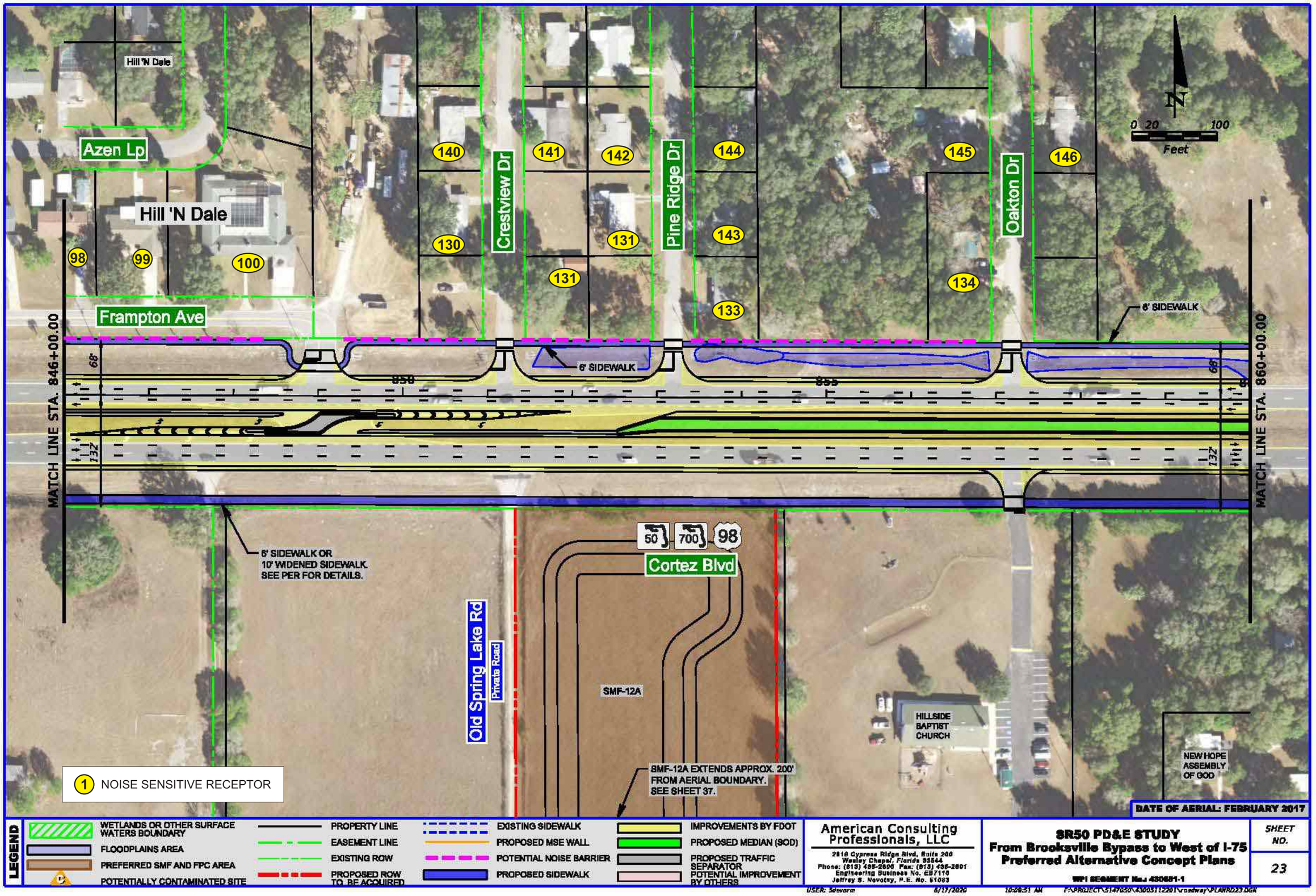
SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 22

USER: Sdevarm 8/17/2020 10:08:47 AM P:\PROJECT\5147050\430651122\01\roadway\PLANR22.DGN



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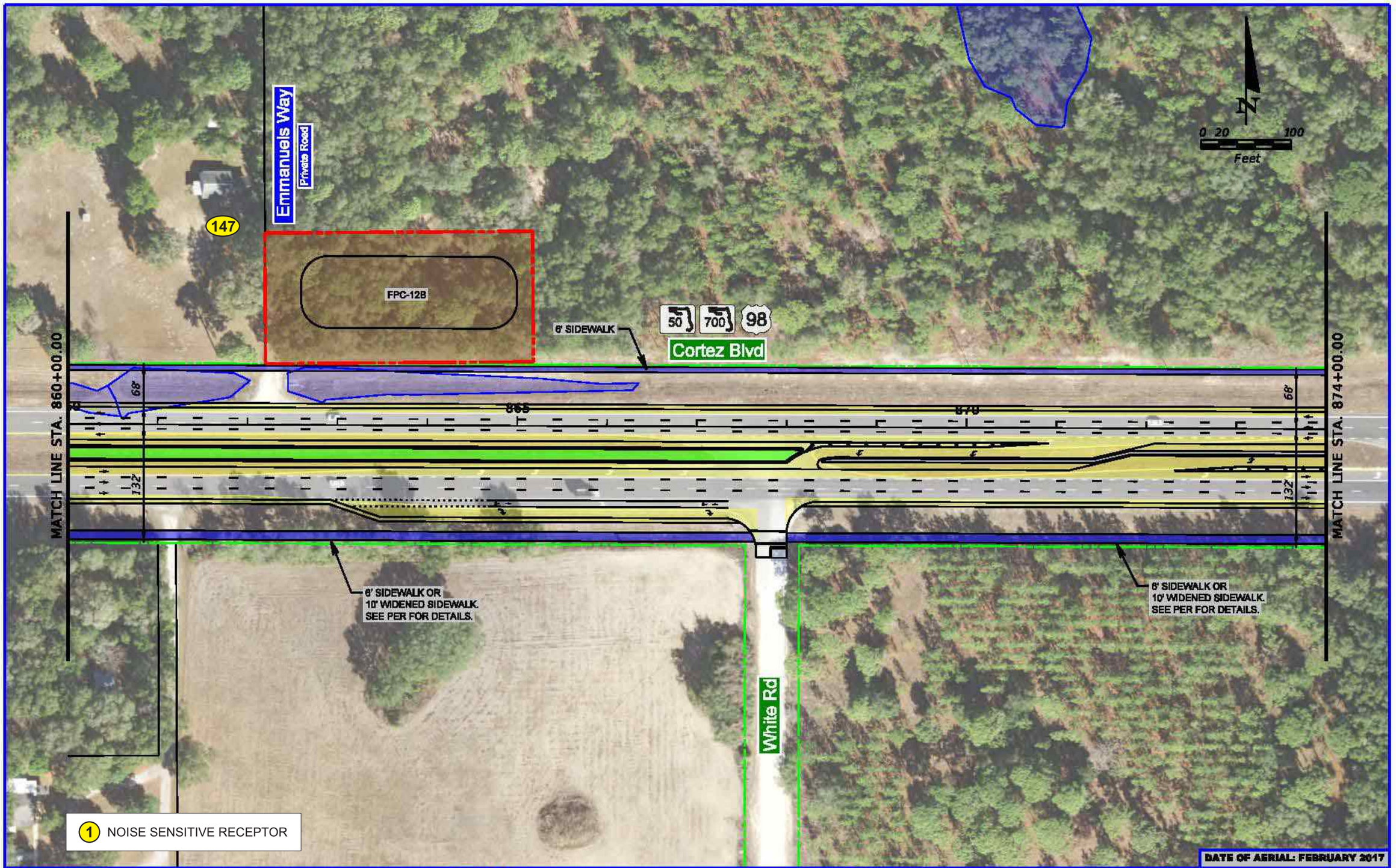
USER: Sdevore 6/17/2020 10:09:51 AM P:\PROJECT\5147050\430051122601\roadway\PLANRD23.DGN

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

FPID SEGMENT No.: 430051-1

SHEET NO. 23



LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
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- PROPOSED TRAFFIC SEPARATOR
- POTENTIAL IMPROVEMENT BY OTHERS

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SR50 PD&E STUDY
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Preferred Alternative Concept Plans

WPI SEGMENT No.: 430651-1

SHEET NO. 24

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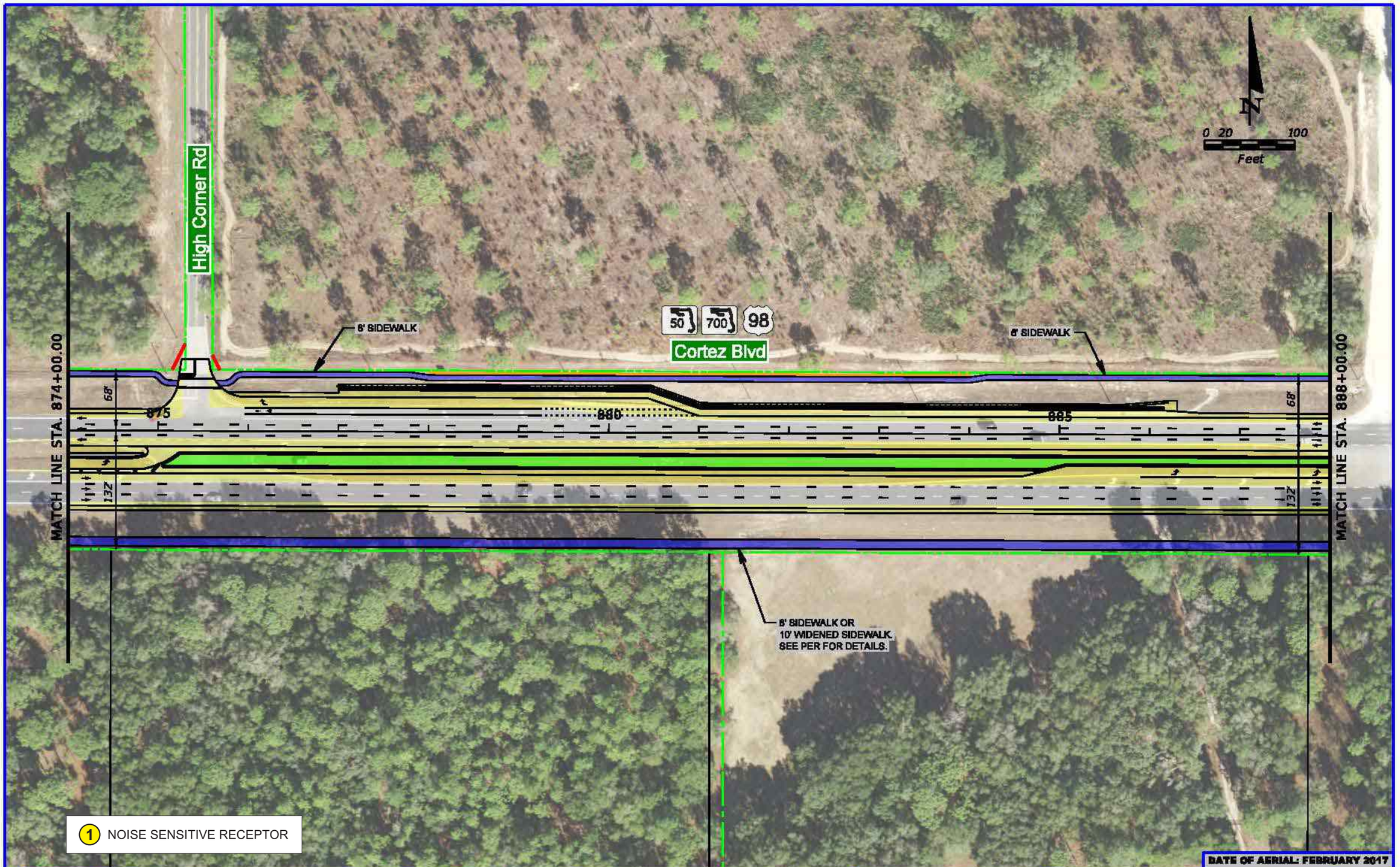

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
- PROPOSED TRAFFIC SEPARATOR
- POTENTIAL IMPROVEMENT BY OTHERS

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USER: Sdavara 6/17/2020 10:11:56 AM P:\PROJECT\5147050\4305112201\roadway\PLANRD25.DGN

SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 25

Goodway Dr
Strawberry Dr
Hartness Dr
SOUTHERN SHEDS
VACANT
MINI STORAGE
J&M ENTERPRISES AUTO BODY AND MINI STORAGE
Dels Tr
Private Road
N
0 20 100
Feet
50 700 98
Cortez Blvd
6' SIDEWALK
6' SIDEWALK
MATCH LINE STA. 888+00.00
MATCH LINE STA. 902+00.00
890
895
900
68'
132'
6' SIDEWALK OR 10' WIDENED SIDEWALK. SEE PER FOR DETAILS.
Rupe Rd
Private Road
FPC-13B
148
SMF-13B
SMF-13B EXTENDS APPROX. 250' FROM AERIAL BOUNDARY. SEE SHEET 38.
1 NOISE SENSITIVE RECEPTOR
DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
- PROPOSED SIDEWALK
- IMPROVEMENTS BY FDOT
- PROPOSED MEDIAN (SOD)
- PROPOSED TRAFFIC SEPARATOR
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WPI SEGMENT No.: 430681-1

SHEET NO. 26

USER: Sdevore 8/17/2020 10:13:00 AM P:\PROJECT\5147050\4300511201\roadway\PLANRD26.DGN

149

149a

Hadley Dr

Cortez Blvd

50 700 98

Thistlebrook Ln

6' SIDEWALK

6' SIDEWALK

N

0 20 100

Feet

MATCH LINE STA. 902+00.00

MATCH LINE STA. 916+00.00

905

910

915

58'

132'

6' SIDEWALK OR
10' WIDENED SIDEWALK.
SEE PER FOR DETAILS.

1 NOISE SENSITIVE RECEPTOR

DATE OF AERIAL: FEBRUARY 2017

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- FLOODPLAINS AREA
- PREFERRED SMF AND FPC AREA
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINE
- EASEMENT LINE
- EXISTING ROW
- PROPOSED ROW TO BE ACQUIRED
- EXISTING SIDEWALK
- PROPOSED MSE WALL
- POTENTIAL NOISE BARRIER
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Preferred Alternative Concept Plans

WPI SEGMENT No.: 430681-1

SHEET NO. 27

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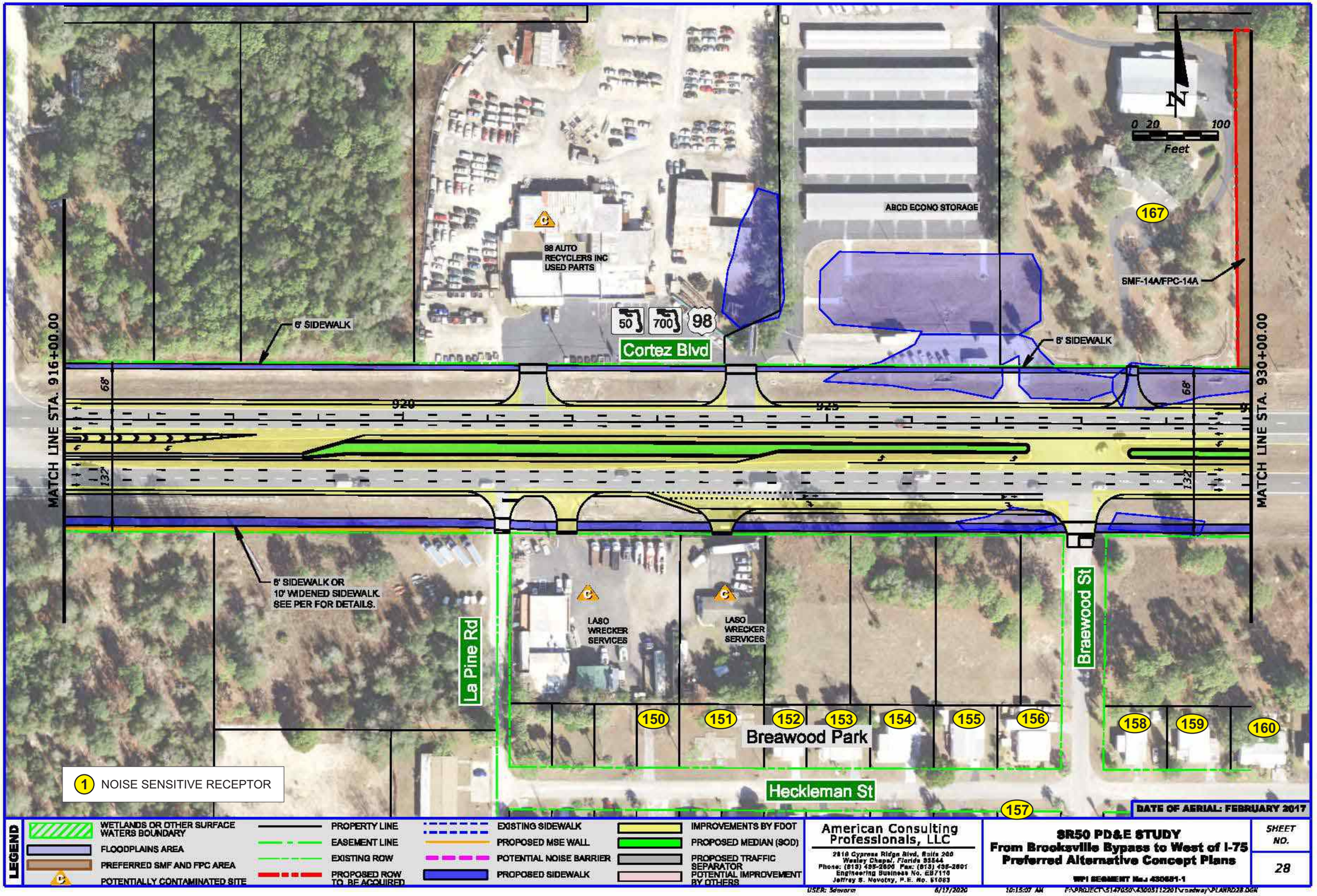

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WPI SEGMENT No.: 430651-1

SHEET NO. 28

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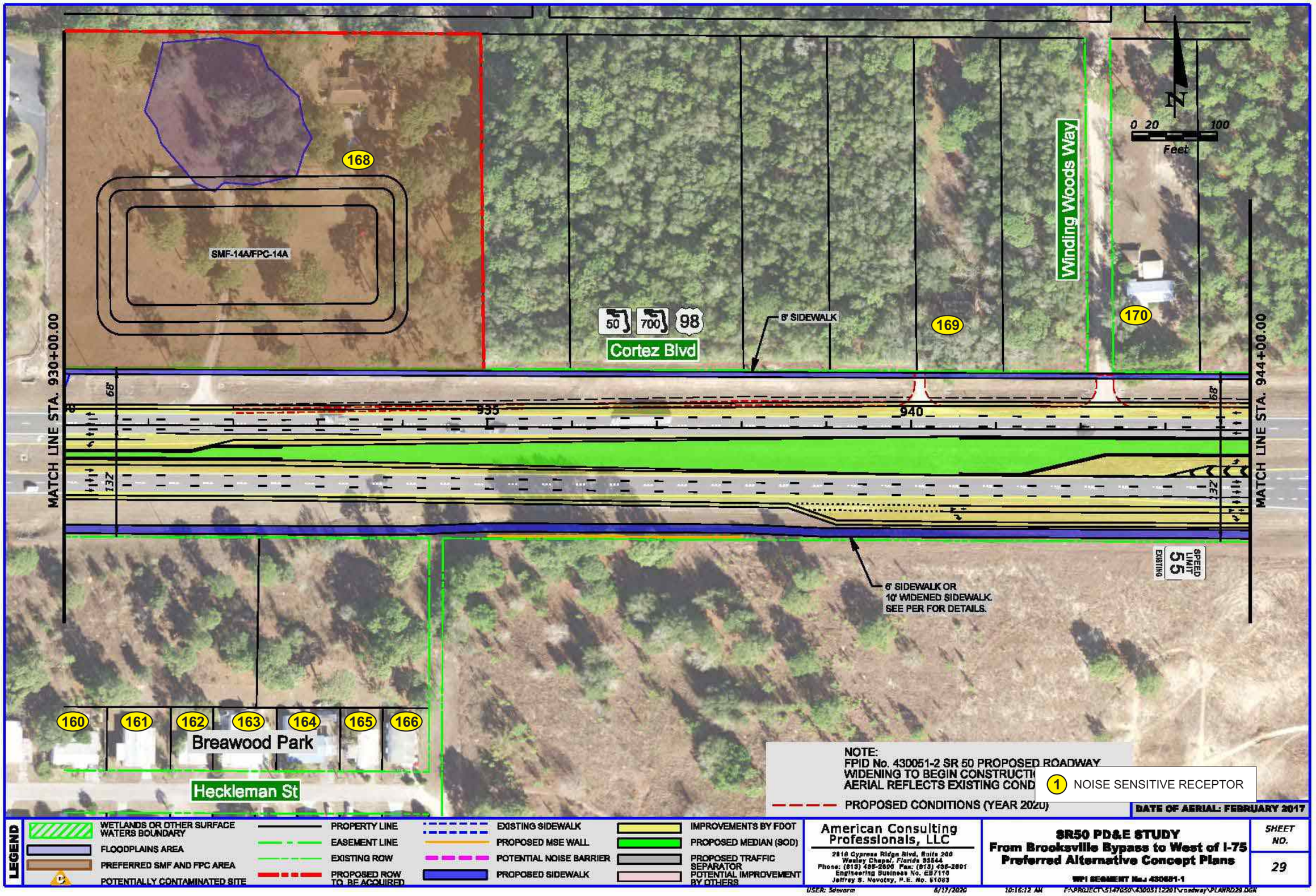

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From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans
WPI SEGMENT No.: 430651-1

SHEET NO. 29

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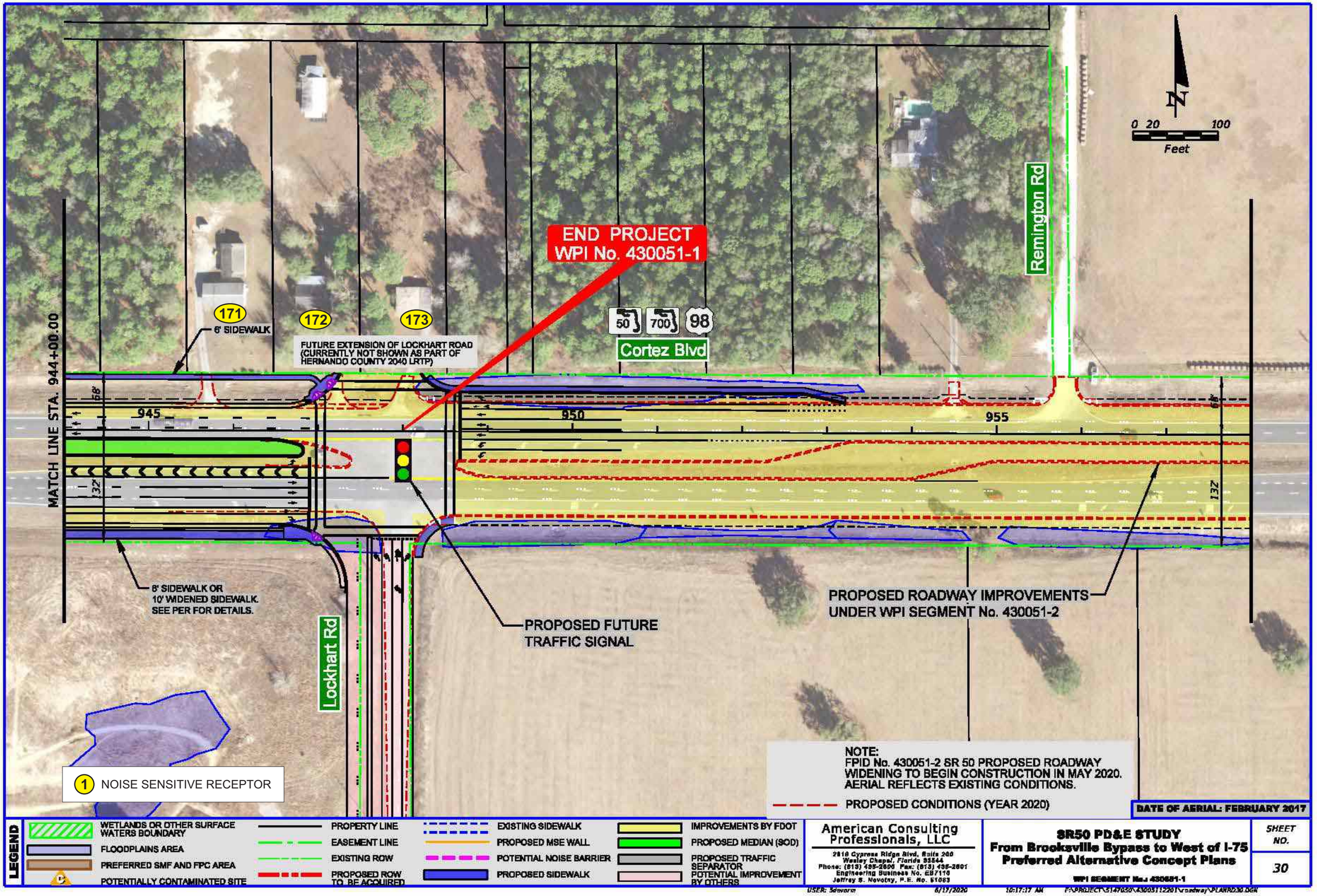

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SR50 PD&E STUDY
From Brooksville Bypass to West of I-75
Preferred Alternative Concept Plans
WPI SEGMENT No.: 430051-1

SHEET NO. 30

USER: Sdevarm 8/17/2020 10:17:17 AM P:\PROJECT\5147050\430051122201\roadway\PLANRD30.DGN

Appendix C
Validation Documentation

NOISE MEASUREMENT DATA SHEET

Measurements Taken By: L. Baumaister, C. Schoonard, N. Rhoads Date: 10/15/2015
Time Study Started: 12:03 Time Study Ended: 12:40
Project Identification:
Financial Project ID: 430051-1-22-01
Project Location: SR 50 from Brooksville Bypass to Lockhart Road

Site Identification: Site 1 – SR 50 at Lockhart (SW Corner)

Weather Conditions:
Sky: Clear X Partly Cloudy ___ Cloudy ___ Other ___
Temperature 88°F Wind Speed 3 Wind Direction E to W Humidity 49%
Equipment:
Sound Level Meter:
Type: Larson Davis 831 Serial Number(s): 1285
Did you check the battery? Yes X No ___
Calibration Readings: Start 114.13 End 114.02
Response Settings: Fast ___ Slow X
Weighting: A X Other ___
Calibrator:
Type: Larson Davis CAL 200 Serial Number: 5592
Did you check the battery? Yes X No ___

TRAFFIC DATA

Roadway Identification	SR 50 Eastbound		SR 50 Westbound	
	Run 1-Run 2-Run 3		Run 1-Run 2-Run 3	
Vehicle Type	Volume	Speed (mph)	Volume	Speed (mph)
Autos	79-75-93	61-62-60	100-88-82	60-58-59
Medium Trucks	2-4-6	59-58-56	6-3-2	54-58-55
Heavy Trucks	10-17-12	61-55-58	9-17-10	44-55-54
Buses	0-0-0	n/a	0-0-0	n/a
Motorcycles	4-0-2	n/a[1]	0-3-0	n/a[1]
Duration	10 minutes per run		10 minutes per run	

*Speeds were not documented for all vehicle types.

RESULTS [dB(A)]

L_{EQ} 64.7-63.9-64.1 Lmax 91.4-86.4-89.1

Background Noise: ___
Major Sources: SR 50
Unusual Events: cars turning onto side street (Lockhart)

KB Environmental Sciences

NOISE MEASUREMENT DATA SHEET

Measurements Taken By: L. Baumaister, C. Schoonard, N. Rhoads Date: 10/15/2015
Time Study Started: 12:59 pm Time Study Ended: 1:32 pm
Project Identification:
Financial Project ID: 430051-1-22-01
Project Location: SR 50 from Brooksville Bypass to Lockhart Road

Site Identification: Site 2 – SR 50 at Frampton (NE corner)

Weather Conditions:
Sky: Clear X Partly Cloudy ___ Cloudy ___ Other ___
Temperature 87°F Wind Speed 2.2 Wind Direction E to W Humidity 49%
Equipment:
Sound Level Meter:
Type: Larson Davis 831 Serial Number(s): 1285
Did you check the battery? Yes X No ___
Calibration Readings: Start 114.09 End 114.14
Response Settings: Fast ___ Slow X
Weighting: A X Other ___
Calibrator:
Type: Larson Davis CAL 200 Serial Number: 5592
Did you check the battery? Yes X No ___

TRAFFIC DATA

Roadway Identification	SR 50 Eastbound		SR 50 Westbound	
	Run 1-Run 2-Run 3		Run 1-Run 2-Run 3	
Vehicle Type	Volume	Speed (mph)	Volume	Speed (mph)
Autos	67-85-81	53-55-52	87-95-76	59-59-59
Medium Trucks	3-1-3	47-n/a[1]-40	4-3-4	54-51-55
Heavy Trucks	12-4-9	50-48-46	4-12-14	59-58-54
Buses	0-0-0	n/a	0-0-0	n/a
Motorcycles	6-1-1	n/a[1]	1-11-1	n/a[1]-n/a[1]-57
Duration	10 minutes per run		10 minutes per run	

[1]Speeds were not documented for all vehicle types.

RESULTS [dB(A)]

L_{EQ} 69.5-71.7-71.4 Lmax 93.4-109.3-107.4

Background Noise: dogs barking.
Major Sources: US 301
Unusual Events: cars turning into lodge. Run 1: horn; Run 3: dog barking/owner shouting, truck horn

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