

NOISE STUDY REPORT

COBB ROAD (CR 485) / US 98 PD&E STUDY

From SR 50 to Suncoast Parkway in Hernando County, Florida

WPI Nos. 257299 1 & 405017 1; FAP Nos: 2891 007 P & 2891 008 P



Florida Department of Transportation
District Seven

April 2003

NOISE STUDY REPORT

**Cobb Road (CR 485) / US 98
Project Development and Environment Study**

**Cobb Road (CR 485), from SR 50 to US 98
and
US 98, from Cobb Road to Suncoast Parkway
Hernando County, Florida**

**WPI Segment Nos.: 257299 1 & 405017 1
FAP Nos.: 2891 007 P & 2891 008 P**

**This proposed action consists of capacity and safety improvements to
Cobb Road (CR 485), a two-lane undivided arterial,
from SR 50 to US 98 and US 98, a two-lane undivided arterial,
from Cobb Road to the Suncoast Parkway**

**FLORIDA DEPARTMENT OF TRANSPORTATION
District Seven**

April 2003

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1.0 INTRODUCTION

1.1 SUMMARY

The Florida Department of Transportation (Department) is conducting a Project Development and Environment (PD&E) Study to evaluate proposed improvement alternatives and environmental effects along Cobb Road (CR 485) from SR 50 to US 98, and along US 98 from Cobb Road to the Suncoast Parkway, west of the City of Brooksville in Hernando County, Florida. The existing Cobb Road and US 98 are currently two-lane undivided arterials within the project limits. Planned improvements to these existing rural roadways consist of widening to a four-lane divided facility.

1.2 PURPOSE OF REPORT

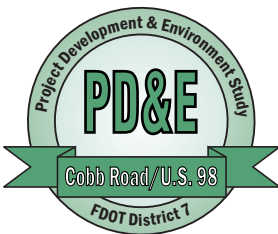
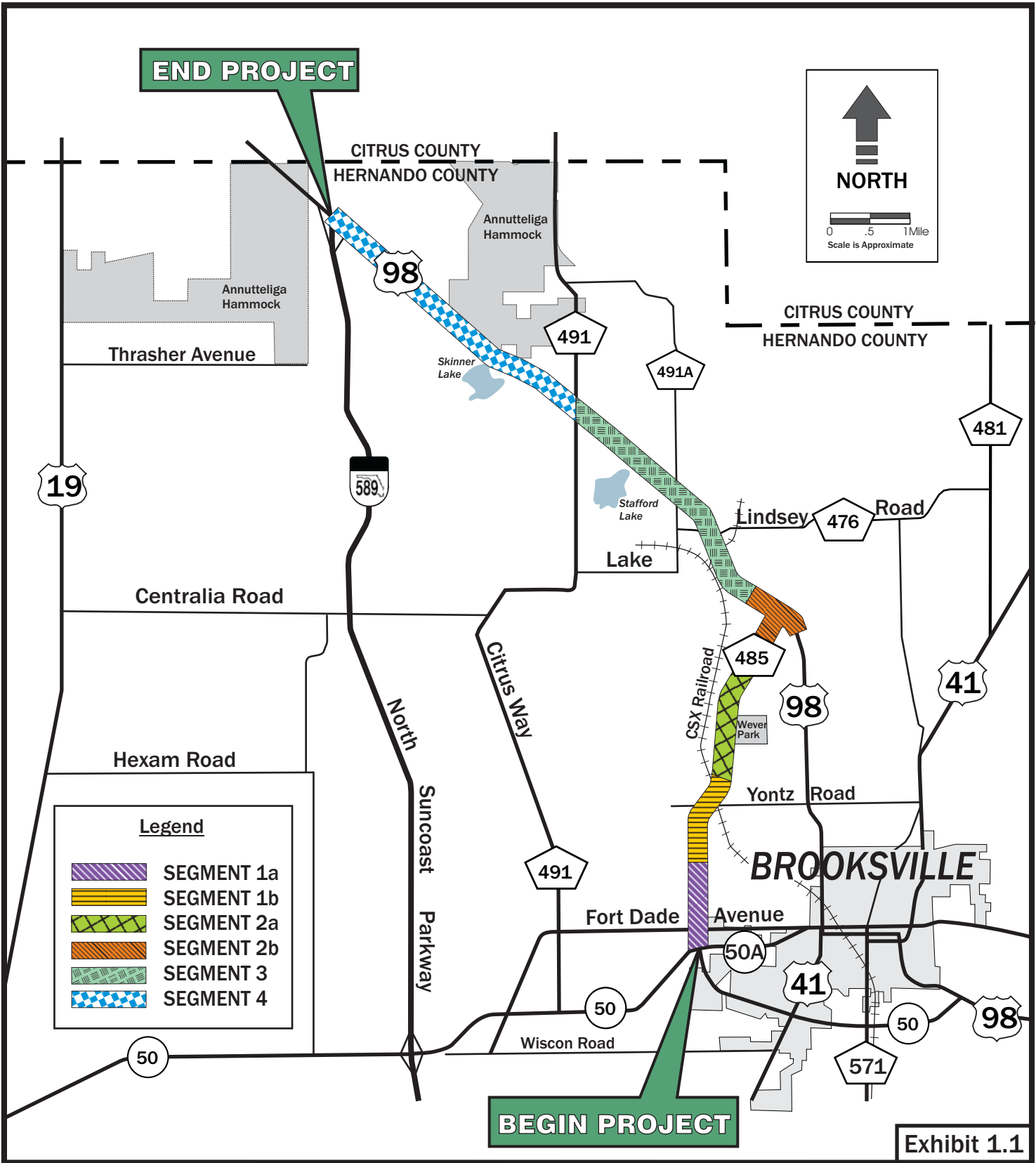
The purpose of this report is to document the results of the noise analysis and to identify and, where necessary, investigate measures to abate traffic noise level changes associated with the construction and operation of improvements to Cobb Road (CR 485) and US 98 in Hernando County, Florida. The format and content of the report are based on the procedures established in 23 CFR Part 772 and FS 335.17. This report was prepared using English units of measure.

1.3 PROJECT DESCRIPTION

The planned project will improve the capacity and safety of the existing two-lane Cobb Road (CR 485) and a portion of US 98 in Hernando County, Florida. The project study area begins on Cobb Road at SR 50 in the City of Brooksville and extends northward 4.5 miles to US 98. The study area then proceeds 7 miles westward along US 98 to the Suncoast Parkway. These segments of Cobb Road and US 98 are currently two-lane undivided rural arterials. The total length of the planned project is approximately 11.5 miles. The project has been divided into six segments (Segments 1a, 1b, 2a, 2b, 3 and 4) for purposes of analysis throughout this study. The project segmentation is shown on the Project Location Map in Exhibit 1.1.

The existing Cobb Road / US 98 corridor provides traffic flow around the west side of the City of Brooksville, ultimately connecting SR 50 with the Suncoast Parkway (SR 589). Traffic growth in Hernando County and in the vicinity of the City of Brooksville will cause Cobb Road and US 98 to become congested if traffic capacity is not added to the system. The need to provide a safer designated bypass route around the City of Brooksville is vital, particularly for the large volume of truck traffic associated with three major rock mines and other industrial facilities situated along the project corridor.

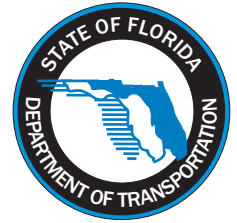
Capacity and safety improvements to Cobb Road and US 98, along with the designation of Cobb Road as US 98, represents a long-standing goal of the City of Brooksville and Hernando County. This goal has been incorporated into the Hernando County Metropolitan Planning Organization (MPO) *2025 Long Range Transportation Plan (LRTP)*, which calls for widening the existing roadways to a continuous four-lane divided, controlled access facility.



Project Location Map

Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
FAP Nos: 2891 007 P & 2891 008 P



2.0 STUDY ALTERNATIVES

2.1 PROJECT SEGMENTATION

For this PD&E Study, the project was divided into segments for analysis. The segments of Cobb Road were chosen based on surrounding characteristics such as land use and environmental constraints, as well as the potential need for realignments. The segments of US 98 were chosen to match FDOT resurfacing project limits for consistency. The project segmentation is shown on the Project Location Map presented previously in Exhibit 1.1. The segments of the project are identified as follows:

- Segment 1a: Cobb Road from north of SR 50 to north of the Brooksville Water Reclamation Facility (WRF) driveway
- Segment 1b: Cobb Road from north of the Brooksville WRF driveway to north of Yontz Road
- Segment 2a: Cobb Road from north of Yontz Road to south of US 98
- Segment 2b: Cobb Road/US 98 Intersection
- Segment 3: US 98 from north of Cobb Road to CR 491
- Segment 4: US 98 from CR 491 to Suncoast Parkway

2.2 RECOMMENDED BUILD ALTERNATIVE

The noise analysis for the Design Year Build condition is based upon the Recommended Build Alternative described below:

2.2.1 Segment 1a – Urban, Fit within Existing Right-of-Way

The proposed typical section for Segment 1a is an urban typical section consisting of two 12-foot travel lanes in each direction, a 6-foot sidewalk on the left (west) side and a 12-foot shared use path on the right (east) side. This typical section utilizes a 17.5-foot median and fits within the existing right-of-way width (minimum 100 feet). The proposed design speed is 45 mph. This urban typical section is shown in Exhibit 2.1.

2.2.2 Segment 1b – Suburban Left

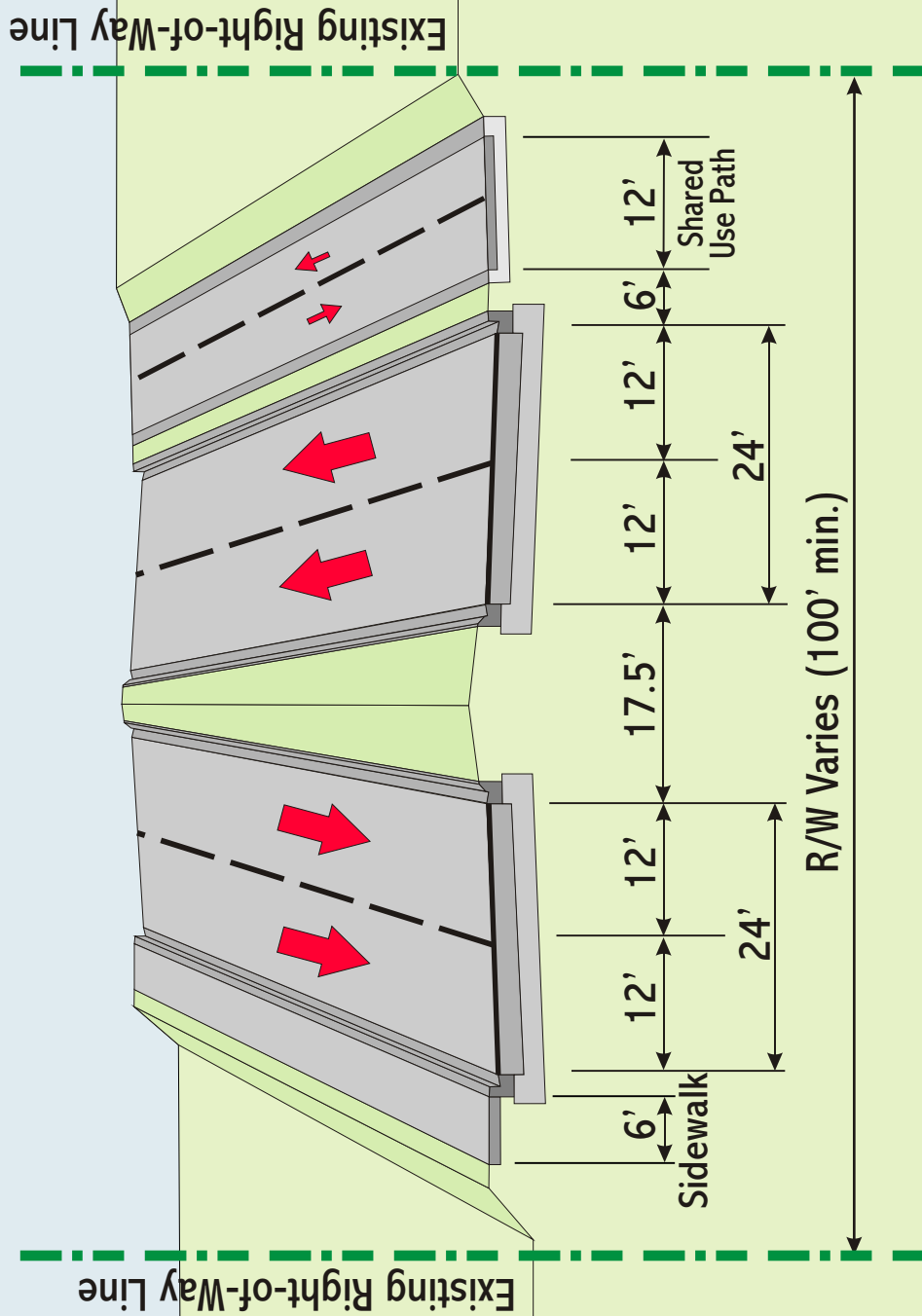
The proposed typical section for Segment 1b is a suburban typical section consisting of two 12-foot travel lanes in each direction with 8-foot outside shoulders (5 feet paved) and a 12-foot shared use path on the right (east) side. This typical section utilizes a 30-foot median (22-foot curb to curb and 4-foot offsets to edge of inside travel lanes). The proposed minimum right-of-way width required is 158 feet. The proposed design speed is 55 mph. A left alignment is proposed for this segment. This suburban typical section is shown in Exhibit 2.2.

2.2.3 Segment 2a – Suburban Left Transitioning to Rural Left

Two typical sections are proposed for Segment 2a. The proposed typical section for the portion of Segment 2a south of Youth Drive is a suburban typical section as described above in Section 2.2.2. North of Youth Drive, a transition would take place to a rural typical section consisting of two 12-foot travel lanes, 8-foot outside shoulders (5-foot paved) and 6-foot inside shoulders (4-foot paved) in each direction and a 12-foot shared use path on the right (east) side. The proposed



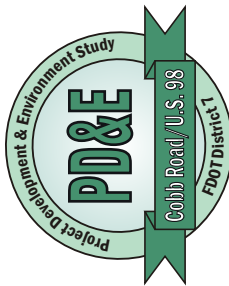
Exhibit 2.1



* Proposed from ShadySide Dr. To Fort Dade Ave.

PROPOSED URBAN TYPICAL SECTION (SEGMENT 1a)

Cobb Road (CR 485) / US 98 PD&E Study
WPI Segment Nos: 257299 1 & 405017 1
FAP Nos: 2891 007 P & 2891 008 P



Proposed Right-of-Way Line

Proposed Right-of-Way Line

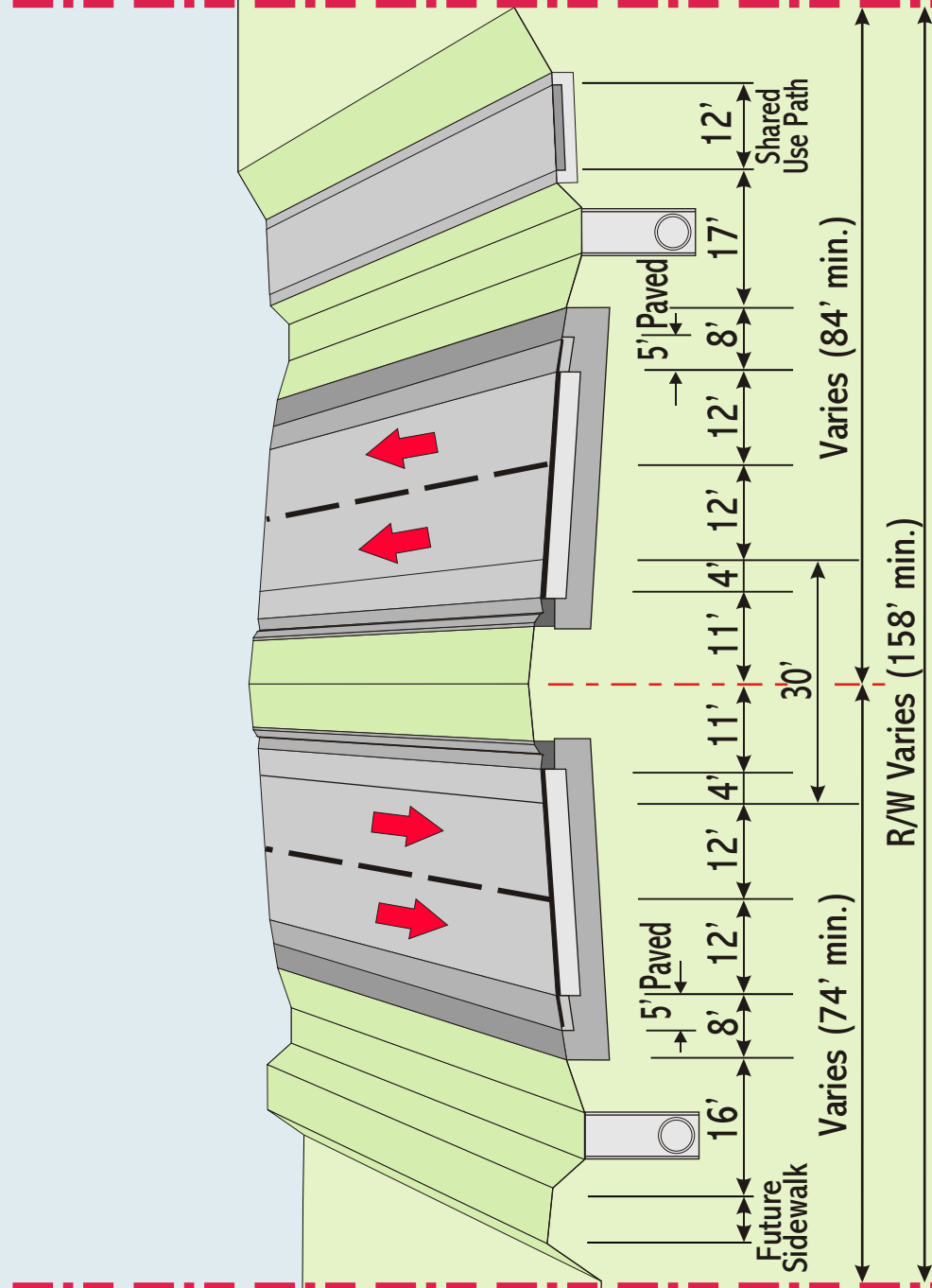


Exhibit 2.2



PROPOSED SUBURBAN TYPICAL SECTION

(SEGMENTS 1b and 2a)

Cobb Road (CR 485) / US 98 PD&E Study
 WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P



Proposed Right-of-Way Line

Proposed Right-of-Way Line

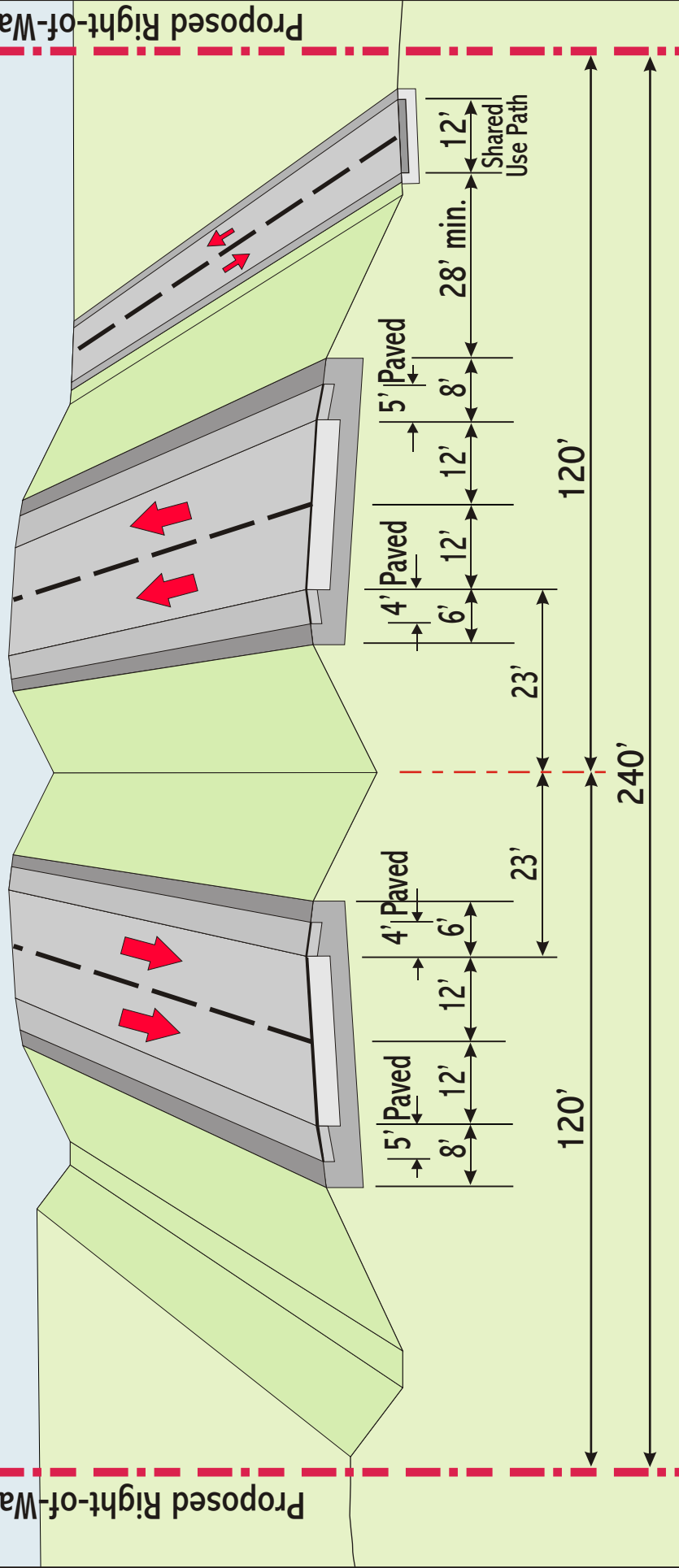


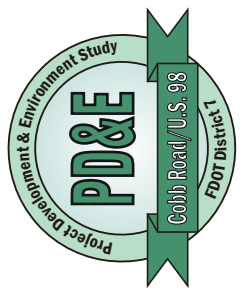
Exhibit 2.3



PROPOSED RURAL TYPICAL SECTION

(SEGMENTS 2a, 2b, 3 and 4)

Cobb Road (CR 485) / US 98 PD&E Study
 WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P



minimum right-of-way width required is 240 feet. The proposed design speed is 70 mph. A left alignment is proposed for this segment. This rural typical section is shown in Exhibit 2.3.

2.2.4 Segment 2b – Rural Realign

The proposed typical section for Segment 2b is a rural typical section as described above in Section 2.2.3. This proposed rural typical section would be utilized on a new alignment to create a through movement between Cobb Road and US 98 to the north. The existing US 98 to the south would be realigned to a “T” intersection with the new alignment.

2.2.5 Segment 3 – Rural Left

The proposed typical section for Segment 3 is a rural typical section as described above in Section 2.2.3. A left alignment is proposed for this segment.

2.2.6 Segment 4 – Rural Left

The proposed typical section for Segment 4 is also a rural typical section as described above in Section 2.2.3. A left alignment is proposed for this segment.

2.3 NO BUILD ALTERNATIVE

Under the No Build Alternative, no action would be taken with respect to improving Cobb Road and US 98 within the limits of the project study area. Based on the No Build Alternative having major deficiencies, it is not recommended.

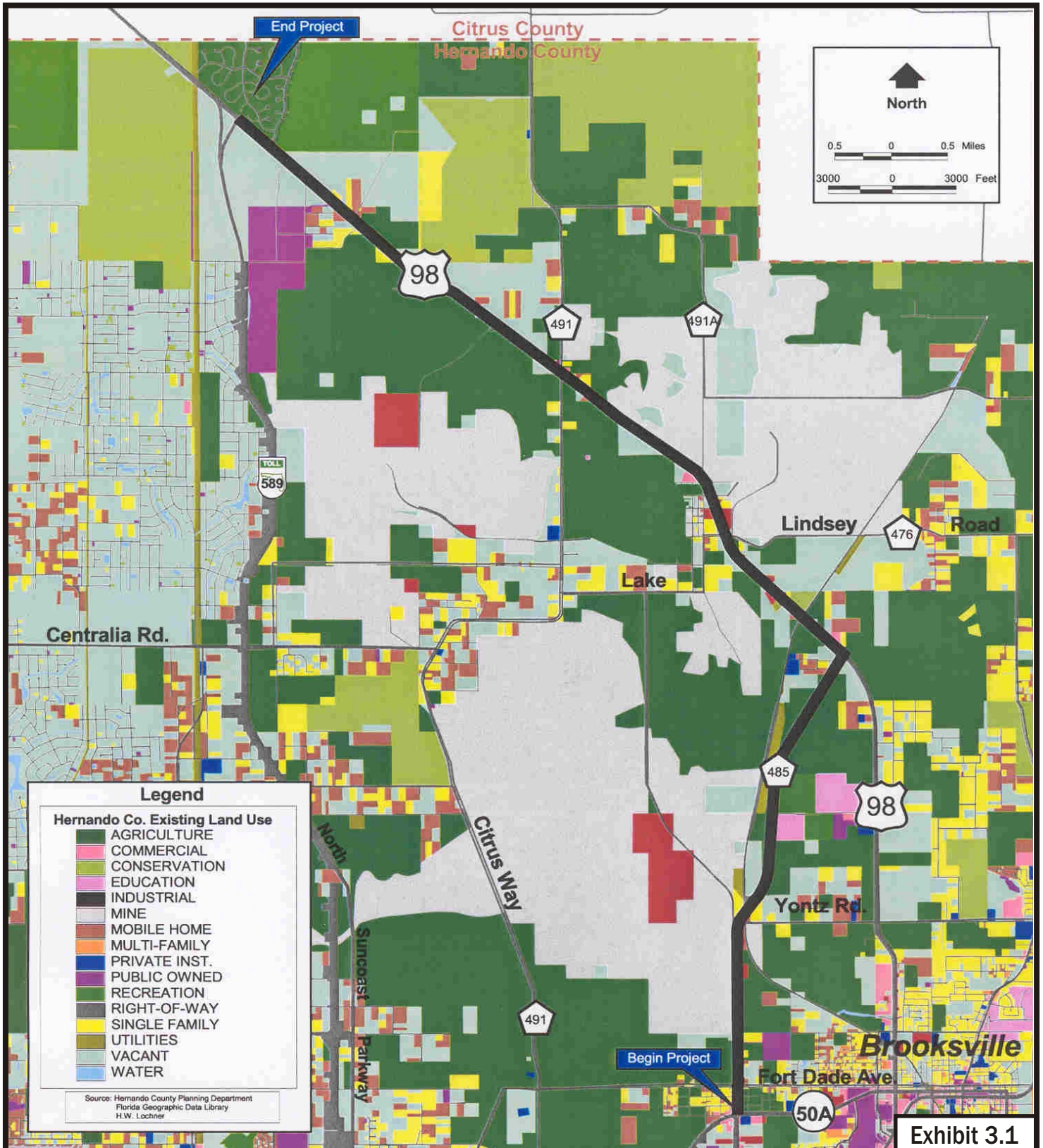
3.0 EXISTING AND FUTURE LAND USE

3.1 EXISTING LAND USE

The Hernando County Planning Department's existing land use map is presented in Exhibit 3.1. The predominant existing land uses in the study area are agricultural and mining. Agricultural designations are representative of large hay fields and active cattle pastures. Mining designations are representative of three major mining facilities located along the project corridor, including Florida Mining & Materials Corporation, Florida Crushed Stone Company and Florida Rock Industries, Inc. Industrial land uses also exist along the project corridor, representing several notable facilities, including Flagstone Pavers, Ewell Industries and Florida Concrete and Stone. Some scattered single-family residential and commercial uses are situated along the corridor, particularly in the southern portion. Vacant lands are also found along the project corridor. Recreational land uses include the Ernie Wever Youth Park (Wever Park) adjacent to the D.S. Parrott Middle School and the private World Woods Golf Course at the northern end of the project. Lands associated with the Annutteliga Hammock Conservation and Recreation Lands (CARL) on the north side of US 98 are designated as conservation lands in the County's land use mapping.

3.2 FUTURE LAND USE

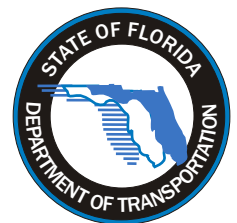
The Hernando County Comprehensive Plan's future land use map is presented in Exhibit 3.2. The study area immediately adjacent to the Cobb Road segment of the project corridor is anticipated to undergo a developing transition towards industrial and residential land uses. This transition is underway with the plot approvals of a proposed industrial park just south of the D.S. Parrott Middle School. The majority of the study area along US 98 will remain as mining and rural land uses in the future, with commercial nodes at Lake Lindsay Road (CR 476), Citrus Way (CR 491), and the Suncoast Parkway. Residential land use is also anticipated near the Suncoast Parkway.

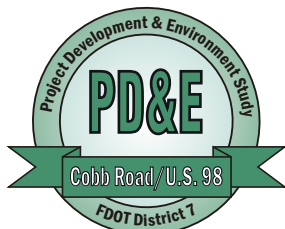
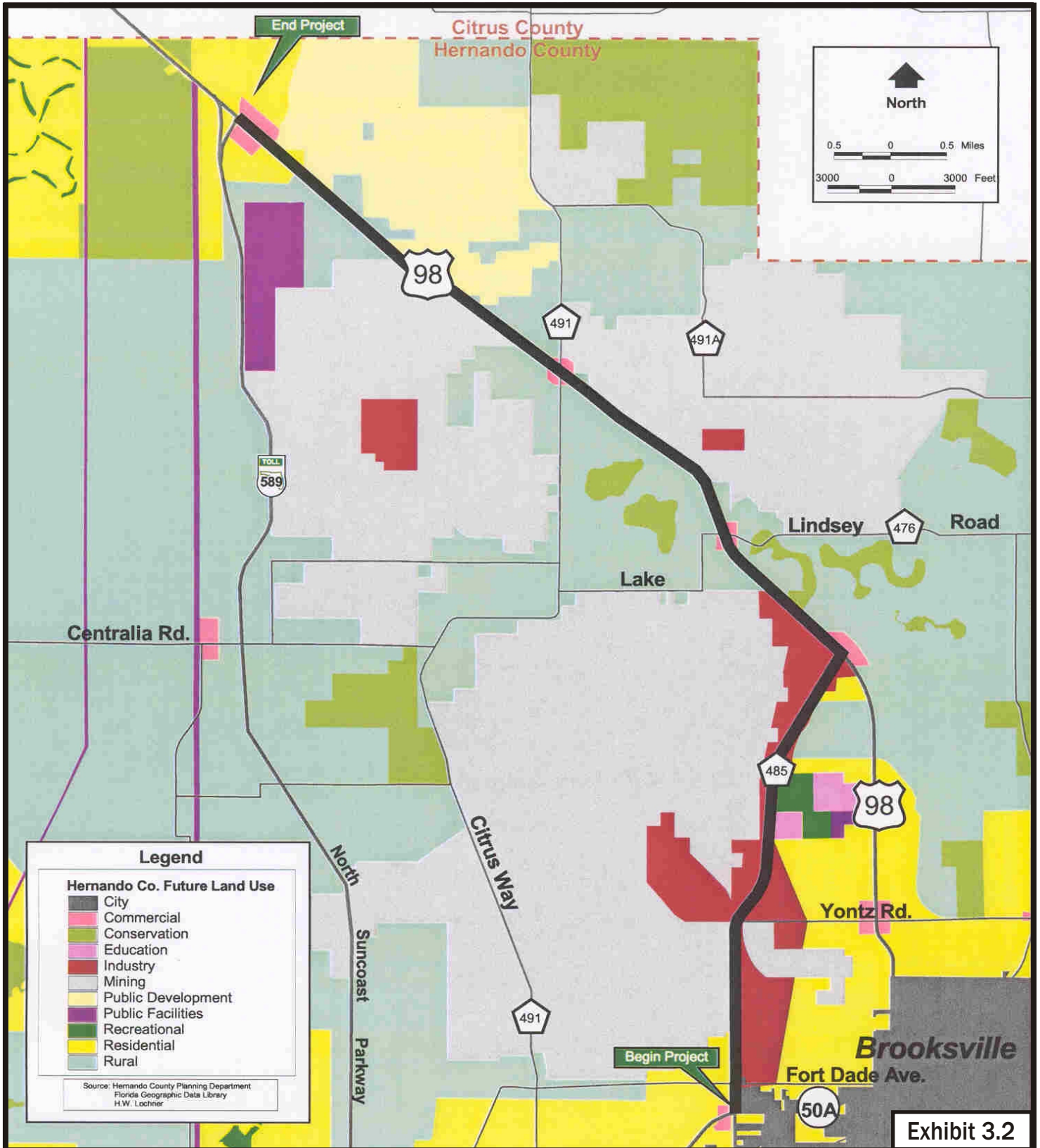


Existing Land Use

Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
FAP Nos: 2891 007 P & 2891 008 P

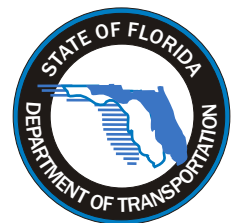




Future Land Use

Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
FAP Nos: 2891 007 P & 2891 008 P



4.0 NOISE ANALYSIS

4.1 METHODOLOGY

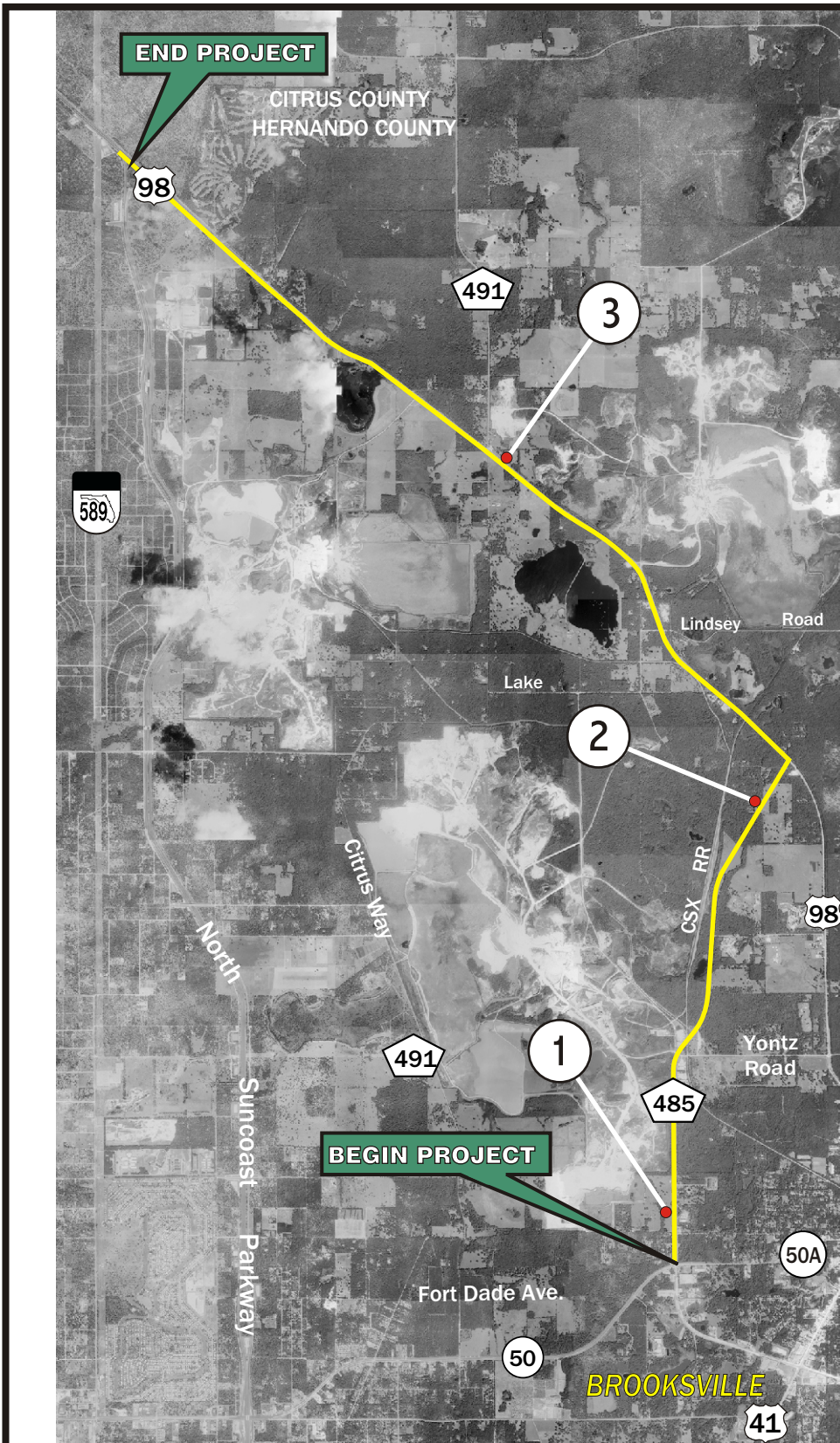
Sound can be scientifically defined as a transfer of energy, while noise is defined as an unwanted or extraneous sound. In general, noise is considered as an unwanted by-product of our civilization from a variety of sources (i.e., automobiles, home appliances, industrial machines, etc.). Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. Sound-level meters are usually equipped with weighting circuits which filter out frequencies for which the human ear does not respond. The A-scale on a sound-level meter best approximates the frequency response of the human ear. Sound pressure levels measured on the A-scale are abbreviated dBA, which is used in the analysis performed for this Report.

In addition to varying in frequency, noise intensity also varies with time. The equivalent sound-level is the steady-state, A-weighted sound level which contains the same amount of acoustic energy as the actual time-varying, A-weighted sound level over a specific amount of time. If the time period is 1 hour, the descriptor is the hourly A-weighted equivalent sound level, L_{Aeq1h} , which is used by the Department as a descriptor of traffic noise.

The Federal Highway Administration (FHWA) has developed and published a report on *Measurement of Highway-Related Noise*, May 1996, [FHWA-PD-96-046](#), for measuring noise levels for proposed highway projects. These measuring techniques are used to obtain the ambient noise levels at representative locations along the existing roadway, and the associated traffic volumes, speeds, and composition. The field-measured traffic data is input into Traffic Noise Model (TNM) Version 1.1 computer program and the results compared to the measured noise levels to validate the model. The computer model is suitable for use if field measured and computer predicted noise levels are within the Department model validation standard of 3 dBA. After the computer program has been validated for field conditions, existing and projected traffic values are used to predict existing and future noise levels at all noise sensitive locations for the Existing, Build and No Build Alternatives.

For the corridor analyzed in this study, three representative sites (receivers) were chosen to represent areas along Cobb Road and US 98 where traffic characteristics differ. These three noise monitoring sites are shown in Exhibit 4.1. A field visit occurred on March 21, 2002, when traffic data was recorded while noise levels were measured with a calibrated Metrosonics dB-308 Sound Analyzer at the three selected sites. Further traffic noise data collection information is included in Appendix A. Two additional sites, shown in the Appendix A material, along an alignment alternative no longer being considered were also used to measure ambient noise levels. The field data was collected using an alternative measurement procedure which only provides equivalent sound level, L_{Aeq1h} . This is in accordance with recommended guidelines outlined in FHWA's report *Measurement of Highway-Related Noise*, May 1996, [FHWA-PD-96-046](#). Noise level measurements were made in three repetitions of ten minutes at each of the noise monitoring sites. The three measurement results were then averaged.

The measured field data was entered into the Department noise analysis computer program TNM Version 1.1. The noise measurement results were compared with the TNM results to validate the computer model for existing conditions present at the time the measurements were recorded.



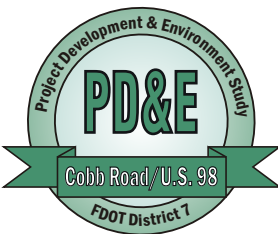
NORTH

Legend

● Monitoring Site

③ Monitoring Site Number

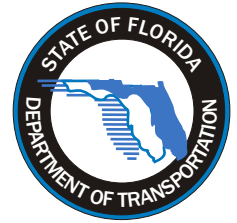
Exhibit 4.1



NOISE MONITORING SITES

Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P



Validation results are summarized in Table 4.1. The model was validated since the measured and modeled noise levels were all within three decibels of each other. Therefore, it was determined that TNM provides a reasonable method to predict traffic noise levels. Following validation of the computer model, the noise levels corresponding to the Existing Condition, 2025 No Build, and 2025 Build Alternatives were modeled.

Table 4.1 – Noise Model Validation Data

Measurement Location	Average Measured L_{Aeq1h} (dBA)	Average Calculated L_{Aeq1h} (dBA)	Average Difference L_{Aeq1h} (dBA)
Noise Monitoring Site: 1 - Station 67+00, 61' West of the existing Edge of Pavement (EOP). March 21, 2002; 10:32 a.m.	68.8	66.0	2.8
Noise Monitoring Site: 2 - Station 242+00, 88.5' West of existing EOP and approx. 4' below roadway March 21, 2002; 12:00 p.m.	62.1	60.8	1.3
Noise Monitoring Site: 3 - Station 532+00, 88.0' North of existing EOP, and approx. 1' to 2' above roadway March 21, 2002; 2:30 p.m.	64.4	61.5	2.9

The Cobb Road/US 98 *Traffic Report* (April 2003) was the source for projected traffic data for this report. The use of peak hourly traffic representing Level of Service (LOS) 'A' or 'B' is warranted if predicted (demand) traffic volumes are projected to be less than LOS 'C' volumes. Otherwise, the LOS 'C' traffic volumes and speeds yield the worst case noise levels where the demand LOS is 'D', 'E', or 'F'. LOS 'C' volumes for this analysis are based on those in the Highway Capacity Manual (HCM) 2000. The reason for using the LOS 'C' traffic volume instead of the actual demand volume is that a LOS 'C' volume and speed will generate a maximum noise level. Noise levels are proportional to volume and speed, whereby, the maximum highway noise occurs during a maximum speed at a maximum volume. A volume greater than LOS 'C' will create a reduced average speed and, therefore, generate less sound energy. Traffic data obtained from the *Traffic Report* and Year 2025 Design Build AADT Volumes were used to model the worst case traffic noise conditions evaluated in this analysis. In some cases, demand volumes exceeded LOS 'C' volumes. For these situations, LOS 'C' volumes were used to model traffic noise for this analysis. Otherwise, demand volumes were used. The noise model traffic input data is shown in Table 4.2. Traffic Data forms are included in Appendix B. The following traffic characteristics were used for all roadway segments:

- | | |
|---------------------------|---------------------------|
| K = 9.9 % | Medium Trucks DHV = 3.8 % |
| D = 54 % | Heavy Trucks DHV = 13.0 % |
| T_{24hr} = 33.5 % | Buses DHV = 1.0 % |
| $T_{design\ hr}$ = 16.8 % | Motorcycles DHV = 0.0 % |

Table 4.2 – Noise Model Traffic Input Data

Segment	Roadway Link	Existing		No Build		Build	
		Traffic 2001 ADT*	Posted Speed (mph)	Traffic 2025 ADT*	Posted Speed (mph)	Traffic 2025 ADT*	Future Posted Speed (mph)
1a	Cobb Rd from SR 50 to Fort Dade Ave	1,040 C	45	1,040 C	45	16,750 D	55
1a/1b	Cobb Rd from Fort Dade Ave to Yontz Rd	8,080 C	55	8,080 C	55	14,850 D	55
1b/2a	Cobb Rd from Yontz Rd to Youth Dr	3,850 D	55	6,700 D	55	10,400 D	60
2a/2b	Cobb Rd from Youth Dr to US 98	3,600 D	55	5,500 D	55	9,350 D	60
2b/3	US 98 from Cobb Rd to CR 476	8,550 D	60	8,828 C	60	13,450 D	60
3	US 98 from CR 476 to CR 491A	8,550 D	60	10,100 C	60	12,950 D	60
3	US 98 from CR 491A to CR 491	7,950 D	60	8,480 C	60	9,950 D	60
4	US 98 from CR 491 to Landfill Rd	5,400 D	60	8,545 C	60	9,950 D	60

* C denotes Level of Service ‘C’ from HCM 2000
D denotes Demand Traffic from *Traffic Report* (April 2003)

The analysis for the 2025 Build Alternative was conducted using the Recommended Alternative obtained from the preliminary design plans (August 2002). The following items were used to form the basis of the evaluation presented herein:

- field data was collected during business hours; and
- location of the receiver sites in relation to the proposed alignments were evaluated using aerial photographs and site visits.

4.2 NOISE SENSITIVE SITES

Noise sensitive sites, also known as receivers, are any property where frequent exterior human use occurs and where a lowered noise level would be of benefit. The FHWA has established noise levels referred to as Noise Abatement Criteria (NAC). Noise abatement is considered for noise sensitive receivers where predicted noise levels approach, meet, or exceed the FHWA-established NAC. As outlined in the Department’s *PD&E Manual, Chapter 17*, approaching the NAC is defined as being within 1 dBA of the appropriate FHWA NAC. Table 4.3 presents the FHWA NAC for different activity categories. As shown in this table, these criteria vary according to a property’s land use activity category.

Table 4.3 – Federal Highway Administration Noise Abatement Criteria

Hourly A-Weighted Sound Level – decibels (dBA)		
Activity Category	L_{Aeq1h}	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, RV parks, day care centers and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Each of the noise sensitive sites for this project (A through V) represents one or more noise sensitive receivers along the corridor. Each receiver has been given a numeric designation for identification. In all instances along this project, areas of frequent human use were evaluated as Activity Category B (exterior); therefore the NAC for all receivers (single family residences) along this project is 67 dBA. Since the approach criteria is within 1 dBA of the NAC, **66 dBA** will be the criteria for which noise abatement consideration will be based. All noise sensitive sites identified for further analysis are illustrated in Exhibit 4.2. All receivers are identified on the plan sheets included in Appendix C.

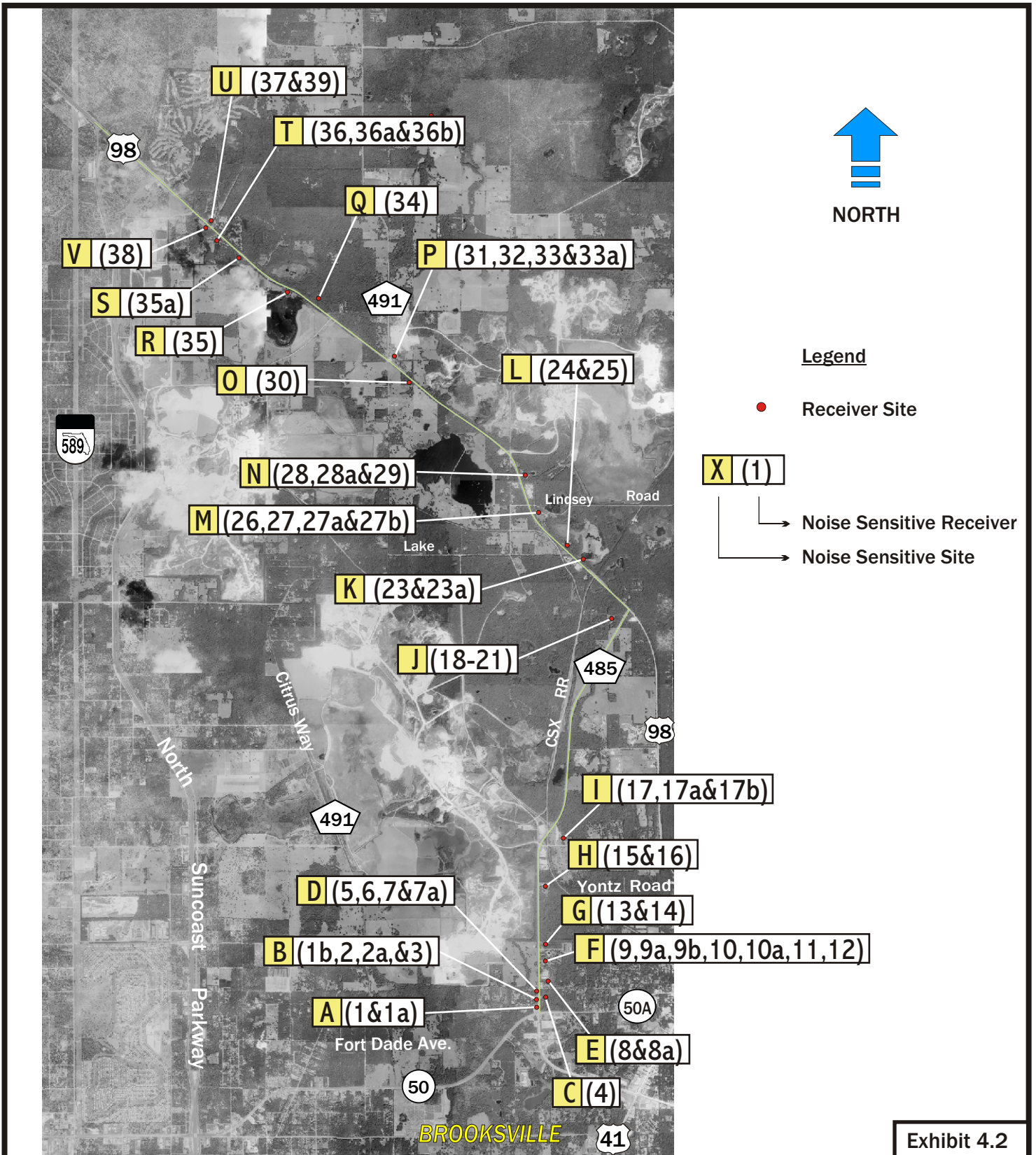
4.3 PREDICTED NOISE ISOPLETHS

Isopleths are contours of equal noise levels. Noise level isopleths associated with the future Build condition were determined using TNM 1.1 with traffic volumes and speeds from the *Traffic Report* noted previously. The TNM results are included in Appendix D of this report. The Typical Design Year 2025 Build Alternative 66 dBA noise isopleth is shown in Exhibits 4.3a, 4.3b and 4.3c for each section of the project that represents different traffic conditions. These noise isopleths delineate the distance from the improved roadway edge of pavement where the Activity Category B NAC is expected to occur in the year 2025 with the Cobb Road/US 98 improvements. In addition to being helpful in identifying the receivers to be further analyzed, this information is also useful to local officials with land use control authority. Further, any future residential developments are recommended to be located outside the 66 dBA isopleth line. As shown in Table 4.4, a traffic noise level of 66.0 dBA or more is predicted to extend 115 to 160 feet from the improved roadway edge of pavement for Cobb Road and US 98.

Table 4.4 – 66 dBA Noise Isopleths

Roadway Section	Distance to 66 dBA* from Edge of Pavement (ft.)
Cobb Rd. from SR 50 to Fort Dade Ave.	160
Cobb Rd. from Fort Dade Ave. to Yontz Rd.	150
Cobb Rd. from Yontz Rd. to Youth Dr.	120
Cobb Rd. from Youth Dr. to US 98	115
US 98 from Cobb Rd. to CR 476	140
US 98 from CR 476 to CR 491A	150
US 98 from CR 491A to CR 491	115
US 98 from CR 491 to Landfill Rd.	130

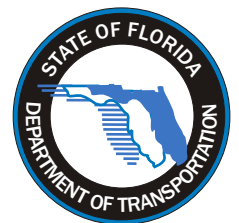
* Distances do not reflect any reduction in noise levels that would result from existing structures (shielding).



NOISE SENSITIVE SITES

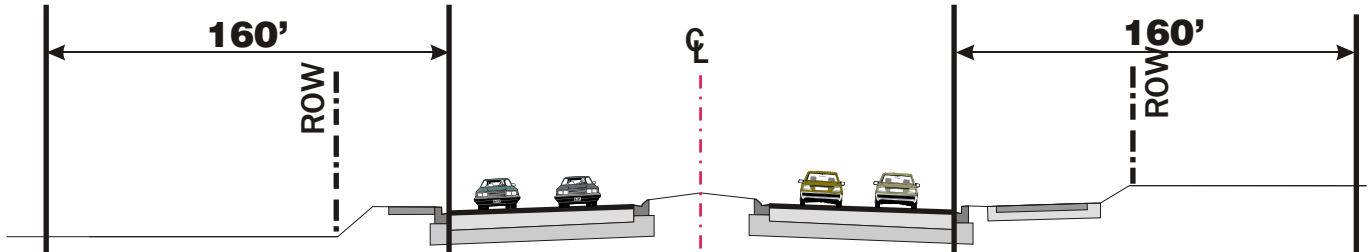
Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P



66dBA

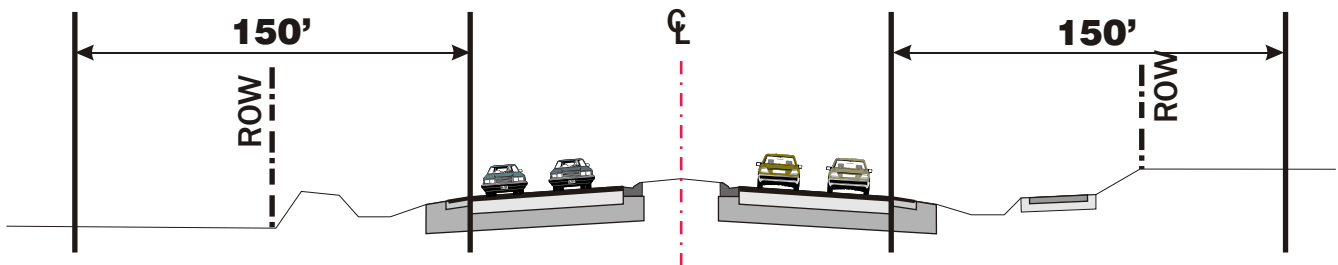
66dBA



Cobb Road from SR 50 to Fort Dade Ave.

66dBA

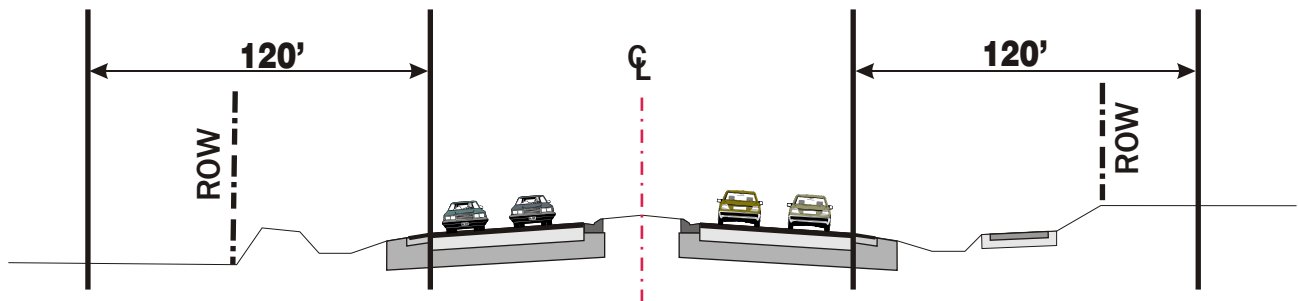
66dBA



Cobb Road from Fort Dade Ave. To Yontz Road

66dBA

66dBA



Cobb Road from Yontz Road to Youth Drive

(1)* The distance to the 66dBA noise isopleth does not reflect any reduction in noise levels that would result from shielding provided by existing structures.

(2)* The distance to the ROW varies.

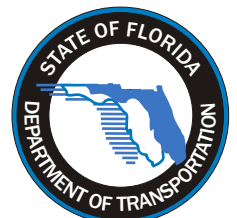
Exhibit 4.3a

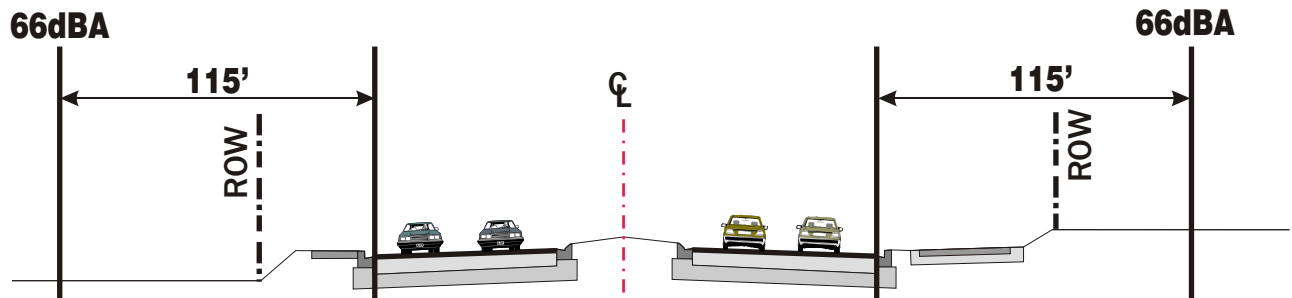


66dBA Noise Isopleths

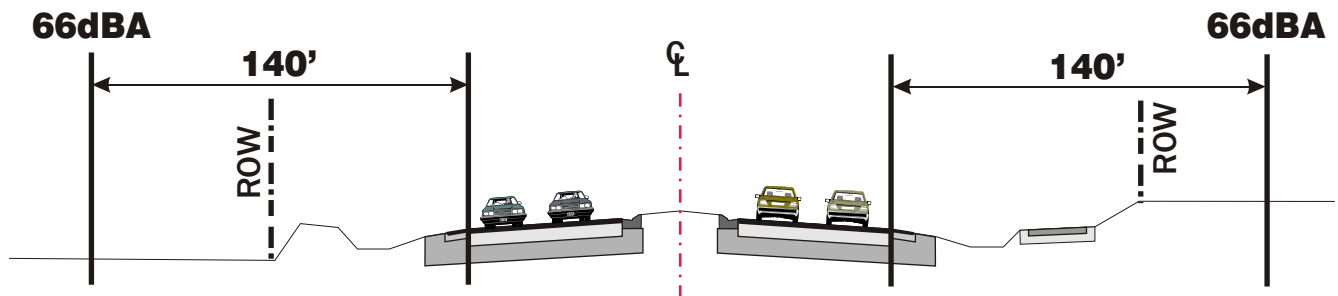
Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P

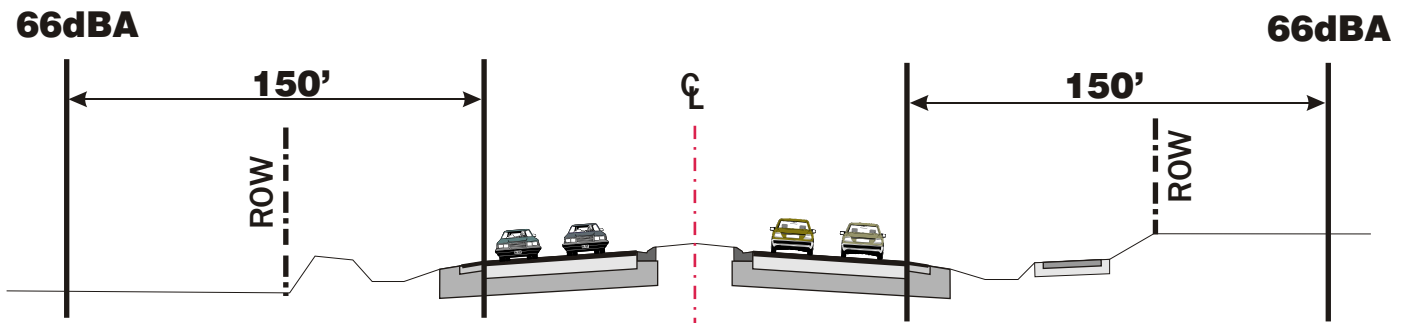




Cobb Road from Youth Drive to US 98



US 98 from Cobb Road to CR 476

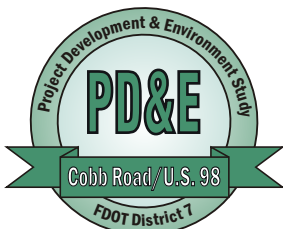


US 98 from CR 476 to CR 491A

(1)* The distance to the 66dBA noise isopleth does not reflect any reduction in noise levels that would result from shielding provided by existing structures.

(2)* The distance to the ROW varies.

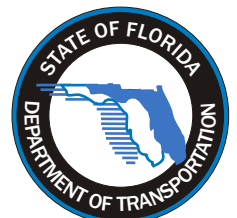
Exhibit 4.3b



66dBA Noise Isopleths

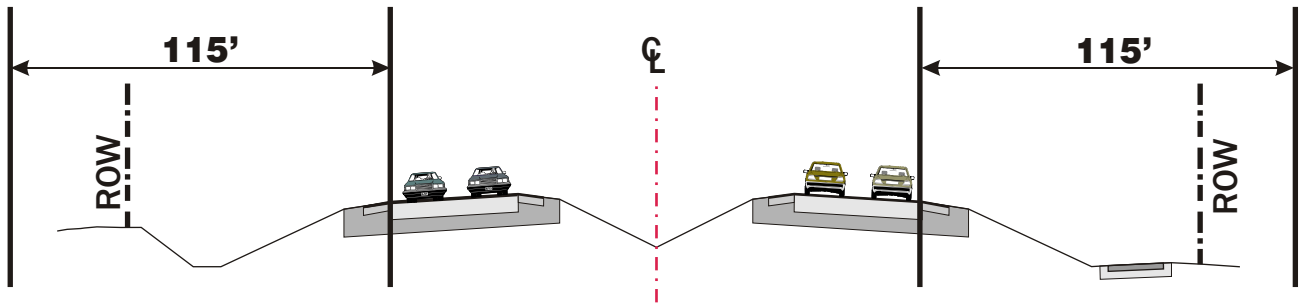
Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P



66dBA

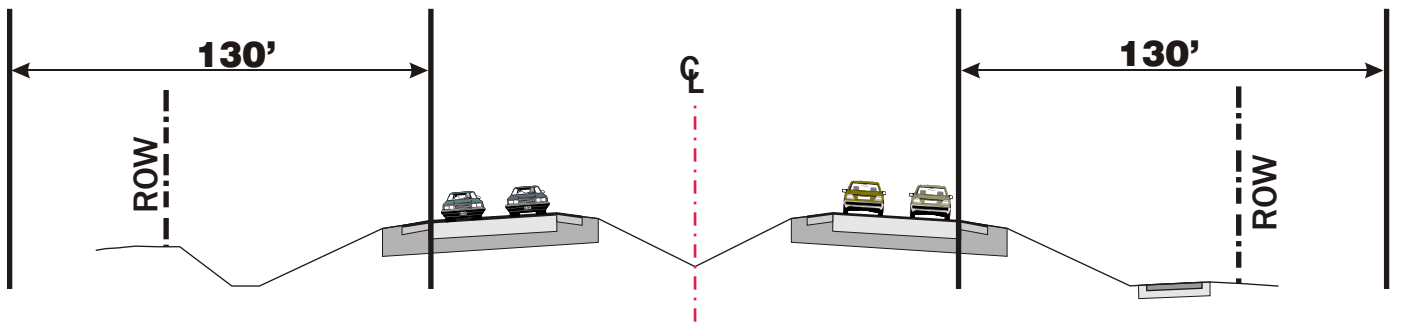
66dBA



US 98 from CR 491A to CR 491

66dBA

66dBA

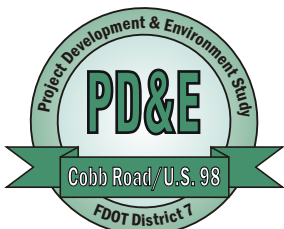


US 98 from CR 491 to Landfill Road

(1)* The distance to the 66dBA noise isopleth does not reflect any reduction in noise levels that would result from shielding provided by existing structures.

(2)* The distance to the ROW varies.

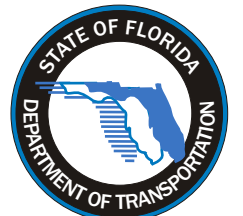
Exhibit 4.3c



66dBA Noise Isopleths

Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P



4.4 NOISE LEVEL ANALYSIS

Noise abatement measures must be considered for Department projects at sites where:

- a) noise levels for the Build Alternative are predicted to approach, meet, or exceed the FHWA NAC (i.e., 66.0 dBA for Activity Category B).
- b) a substantial noise increase is predicted. A substantial noise increase is defined as an increase of 15 or more decibels above the existing noise level as a direct result of the planned improvements.

There were 57 receivers identified for further noise level analysis (on or within the 66 dBA isopleth) in Segments 1a, 1b, 2b, 3 and 4. Along Segment 2a, no noise sensitive sites were identified within the 66 dBA isopleth, thus none were analyzed further.

4.4.1 Existing 2001 Levels

The existing noise levels from the computer analysis are summarized in Table 4.5. Existing noise levels are in the range from 48.8 to 70.6 dBA. Existing noise levels at 11 of the 57 receivers are 66.0 dBA or greater. Complete results for each receiver are included in Appendix D.

4.4.2 2025 No Build Alternative

The 2025 No Build Alternative was analyzed using the projected 2025 traffic volumes from the *Traffic Report* applied to the existing roadway conditions. The speed was assumed to be the current posted speed. In addition, no significant vertical profile upgrades (>2%) of the roadway were noted to occur. As noted previously, the noise model traffic input data are shown in Table 4.2. As can be seen in the table, the traffic volumes projected for the year 2025 are higher than the current volumes. The predicted noise levels from the TNM analysis are summarized in Table 4.5. Complete results for each receiver are included in Appendix D. The range of noise levels is projected to be from 48.9 to 70.9 dBA. These noise levels represent an average increase of approximately 0.8 dBA over that which currently exists. The projected noise levels at 13 of the 57 receivers are 66.0 dBA or greater.

4.4.3 2025 Build Alternative (Recommended Alternative)

Predicted noise levels for the 2025 Build Alternative are also summarized in Table 4.5. As can be seen in this table, the range of noise levels is predicted to be from 53.4 to 72.8 dBA. The predicted noise level is on the average approximately 4.6 dBA higher than the existing condition noise levels; however, no noise sensitive sites will experience a substantial noise increase as a direct result of the planned improvements. The predicted noise levels for 2025 Build Alternative approach, meet, or exceed the NAC at 21 of the 57 receivers. Complete results for each receiver are included in Appendix D. Noise abatement measures were considered for these 21 receivers.

Table 4.5 - Summary of Noise Analysis

Segment	Site/ Receiver	# of Receivers Represented	Receiver Location	Predicted L_{Aeq1h} (dBA)			Difference Between Existing and Build (dBA)	Approaches, Meets or Exceeds NAC?		
				2001 Existing	2025 No-Build	2025 Build		2001 Existing	2025 No-Build	2025 Build
1a	A/1	1	Residence between SR 50 and Lee Ave	55.4	55.4	68.3	12.9	NO	NO	YES
1a	A/1a	1	Residence along Lee Ave, south side	51.3	51.3	63.8	12.5	NO	NO	NO
1a	B/1b	1	Residence along Lee Ave, north side	48.8	48.9	61.2	12.4	NO	NO	NO
1a	B/2	1	Residence between Lee Ave and Shadyside Dr	58.0	58.0	71.0	13.0	NO	NO	YES
1a	B/2a	1	Residence along Shadyside Dr, south side	52.2	52.2	63.4	11.2	NO	NO	NO
1a	B/3	1	Residence between Lee Ave and Shadyside Dr	58.5	58.5	71.0	12.5	NO	NO	YES
1a	C/4	2	Two residences between Lee Ave and Shadyside Dr	59.4	59.4	72.6	13.2	NO	NO	YES
1a	D/5	1	Residence between Shadyside Dr and Fort Dade Ave	59.7	59.7	72.2	12.5	NO	NO	YES
1a	D/6	1	Residence between Shadyside Dr and Fort Dade Ave	59.7	59.7	71.7	12.0	NO	NO	YES
1a	D/7	1	Residence between Shadyside Dr and Fort Dade Ave	59.0	59.0	69.5	10.5	NO	NO	YES
1a	D/7a	1	Residence along Fort Dade Ave, south side	56.6	56.8	63.6	7.0	NO	NO	NO
1a	E/8	1	Residence between Fort Dade Ave and Old Cobb Rd	69.0	69.0	72.0	3.0	YES	YES	YES
1a	E/8a	1	Residence along Fort Dade Ave, north side	54.7	54.8	60.5	5.8	NO	NO	NO
1a	F/9	1	Residence between Old Cobb Rd and Wheeling St	68.2	68.2	71.1	2.9	YES	YES	YES
1a	F/9a	1	Residence behind Receiver 9	61.3	61.4	65.1	3.8	NO	NO	NO
1a	F/9b	1	Residence behind Receivers 9 and 9a	57.2	57.3	60.9	3.7	NO	NO	NO
1a	F/10	1	Residence between Old Cobb Rd and Wheeling St	70.6	70.5	72.8	2.2	YES	YES	YES
1a	F/10a	1	Residence behind Receiver 10	66.8	66.8	69.3	2.5	YES	YES	YES
1a	F/11	1	Residence between Old Cobb Rd and Wheeling St	65.7	65.6	67.4	1.7	NO	NO	YES
1a	F/12	1	Residence between Old Cobb Rd and Wheeling St	67.6	67.6	69.6	2.0	YES	YES	YES
1a	G/13	1	Residence north of Wheeling St	65.3	65.2	68.1	2.8	NO	NO	YES
1b	G/14	1	Residence north of Wheeling St	65.4	65.4	68.0	2.6	NO	NO	YES
1b	H/15	1	Residence between Wheeling St and Yontz Rd	62.2	62.2	65.4	3.2	NO	NO	NO
1b	H/16	1	Residence between Wheeling St and Yontz Rd	70.3	70.2	72.1	1.8	YES	YES	YES
1b	I/17	1	Residence along Yontz Rd, east of Railroad	55.2	57.5	58.9	3.7	NO	NO	NO
1b	I/17a	1	Residence along Yontz Rd, east of Railroad	52.2	54.8	56.2	4.0	NO	NO	NO
1b	I/17b	1	Residence along Yontz Rd, east of Railroad	50.5	52.9	53.4	2.9	NO	NO	NO
2b	J/18	1	Residence off of Campground Rd	50.5	52.2	56.8	6.3	NO	NO	NO
2b	J/19	1	Residence off of Campground Rd	51.7	53.4	59.6	7.9	NO	NO	NO
2b	J/20	1	Residence off of Campground Rd	53.7	55.5	63.5	9.8	NO	NO	NO
2b	J/21	1	Residence off of Campground Rd	50.9	52.5	61.0	10.1	NO	NO	NO

Table 4.5 - Summary of Noise Analysis (Continued)

Segment	Site/Receiver	# of Receivers Represented	Receiver Location	Predicted L_{Aeq1h} (dBA)			Difference Between Existing and Build (dBA)	Approaches, Meets or Exceeds NAC?		
				2001 Existing	2025 No-Build	2025 Build		2001 Existing	2025 No-Build	2025 Build
3	K/23	1	Residence by Tank Lake	66.6	66.8	70.0	3.4	YES	YES	YES
3	K/23a	1	Residence by Tank Lake	68.6	68.9	70.1	1.5	YES	YES	YES
3	L/24	1	Residence north of Tank Lake	59.2	59.3	62.9	3.7	NO	NO	NO
3	L/25	1	Residence north of Tank Lake	62.0	62.1	64.8	2.8	NO	NO	NO
3	M/26	1	Residence south of CR 476	63.0	63.1	65.9	2.9	NO	NO	NO
3	M/27	1	Residence south of CR 476	60.4	60.6	63.9	3.5	NO	NO	NO
3	M/27a	1	Residence along CR 476, south side	56.3	56.5	60.7	4.4	NO	NO	NO
3	M/27b	1	Residence along CR 476, south side	54.7	55.0	58.9	4.2	NO	NO	NO
3	N/28	1	Residence between CR 476 and CR 491A	67.1	68.2	68.3	1.2	YES	YES	YES
3	N/28a	1	Residence behind Receiver 28	58.7	59.8	60.8	2.1	NO	NO	NO
3	N/29	1	Residence between CR 476 and CR 491A	62.7	63.8	64.6	1.9	NO	NO	NO
3	O/30	1	Residence south of CR 491	64.0	65.1	65.3	1.3	NO	NO	NO
3	P/31	1	Residence south of CR 491	59.7	60.9	60.0	0.3	NO	NO	NO
3	P/32	1	Residence south of CR 491	63.5	64.7	63.8	0.3	NO	NO	NO
3	P/33	1	Residence south of CR 491	65.6	66.8	65.2	-0.4	NO	YES	NO
3	P/33a	1	Residence along CR 491, east side	55.7	56.8	56.3	0.6	NO	NO	NO
4	Q/34	1	Residence at Skinner Lake	59.6	61.5	63.1	3.5	NO	NO	NO
4	R/35	1	Residence at Skinner Lake	64.1	66.1	65.2	1.1	NO	YES	NO
4	S/35a	1	Vacated Residence by Turkey Prairie	69.1	70.9	70.0	0.9	YES	YES	YES
4	T/36	1	Residence at Bishop Loop Rd	68.5	70.5	68.0	-0.5	YES	YES	YES
4	T/36a	1	Residence along Bishop Loop Rd, south side	62.0	64.1	61.6	-0.4	NO	NO	NO
4	T/36b	1	Residence along Bishop Loop Rd, south side	58.4	60.4	58.6	0.2	NO	NO	NO
4	U/37	1	Residence between Bishop Loop Rd and Landfill Rd	62.9	64.8	64.8	1.9	NO	NO	NO
4	V/38	1	Residence between Bishop Loop Rd and Landfill Rd	59.8	61.8	62.9	3.1	NO	NO	NO
4	U/39	1	Residence between Bishop Loop Rd and Landfill Rd	62.7	64.7	64.7	2.0	NO	NO	NO
TOTAL		57						11	13	21

5.0 NOISE ABATEMENT

5.1 ABATEMENT TECHNIQUES

Predicted noise levels at 21 Category B receivers for the 2025 Build Alternative approach or exceed the NAC. Hence, in accordance with 23 CFR Part 772, various noise abatement options were evaluated for this project. There are several options available to reduce traffic noise, which are described below:

5.1.1 Traffic Management

Traffic Management involves limiting vehicle speed, vehicle type, and other parameters for the design traffic volume. Since the Cobb Road/US 98 corridor is intended as a primary bypass route around the City of Brooksville for through north-south traffic, this abatement technique is not feasible.

5.1.2 Alignment Adjustment

Because this is a widening project which will utilize the existing right-of-way as much as possible, a significant alignment shift is impractical due to negative effects to adjacent properties. Significant reduction in noise levels cannot be achieved with the limited alignment variation available for this project, particularly since receivers are located on both sides of the corridor.

5.1.3 Vegetative Barriers

Studies show that for vegetation to effectively dampen noise transmission from roadways by 5 dBA, a 100-foot wide buffer of dense foliage would be required. Given the limited right-of-way available and the proximity of the noise sensitive sites to the roadway, this type of abatement measure is impractical for this project.

5.1.4 Structural Barriers

To be effective in reducing traffic noise levels, a noise barrier must be relatively long, continuous (with no intermittent openings), and sufficiently high enough to provide the necessary reduction. Noise barriers are most often used on high speed, limited access facilities where noise levels are high and there is adequate space for continuously long and sufficiently high barriers. Since Cobb Road and US 98 are arterial roadways, and to preserve the character of its neighborhoods, no barriers over 14 feet were modeled in this analysis. Construction of an earthen berm typically results in the lowest cost from a construction standpoint, but right-of-way restrictions usually make this technique impractical.

5.2 NOISE BARRIER EVALUATION

Structural barriers were considered as a viable abatement option, as they can usually be constructed along the project with little, or no, additional right-of-way. While the attenuation of three (3) dBA means 50 percent reduction of the transmitted acoustical energy, such a reduction is barely discernable to the average human ear. To reduce the perceived loudness of highway traffic noise in half, a reduction of 10 dBA is required, which is equivalent to eliminating 90 percent of the initial energy directed toward the receiver. Such a major reduction of energy requires effective barriers to generally be long, continuous, and high. The noise barriers must be located such that the safety of the highway will not be compromised, which includes line-of-sight

requirements and other standards contained in the *Florida Department of Transportation Design Standards*.

The Department requires the evaluation of twenty-one (21) different traffic noise abatement consideration factors in determining the feasibility of noise abatement measures. These twenty-one factors are discussed in the PD&E Manual, Part 2, Chapter 17, Section 17-4.6.1, and are used in determining whether construction of a noise barrier would be reasonable and feasible. One of these factors is that at least a 5 dBA reduction in the L_{Aeq1h} level should be achieved upon insertion of the barrier, with a goal of a 10 dBA reduction being desirable. This drop in noise level achieved when adding a noise barrier is referred to as insertion loss.

For noise barriers, the cost includes the cost of construction (material and labor) and associated costs less the cost of designing the barrier. The cost also includes the cost of any additional right-of-way purchases that are necessary and related directly to the abatement measure. For purposes of evaluating the cost of an abatement measure, the Department uses a cost per benefited receiver guideline. A benefited receiver is a noise sensitive site that is provided a reduction in noise of at least 5 dBA due to an abatement measure. Currently, the Department considers a cost of \$30,000 per benefited receiver as an upper limit, for the use of public funds, in providing noise abatement measures. The cost of a noise barrier is calculated using the current cost per square foot factor for cost estimating purposes. Effective October 1, 2000, all Department noise studies use a cost factor of \$25 per square foot for this purpose.

Noise barriers were modeled where possible along the proposed right-of-way at the affected locations for barrier cost analysis. The 57 receivers have been divided into 22 noise sensitive sites (A through V), which are shown in Exhibit 4.2, mentioned previously. A number of sites along the project were determined not to be affected with the Build Alternative; therefore, noise abatement was not considered for these sites, including Sites I, J, L, M, O, P, Q, R, U and V. A brief discussion of the sites with respect to the reasonableness and feasibility of constructing a noise barrier is provided below. Though the discussion emphasis is placed on feasibility, insertion loss and reasonable cost, evaluations are based on all of the 21 factors presented in the PD&E Manual.

The presence of side streets and access roads (driveways) is a constraint for implementation of noise abatement for a number of identified noise sensitive sites along this project, including Sites A, B, C, D, E, F, G, H, N and S. Site B was chosen as a representative site for barrier analysis since the most potentially-benefited receivers are located at this site and this site has the longest barrier potential (i.e., access points are furthest apart). This barrier was analyzed for two single-family residences on the west side of Cobb Road north of Lee Avenue and south of Shadyside Drive (Receivers 2 and 3). A noise barrier with a cumulative length of 323 feet (from station 35+50 to 39+50, three barriers separated by two access points) was evaluated for these residences. The modeled barrier is within and adjacent to the Department right-of-way line. The minimum required 5.0 dBA insertion loss was predicted to be achieved at Receiver 2 with a barrier height of 12 feet. The estimated cost per benefited receiver is \$95,700, which greatly exceeds the Department's reasonable cost guideline of \$30,000 per benefited receiver. Although feasible, a noise barrier is not a reasonable noise mitigation measure to reduce predicted traffic noise for this residence. A barrier height of 14 feet was also evaluated. At this height, Receiver 2 was still the only benefited receiver at a cost that still greatly exceeds the Department's reasonable cost guideline. Since this representative site is not reasonable for noise abatement, it is safe to conclude that the other sites along this project with access point constraints would not be reasonable for noise abatement, as well. Therefore, noise abatement was not considered at Sites A, C, D, E, F, G, H, N or S.

Site K – Segment 3, Receivers 23 and 23a: These receivers are single-family residences located on the east side of US 98 at Tank Lake. Receiver 23 is a house and Receiver 23a is a mobile home, both having the same mailing address. Both residences are located within 1.5 feet of the existing right-of-way line. A noise barrier with a cumulative length of 365 feet (from station 381+00 to 384+65) was evaluated. The modeled barrier is within and adjacent to the Department right-of-way line. The minimum required 5.0 dBA insertion loss was predicted to be achieved at Receiver 23a with a barrier height of 6 feet. The estimated cost per benefited receiver is \$54,800, which exceeds the Department's reasonable cost guideline of \$30,000 per benefited receiver. Although feasible, a noise barrier is not a reasonable noise mitigation measure to reduce predicted traffic noise for this residence. Barrier heights in 2-foot increments from 8 to 14 feet were also evaluated. For these heights, Receiver 23a was still the only benefited receiver at a cost that still greatly exceeds the Department's reasonable cost guideline.

Site T – Segment 4, Receivers 36, 36a and 36b: These receivers are single-family residences located on the west side of US 98 along the south side of Bishop Loop Road. Only Receiver 36 is predicted to be affected with the Build Alternative. A noise barrier with a cumulative length of 61 feet (from station 654+15 to 654+76) was evaluated for this residence. The modeled barrier is within and adjacent to the Department right-of-way line. The results of the analyses indicated that the minimum 5 dBA insertion loss could not be achieved due to constraints of the barrier length because of Bishop Loop Road and the configuration of Receiver 36's property line. Therefore, noise barriers are not a feasible noise mitigation measure to reduce predicted traffic noise for this site.

5.3 CONCLUSIONS

Based on the noise analysis performed to date, there are no apparent solutions available to mitigate the noise level changes identified in Table 4.5. Three (3) barriers were analyzed for the affected noise-sensitive sites. The results of the analysis indicate that none of the barriers are reasonable and feasible to reduce predicted traffic noise levels. Depending on the location, this finding is based on one or more of the following:

- The minimum required insertion loss would not be provided by a noise barrier.
- The cost of a barrier would exceed the Department's reasonable cost guideline.

Notably, in most cases, the barriers were determined to be unreasonable or unfeasible due to limitations on barrier length because of required property access (driveways) and intersecting roadways.

6.0 CONSTRUCTION NOISE AND VIBRATION

Noise and vibration generated by pile driving, haul trucks, and other heavy equipment during construction of the planned improvements may affect some land uses and activities to varying degrees. There is a potential for residential noise sensitive receivers to be affected by construction noise and/or vibration, which will be temporary in nature. There are no businesses along the project that would be sensitive to construction noise and vibration. Construction noise and vibration will be controlled on this project by adherence to the controls listed in the latest edition of the Department's *Standard Specifications for Road and Bridge Construction* or additional special provisions, as necessary. If these measures do not prove adequate for limiting construction noise, alternatives approved by the Department can be utilized as directed by the Project Engineer.

7.0 COORDINATION WITH LOCAL OFFICIALS

The 23 CFR Part 772 delegates to highway agencies the responsibility for taking measures that are prudent and feasible to assure that the location and design of highways are compatible with existing and planned land uses. The Department is a proponent of promoting compatibility between land development and the operation of the planned improvements to the existing facility.

Information on the 66 dBA noise isopleths for undeveloped lands or properties in the immediate vicinity of the project is useful to planning and regulatory agencies to protect future land improvement from becoming incompatible with anticipated roadway noise levels. Therefore, a copy of this *Noise Study Report* will be distributed to the appropriate local planning/zoning officials for their use in land use control.

8.0 REFERENCES

Florida Department of Transportation, Environmental Management Office. *PD&E Manual, Chapter 17* (Rev 11/20/01).

Florida Department of Transportation, *Standard Specifications for Road and Bridge Construction* (2000).

U.S. Department of Transportation, Federal Highway Administration. *Highway Traffic Noise Analysis and Abatement, Policy and Guidance* (June, 1995).

U.S. Department of Transportation, Federal Highway Administration, *Measurement of Highway-Related Noise, FHWA-PD-96-046*, (May 1996).

23 CFR Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise", July 8, 1982, August 5, 1982 and August 26, 1996.

Appendix A
Validation Data

August 7, 2002

Cobb Road PD&E Study

Traffic Noise Data Collection

Field data were collected along the project corridor for use in validating the noise levels predicted by the FHWA Traffic Noise Model. The favorable comparison, within three dBA, of predicted noise levels with those measured in the field ensure that the model is accurately describing the existing noise levels and is capable of making accurate predictions of future noise levels.

Three representative sites were selected for the purpose of noise level monitoring along with two sites used to measure ambient noise levels. These sites did not contain any unusual shielding or changes in topography that could bias the data. The noise monitoring was conducted in accordance with the FHWA-PD-96-046 Measurement of Highway-Related Noise, May, 1996.

Noise monitoring was conducted for this study on March 21, 2002. Winds were eight to twelve miles per hour with higher gusts and no appreciable rain occurred during the noise level monitoring. Noise level measurements were made in three repetitions of ten minutes at each of the noise monitoring sites using a Metrosonics dB-308 Sound Analyzer. The sound analyzer microphone was placed on a tripod five feet above the ground level and at varying distances from the nearest outside lane line. Noise monitoring sites were located on both the east and west sides of Cobb Road. One noise monitoring site was located on the north side of US 98.

Noise Monitoring Site Number 1 was located on the west side of Cobb Road at station 67+00. Noise monitoring was conducted approximately 61 feet west of the existing edge of pavement. The ground elevation at this monitoring site was approximately at the same elevation as the existing roadway.

Noise Monitoring Site Number 2 was located on the west side of Cobb Road at station 242+00. Noise monitoring was conducted approximately 88.0 feet west of the existing edge of pavement. The ground elevation at this monitoring site was approximately four below the elevation of the existing roadway.

Noise Monitoring Site Number 3 was located on the north side of US 98 at station 532+00. Noise monitoring was conducted approximately 88.5 feet west of the existing edge of pavement. The ground elevation at this monitoring site was approximately one to two feet above the elevation of the existing roadway.

A calibration check was performed using a Metrosonics Acoustical Calibrator before and after noise level monitoring at each site. Both the noise analyzer and acoustical calibrator have been factory

calibrated and found to meet or exceed American National Standard Institute (ANSI) specifications. The sound analyzer was programmed to compute the hourly equivalent sound level (L_{aeq1h}). The measured noise data is presented in Table 1.

Traffic data were also collected at each noise monitoring location using Nu-metrics NC-90A and NC-97 vehicle magnetic imaging traffic analyzers. The analyzers were programmed to count each vehicle, classify the vehicle by type, and compute the vehicle speed. The measured traffic data has been summarized and is presented in Tables 2 and 3.

**TABLE 1
MEASURED TRAFFIC NOISE DATA**

Measurement Location	Measured L_{aeo1h} (dBA)	Calculated L_{aeo1h} (dBA)	Difference (dBA)
Noise Monitoring Site: 1 - Station 67+00, 61' West of the existing Edge of Pavement (EOP). Test Number: 1.1 @ 10:32 1.2 @ 10:43 1.3 @ 10:54 Test Average	68.6 68.4 <u>69.3</u> 68.8	65.9 65.9 <u>66.2</u> 66.0	2.7 2.5 <u>3.1</u> 2.8
Noise Monitoring Site: 2 - Station 242+00, 88.0' West of existing EOP and approx. 4' below roadway Test Number: 2.1 @ 12:00 2.2 @ 12:12 2.3 @ 12:23 Test Average	62.9 62.8 <u>60.7</u> 62.1	60.4 60.2 <u>60.9</u> 60.8	2.5 2.6 <u>0.2</u> 1.3
Noise Monitoring Site: 3 - Station 532+00, 88.0' North of existing EOP, and approx. 1' to 2' above roadway Test Number: 3.1 @ 14:30 3.2 @ 14:42 3.3 @ 14:53 Test Average	64.5 63.4 <u>65.2</u> 64.4	61.8 60.8 <u>61.9</u> 61.5	2.7 2.6 <u>3.3</u> 2.9
Ambient Noise Monitoring Site: 1 - Camp Ground Road, Station 485+40, 400.0' West of existing EOP Test Number: 4.1 @ 14:30 4.2 @ 14:42 4.3 @ 14:53 Test Average	51.5 53.1 <u>51.2</u> 51.9	NA	NA
Ambient Noise Monitoring Site: 2 - Yontz Road, Station 123+50, 1,100' East of existing EOP Test Number: 4.1 @ 14:30 4.2 @ 14:42 4.3 @ 14:53 Test Average	58.2 62.2 <u>61.2</u> 60.5	NA	NA

Appendix B
Traffic Data Forms

**DISTRICT 7 PD&E
TRAFFIC DATA FOR NOISE STUDIES**

Project: Cobb Road/US98 PD&E Study Date: 11/5/2002
 State Project Number(s): _____ Prepared By: Praba
 Work Program Number(s): 257299 1 & 405017 1
 Federal Aid Number(s): 2891 007 P & 2891 008 P
 Segment Description: Cobb Road from SR 50 to Fort Dade Avenue

(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: <u>2</u>	Lanes: <u>2</u>	Lanes: <u>4</u>
Year: <u>2001</u>	Year: <u>2025</u>	Year: <u>2025</u>
ADT: LOS (C) <u>1,040</u>	ADT: LOS (C) <u>1,040</u>	ADT: LOS (C) <u>23,040</u>
Demand <u>10,750</u>	Demand <u>12,850</u>	Demand <u>16,750</u>
Speed: <u>45</u> mph <u>72</u> kmh	Speed: <u>45</u> mph <u>72</u> kmh	Speed: <u>55</u> mph <u>89</u> kmh
K= <u>9.9</u> %	K= <u>9.9</u> %	K= <u>9.9</u> %
D= <u>54</u> %	D= <u>54</u> %	D= <u>54</u> %
T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.
T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV
<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV
<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV
<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % 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: LOS (C)	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: Demand
LOS (C)	LOS (C)	LOS (C)
Northbound: Autos <u>46</u> Med Trucks <u>2</u> Hvy Trucks <u>7</u> Buses <u>1</u> Motorcycles <u>0</u>	Northbound: Autos <u>46</u> Med Trucks <u>2</u> Hvy Trucks <u>7</u> Buses <u>1</u> Motorcycles <u>0</u>	Northbound: Autos <u>1012</u> Med Trucks <u>47</u> Hvy Trucks <u>160</u> Buses <u>12</u> Motorcycles <u>0</u>
Southbound: Autos <u>39</u> Med Trucks <u>2</u> Hvy Trucks <u>6</u> Buses <u>0</u> Motorcycles <u>0</u>	Southbound: Autos <u>39</u> Med Trucks <u>2</u> Hvy Trucks <u>6</u> Buses <u>0</u> Motorcycles <u>0</u>	Southbound: Autos <u>862</u> Med Trucks <u>40</u> Hvy Trucks <u>136</u> Buses <u>10</u> Motorcycles <u>0</u>
Demand	Demand	Demand
Northbound: Autos <u>473</u> Med Trucks <u>22</u> Hvy Trucks <u>75</u> Buses <u>6</u> Motorcycles <u>0</u>	Northbound: Autos <u>568</u> Med Trucks <u>26</u> Hvy Trucks <u>90</u> Buses <u>7</u> Motorcycles <u>0</u>	Northbound: Autos <u>736</u> Med Trucks <u>34</u> Hvy Trucks <u>116</u> Buses <u>9</u> Motorcycles <u>0</u>
Southbound: Autos <u>403</u> Med Trucks <u>18</u> Hvy Trucks <u>64</u> Buses <u>5</u> Motorcycles <u>0</u>	Southbound: Autos <u>477</u> Med Trucks <u>22</u> Hvy Trucks <u>75</u> Buses <u>6</u> Motorcycles <u>0</u>	Southbound: Autos <u>627</u> Med Trucks <u>29</u> Hvy Trucks <u>99</u> Buses <u>8</u> Motorcycles <u>0</u>

DISTRICT 7 PD&E TRAFFIC DATA FOR NOISE STUDIES

Project: Cobb Road/US98 PD&E Study Date: 11/5/2002
 State Project Number(s): _____ Prepared By: Praba
 Work Program Number(s): 257299 1 & 405017 1
 Federal Aid Number(s): 2891 007 P & 2891 008 P
 Segment Description: Wheeling Street Receptors: Cobb Road from Fort Dade Avenue to Yontz Road

(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: <u>2</u>	Lanes: <u>2</u>	Lanes: <u>4</u>
Year: <u>2001</u>	Year: <u>2025</u>	Year: <u>2025</u>
ADT: LOS (C) <u>8,080</u>	ADT: LOS (C) <u>8,080</u>	ADT: LOS (C) <u>44,000</u>
Demand <u>9,800</u>	Demand <u>10,700</u>	Demand <u>14,850</u>
Speed: <u>55</u> mph <u>89</u> kmh	Speed: <u>55</u> mph <u>89</u> kmh	Speed: <u>55</u> mph <u>89</u> kmh
K= <u>9.9</u> %	K= <u>9.9</u> %	K= <u>9.9</u> %
D= <u>54</u> %	D= <u>54</u> %	D= <u>54</u> %
T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.
T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV
<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV
<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV
<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % 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:	LOS (C)	No-Build (Design Year) Model:	LOS (C)	Build (Design Year) Model:	Demand
LOS (C)		LOS (C)		LOS (C)	
Northbound: Autos	355	Northbound: Autos	357	Northbound: Autos	1934
Med Trucks	16	Med Trucks	17	Med Trucks	89
Hvy Trucks	56	Hvy Trucks	56	Hvy Trucks	306
Buses	4	Buses	4	Buses	24
Motorcycles	0	Motorcycles	0	Motorcycles	0
Southbound: Autos	303	Southbound: Autos	300	Southbound: Autos	1647
Med Trucks	14	Med Trucks	14	Med Trucks	76
Hvy Trucks	48	Hvy Trucks	47	Hvy Trucks	260
Buses	4	Buses	4	Buses	20
Motorcycles	0	Motorcycles	0	Motorcycles	0
Demand		Demand		Demand	
Northbound: Autos	431	Northbound: Autos	473	Northbound: Autos	653
Med Trucks	20	Med Trucks	22	Med Trucks	30
Hvy Trucks	68	Hvy Trucks	75	Hvy Trucks	103
Buses	5	Buses	6	Buses	8
Motorcycles	0	Motorcycles	0	Motorcycles	0
Southbound: Autos	367	Southbound: Autos	397	Southbound: Autos	556
Med Trucks	17	Med Trucks	18	Med Trucks	26
Hvy Trucks	58	Hvy Trucks	63	Hvy Trucks	88
Buses	4	Buses	5	Buses	7
Motorcycles	0	Motorcycles	0	Motorcycles	0

DISTRICT 7 PD&E TRAFFIC DATA FOR NOISE STUDIES

Project: Cobb Road/US98 PD&E Study

State Project Number(s): _____

Work Program Number(s): 257299 1 & 405017 1

Federal Aid Number(s): 2891 007 P & 2891 008 P

Segment Description: Youth Drive Receptors: Cobb Road from Yontz Road to Youth Drive

Date: 11/5/2002

Prepared By: Praba

(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: <u>2</u>	Lanes: <u>2</u>	Lanes: <u>4</u>
Year: <u>2001</u>	Year: <u>2025</u>	Year: <u>2025</u>
ADT: LOS (C) <u>7,550</u>	ADT: LOS (C) <u>7,550</u>	ADT: LOS (C) <u>44,100</u>
Demand <u>3,850</u>	Demand <u>6,700</u>	Demand <u>10,400</u>
Speed: <u>55</u> mph <u>89</u> kmh	Speed: <u>55</u> mph <u>89</u> kmh	Speed: <u>60</u> mph <u>97</u> kmh
K= <u>9.9</u> %	K= <u>9.9</u> %	K= <u>9.9</u> %
D= <u>54</u> %	D= <u>54</u> %	D= <u>54</u> %
T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.
T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV
<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV
<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV
<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % 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:	No-Build (Design Year) Model:	Build (Design Year) Model:
Demand	Demand	Demand
LOS (C)	LOS (C)	LOS (C)
Northbound: Autos <u>332</u>	Northbound: Autos <u>332</u>	Northbound: Autos <u>1939</u>
Med Trucks <u>15</u>	Med Trucks <u>15</u>	Med Trucks <u>88</u>
Hvy Trucks <u>52</u>	Hvy Trucks <u>52</u>	Hvy Trucks <u>306</u>
Buses <u>4</u>	Buses <u>4</u>	Buses <u>24</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>
Southbound: Autos <u>283</u>	Southbound: Autos <u>283</u>	Southbound: Autos <u>1652</u>
Med Trucks <u>13</u>	Med Trucks <u>13</u>	Med Trucks <u>75</u>
Hvy Trucks <u>45</u>	Hvy Trucks <u>45</u>	Hvy Trucks <u>261</u>
Buses <u>3</u>	Buses <u>3</u>	Buses <u>20</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>
Demand	Demand	Demand
Northbound: Autos <u>169</u>	Northbound: Autos <u>295</u>	Northbound: Autos <u>457</u>
Med Trucks <u>8</u>	Med Trucks <u>13</u>	Med Trucks <u>21</u>
Hvy Trucks <u>27</u>	Hvy Trucks <u>47</u>	Hvy Trucks <u>72</u>
Buses <u>2</u>	Buses <u>4</u>	Buses <u>6</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>
Southbound: Autos <u>144</u>	Southbound: Autos <u>251</u>	Southbound: Autos <u>390</u>
Med Trucks <u>7</u>	Med Trucks <u>11</u>	Med Trucks <u>18</u>
Hvy Trucks <u>23</u>	Hvy Trucks <u>40</u>	Hvy Trucks <u>62</u>
Buses <u>2</u>	Buses <u>3</u>	Buses <u>5</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>

DISTRICT 7 PD&E TRAFFIC DATA FOR NOISE STUDIES

Project: Cobb Road/US98 PD&E Study Date: 11/5/2002
 State Project Number(s): _____ Prepared By: Praba
 Work Program Number(s): 257299 1 & 405017 1
 Federal Aid Number(s): 2891 007 P & 2891 008 P
 Segment Description: Wever Park Receptors (east side) and Intersection Receptors(west side): Cobb Road from Youth Drive to US 98

(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: <u>2</u>	Lanes: <u>2</u>	Lanes: <u>4</u>
Year: <u>2001</u>	Year: <u>2025</u>	Year: <u>2025</u>
ADT: LOS (C) <u>8,080</u>	ADT: LOS (C) <u>8,080</u>	ADT: LOS (C) <u>44,100</u>
Demand <u>3,600</u>	Demand <u>5,500</u>	Demand <u>9,350</u>
Speed: <u>55</u> mph <u>89</u> kmh	Speed: <u>55</u> mph <u>89</u> kmh	Speed: <u>60</u> mph <u>97</u> kmh
K= <u>9.9</u> %	K= <u>9.9</u> %	K= <u>9.9</u> %
D= <u>54</u> %	D= <u>54</u> %	D= <u>54</u> %
T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.
T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV
<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV
<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV
<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % 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:	No-Build (Design Year) Model:	Build (Design Year) Model:
Demand	Demand	Demand
LOS (C)	LOS (C)	LOS (C)
NB (Wever), SB (Intersection): Autos <u>355</u> Med Trucks <u>16</u> Hvy Trucks <u>56</u> Buses <u>4</u> Motorcycles <u>0</u>	NB (Wever), SB (Intersection): Autos <u>355</u> Med Trucks <u>16</u> Hvy Trucks <u>56</u> Buses <u>4</u> Motorcycles <u>0</u>	NB (Wever), SB (Intersection): Autos <u>1939</u> Med Trucks <u>88</u> Hvy Trucks <u>306</u> Buses <u>24</u> Motorcycles <u>0</u>
SB (Wever), NB (Intersection): Autos <u>303</u> Med Trucks <u>14</u> Hvy Trucks <u>48</u> Buses <u>4</u> Motorcycles <u>0</u>	SB (Wever), NB (Intersection): Autos <u>303</u> Med Trucks <u>14</u> Hvy Trucks <u>48</u> Buses <u>4</u> Motorcycles <u>0</u>	SB (Wever), NB (Intersection): Autos <u>1652</u> Med Trucks <u>75</u> Hvy Trucks <u>261</u> Buses <u>20</u> Motorcycles <u>0</u>
Demand	Demand	Demand
NB (Wever), SB (Intersection): Autos <u>158</u> Med Trucks <u>7</u> Hvy Trucks <u>25</u> Buses <u>2</u> Motorcycles <u>0</u>	NB (Wever), SB (Intersection): Autos <u>242</u> Med Trucks <u>11</u> Hvy Trucks <u>38</u> Buses <u>3</u> Motorcycles <u>0</u>	NB (Wever), SB (Intersection): Autos <u>411</u> Med Trucks <u>19</u> Hvy Trucks <u>65</u> Buses <u>5</u> Motorcycles <u>0</u>
SB (Wever), NB (Intersection): Autos <u>135</u> Med Trucks <u>6</u> Hvy Trucks <u>21</u> Buses <u>2</u> Motorcycles <u>0</u>	SB (Wever), NB (Intersection): Autos <u>206</u> Med Trucks <u>9</u> Hvy Trucks <u>33</u> Buses <u>3</u> Motorcycles <u>0</u>	SB (Wever), NB (Intersection): Autos <u>350</u> Med Trucks <u>16</u> Hvy Trucks <u>55</u> Buses <u>4</u> Motorcycles <u>0</u>

DISTRICT 7 PD&E TRAFFIC DATA FOR NOISE STUDIES

Project: Cobb Road/US98 PD&E Study Date: 11/5/2002
 State Project Number(s): _____ Prepared By: Praba
 Work Program Number(s): 257299 1 & 405017 1
 Federal Aid Number(s): 2891 007 P & 2891 008 P
 Segment Description: US 98 from Cobb Road to CR 476

(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: <u>2</u>	Lanes: <u>2</u>	Lanes: <u>4</u>
Year: <u>2001</u>	Year: <u>2025</u>	Year: <u>2025</u>
ADT: LOS (C) <u>8,828</u>	ADT: LOS (C) <u>8,828</u>	ADT: LOS (C) <u>25,282</u>
Demand <u>8,550</u>	Demand <u>11,800</u>	Demand <u>13,450</u>
Speed: <u>60</u> mph <u>97</u> kmh	Speed: <u>60</u> mph <u>97</u> kmh	Speed: <u>60</u> mph <u>97</u> kmh
K= <u>9.9</u> %	K= <u>9.9</u> %	K= <u>9.9</u> %
D= <u>54</u> %	D= <u>54</u> %	D= <u>54</u> %
T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.
T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV
<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV
<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV
<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % 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:	No-Build (Design Year) Model:	Build (Design Year) Model:
Demand	LOS (C)	Demand
LOS (C)	LOS (C)	LOS (C)
Northbound: Autos <u>388</u>	Northbound: Autos <u>390</u>	Northbound: Autos <u>1111</u>
Med Trucks <u>18</u>	Med Trucks <u>18</u>	Med Trucks <u>51</u>
Hvy Trucks <u>61</u>	Hvy Trucks <u>62</u>	Hvy Trucks <u>176</u>
Buses <u>5</u>	Buses <u>5</u>	Buses <u>14</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>
Southbound: Autos <u>331</u>	Southbound: Autos <u>327</u>	Southbound: Autos <u>946</u>
Med Trucks <u>15</u>	Med Trucks <u>15</u>	Med Trucks <u>44</u>
Hvy Trucks <u>52</u>	Hvy Trucks <u>52</u>	Hvy Trucks <u>150</u>
Buses <u>4</u>	Buses <u>4</u>	Buses <u>12</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>
Demand	Demand	Demand
Northbound: Autos <u>376</u>	Northbound: Autos <u>522</u>	Northbound: Autos <u>591</u>
Med Trucks <u>17</u>	Med Trucks <u>24</u>	Med Trucks <u>27</u>
Hvy Trucks <u>59</u>	Hvy Trucks <u>82</u>	Hvy Trucks <u>93</u>
Buses <u>5</u>	Buses <u>6</u>	Buses <u>7</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>
Southbound: Autos <u>320</u>	Southbound: Autos <u>438</u>	Southbound: Autos <u>503</u>
Med Trucks <u>15</u>	Med Trucks <u>20</u>	Med Trucks <u>23</u>
Hvy Trucks <u>51</u>	Hvy Trucks <u>69</u>	Hvy Trucks <u>80</u>
Buses <u>4</u>	Buses <u>5</u>	Buses <u>6</u>
Motorcycles <u>0</u>	Motorcycles <u>0</u>	Motorcycles <u>0</u>

**DISTRICT 7 PD&E
TRAFFIC DATA FOR NOISE STUDIES**

Project: Cobb Road/US98 PD&E Study Date: 11/5/2002
 State Project Number(s): _____ Prepared By: Praba
 Work Program Number(s): 257299 1 & 405017 1
 Federal Aid Number(s): 2891 007 P & 2891 008 P
 Segment Description: Ringhaver Receptors: US98 from CR476 to CR491A

(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:	<u>2</u>	Lanes:	<u>2</u>	Lanes:	<u>4</u>
Year:	<u>2001</u>	Year:	<u>2025</u>	Year:	<u>2025</u>
ADT:		ADT:		ADT:	
LOS (C)	<u>10,100</u>	LOS (C)	<u>10,100</u>	LOS (C)	<u>47,700</u>
Demand	<u>8,550</u>	Demand	<u>11,100</u>	Demand	<u>12,950</u>
Speed:	<u>60</u> mph <u>97</u> kmh	Speed:	<u>60</u> mph <u>97</u> kmh	Speed:	<u>60</u> mph <u>97</u> kmh
K=	<u>9.9</u> %	K=	<u>9.9</u> %	K=	<u>9.9</u> %
D=	<u>54</u> %	D=	<u>54</u> %	D=	<u>54</u> %
T=	<u>33.5</u> % for 24 hrs.	T=	<u>33.5</u> % for 24 hrs.	T=	<u>33.5</u> % for 24 hrs.
T=	<u>16.8</u> % Design hr	T=	<u>16.8</u> % Design hr	T=	<u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV		<u>3.8</u> % Medium Trucks DHV		<u>3.8</u> % Medium Trucks DHV	
<u>13.0</u> % Heavy Trucks DHV		<u>13.0</u> % Heavy Trucks DHV		<u>13.0</u> % Heavy Trucks DHV	
<u>1.0</u> % Buses DHV		<u>1.0</u> % Buses DHV		<u>1.0</u> % Buses DHV	
<u>0.0</u> % Motorcycles DHV		<u>0.0</u> % Motorcycles DHV		<u>0.0</u> % 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:		No-Build (Design Year) Model:		Build (Design Year) Model:	
Demand	LOS (C)	LOS (C)	Demand	Demand	LOS (C)
Northbound: Autos <u>444</u>		Northbound: Autos <u>444</u>		Northbound: Autos <u>2097</u>	
Med Trucks <u>20</u>		Med Trucks <u>20</u>		Med Trucks <u>96</u>	
Hvy Trucks <u>70</u>		Hvy Trucks <u>70</u>		Hvy Trucks <u>332</u>	
Buses <u>5</u>		Buses <u>5</u>		Buses <u>26</u>	
Motorcycles <u>0</u>		Motorcycles <u>0</u>		Motorcycles <u>0</u>	
Southbound: Autos <u>378</u>		Southbound: Autos <u>378</u>		Southbound: Autos <u>1787</u>	
Med Trucks <u>17</u>		Med Trucks <u>17</u>		Med Trucks <u>81</u>	
Hvy Trucks <u>60</u>		Hvy Trucks <u>60</u>		Hvy Trucks <u>282</u>	
Buses <u>5</u>		Buses <u>5</u>		Buses <u>22</u>	
Motorcycles <u>0</u>		Motorcycles <u>0</u>		Motorcycles <u>0</u>	
Demand		Demand		Demand	
Northbound: Autos <u>376</u>		Northbound: Autos <u>488</u>		Northbound: Autos <u>569</u>	
Med Trucks <u>17</u>		Med Trucks <u>22</u>		Med Trucks <u>26</u>	
Hvy Trucks <u>59</u>		Hvy Trucks <u>77</u>		Hvy Trucks <u>90</u>	
Buses <u>5</u>		Buses <u>6</u>		Buses <u>7</u>	
Motorcycles <u>0</u>		Motorcycles <u>0</u>		Motorcycles <u>0</u>	
Southbound: Autos <u>320</u>		Southbound: Autos <u>416</u>		Southbound: Autos <u>485</u>	
Med Trucks <u>15</u>		Med Trucks <u>19</u>		Med Trucks <u>22</u>	
Hvy Trucks <u>51</u>		Hvy Trucks <u>66</u>		Hvy Trucks <u>77</u>	
Buses <u>4</u>		Buses <u>5</u>		Buses <u>6</u>	
Motorcycles <u>0</u>		Motorcycles <u>0</u>		Motorcycles <u>0</u>	

DISTRICT 7 PD&E TRAFFIC DATA FOR NOISE STUDIES

Project: Cobb Road/US98 PD&E Study Date: 11/5/2002
 State Project Number(s): _____ Prepared By: Praba
 Work Program Number(s): 257299 1 & 405017 1
 Federal Aid Number(s): 2891 007 P & 2891 008 P
 Segment Description: Deschamps Receptors: US 98 from CR491A to CR491

(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: <u>2</u>	Lanes: <u>2</u>	Lanes: <u>4</u>
Year: <u>2001</u>	Year: <u>2025</u>	Year: <u>2025</u>
ADT: LOS (C) <u>8,480</u>	ADT: LOS (C) <u>8,480</u>	ADT: LOS (C) <u>47,700</u>
Demand <u>7,950</u>	Demand <u>10,300</u>	Demand <u>9,950</u>
Speed: <u>60</u> mph <u>97</u> kmh	Speed: <u>60</u> mph <u>97</u> kmh	Speed: <u>60</u> mph <u>97</u> kmh
K= <u>9.9</u> %	K= <u>9.9</u> %	K= <u>9.9</u> %
D= <u>54</u> %	D= <u>54</u> %	D= <u>54</u> %
T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.	T= <u>33.5</u> % for 24 hrs.
T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr	T= <u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV	<u>3.8</u> % Medium Trucks DHV
<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV	<u>13.0</u> % Heavy Trucks DHV
<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV	<u>1.0</u> % Buses DHV
<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % Motorcycles DHV	<u>0.0</u> % 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)	
Northbound: Autos	373	Northbound: Autos	373	Northbound: Autos	2097
Med Trucks	17	Med Trucks	17	Med Trucks	96
Hvy Trucks	59	Hvy Trucks	59	Hvy Trucks	332
Buses	5	Buses	5	Buses	26
Motorcycles	0	Motorcycles	0	Motorcycles	0
Southbound: Autos	318	Southbound: Autos	318	Southbound: Autos	1787
Med Trucks	14	Med Trucks	14	Med Trucks	81
Hvy Trucks	50	Hvy Trucks	50	Hvy Trucks	282
Buses	4	Buses	4	Buses	22
Motorcycles	0	Motorcycles	0	Motorcycles	0
Demand		Demand		Demand	
Northbound: Autos	350	Northbound: Autos	453	Northbound: Autos	438
Med Trucks	16	Med Trucks	21	Med Trucks	20
Hvy Trucks	55	Hvy Trucks	72	Hvy Trucks	69
Buses	4	Buses	6	Buses	5
Motorcycles	0	Motorcycles	0	Motorcycles	0
Southbound: Autos	298	Southbound: Autos	386	Southbound: Autos	373
Med Trucks	14	Med Trucks	18	Med Trucks	17
Hvy Trucks	47	Hvy Trucks	61	Hvy Trucks	59
Buses	4	Buses	5	Buses	5
Motorcycles	0	Motorcycles	0	Motorcycles	0

**DISTRICT 7 PD&E
TRAFFIC DATA FOR NOISE STUDIES**

Project: Cobb Road/US98 PD&E Study Date: 11/5/2002
 State Project Number(s): _____ Prepared By: Praba
 Work Program Number(s): 257299 1 & 405017 1
 Federal Aid Number(s): 2891 007 P & 2891 008 P
 Segment Description: US 98 from CR491 to Landfill Road

(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:	<u>2</u>	Lanes:	<u>2</u>	Lanes:	<u>4</u>
Year:	<u>2001</u>	Year:	<u>2025</u>	Year:	<u>2025</u>
ADT:		ADT:		ADT:	
LOS (C)	<u>8,545</u>	LOS (C)	<u>8,545</u>	LOS (C)	<u>25,252</u>
Demand	<u>5,400</u>	Demand	<u>9,400</u>	Demand	<u>9,950</u>
Speed:	<u>60</u> mph <u>97</u> kmh	Speed:	<u>60</u> mph <u>97</u> kmh	Speed:	<u>60</u> mph <u>97</u> kmh
K=	<u>9.9</u> %	K=	<u>9.9</u> %	K=	<u>9.9</u> %
D=	<u>54</u> %	D=	<u>54</u> %	D=	<u>54</u> %
T=	<u>33.5</u> % for 24 hrs.	T=	<u>33.5</u> % for 24 hrs.	T=	<u>33.5</u> % for 24 hrs.
T=	<u>16.8</u> % Design hr	T=	<u>16.8</u> % Design hr	T=	<u>16.8</u> % Design hr
<u>3.8</u> % Medium Trucks DHV		<u>3.8</u> % Medium Trucks DHV		<u>3.8</u> % Medium Trucks DHV	
<u>13.0</u> % Heavy Trucks DHV		<u>13.0</u> % Heavy Trucks DHV		<u>13.0</u> % Heavy Trucks DHV	
<u>1.0</u> % Buses DHV		<u>1.0</u> % Buses DHV		<u>1.0</u> % Buses DHV	
<u>0.0</u> % Motorcycles DHV		<u>0.0</u> % Motorcycles DHV		<u>0.0</u> % 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)		
Northbound: Autos		<u>376</u>	Northbound: Autos		<u>378</u>	Northbound: Autos		<u>1110</u>
Med Trucks		<u>17</u>	Med Trucks		<u>17</u>	Med Trucks		<u>51</u>
Hvy Trucks		<u>59</u>	Hvy Trucks		<u>60</u>	Hvy Trucks		<u>175</u>
Buses		<u>5</u>	Buses		<u>5</u>	Buses		<u>13</u>
Motorcycles		<u>0</u>	Motorcycles		<u>0</u>	Motorcycles		<u>0</u>
Southbound: Autos		<u>320</u>	Southbound: Autos		<u>317</u>	Southbound: Autos		<u>945</u>
Med Trucks		<u>15</u>	Med Trucks		<u>15</u>	Med Trucks		<u>44</u>
Hvy Trucks		<u>51</u>	Hvy Trucks		<u>50</u>	Hvy Trucks		<u>149</u>
Buses		<u>4</u>	Buses		<u>4</u>	Buses		<u>11</u>
Motorcycles		<u>0</u>	Motorcycles		<u>0</u>	Motorcycles		<u>0</u>
Demand			Demand			Demand		
Northbound: Autos		<u>237</u>	Northbound: Autos		<u>415</u>	Northbound: Autos		<u>437</u>
Med Trucks		<u>11</u>	Med Trucks		<u>19</u>	Med Trucks		<u>20</u>
Hvy Trucks		<u>38</u>	Hvy Trucks		<u>66</u>	Hvy Trucks		<u>69</u>
Buses		<u>3</u>	Buses		<u>5</u>	Buses		<u>5</u>
Motorcycles		<u>0</u>	Motorcycles		<u>0</u>	Motorcycles		<u>0</u>
Southbound: Autos		<u>202</u>	Southbound: Autos		<u>349</u>	Southbound: Autos		<u>372</u>
Med Trucks		<u>9</u>	Med Trucks		<u>16</u>	Med Trucks		<u>17</u>
Hvy Trucks		<u>32</u>	Hvy Trucks		<u>55</u>	Hvy Trucks		<u>59</u>
Buses		<u>2</u>	Buses		<u>4</u>	Buses		<u>5</u>
Motorcycles		<u>0</u>	Motorcycles		<u>0</u>	Motorcycles		<u>0</u>

Appendix C

Plan Sheets (showing Noise Sensitive Receivers)

See File
Final NSR Plan Set.pdf

Appendix D
TNM Results

Note: The “Brooksville Water Reclamation Facility (WRF) driveway” was identified as “Wheeling Street” at the time of this analysis.

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

5 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Cobb Road Existing Align and Traffic

RUN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

BARRIER DESIGN:

68 deg F, 50% RH

ATMOSPHERICS:

Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal		
			L _{Aeq1h}	dBA	L _{Aeq1h}	dBA	Calculated	Crit'n		Calculated	Crit'n		Calculated	dBA
Wheeling-RW	1	1	0.0	71.2	66	71.2	10	Snd Lvl	71.2	10	71.2	0.0	8	-8.0
Wheeling-RW25	2	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	10	69.5	0.0	8	-8.0
Wheeling-RW50	3	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	10	66.7	0.0	8	-8.0
Wheeling-RW75	4	1	0.0	65.5	66	65.5	10	----	65.5	10	65.5	0.0	8	-8.0
Wheeling-RW100	5	1	0.0	64.0	66	64.0	10	----	64.0	10	64.0	0.0	8	-8.0
Wheeling-RW150	6	1	0.0	61.9	66	61.9	10	----	61.9	10	61.9	0.0	8	-8.0
Wheeling-RW200	7	1	0.0	60.4	66	60.4	10	----	60.4	10	60.4	0.0	8	-8.0
Wheeling-RW300	8	1	0.0	58.1	66	58.1	10	----	58.1	10	58.1	0.0	8	-8.0
Wheeling-RW400	9	1	0.0	55.8	66	55.8	10	----	55.8	10	55.8	0.0	8	-8.0
Middle-RW	11	1	0.0	41.7	66	41.7	10	----	41.7	10	41.7	0.0	8	-8.0
Middle-RW25	12	1	0.0	41.6	66	41.6	10	----	41.6	10	41.6	0.0	8	-8.0
Middle-RW50	13	1	0.0	41.8	66	41.8	10	----	41.8	10	41.8	0.0	8	-8.0
Middle-RW75	14	1	0.0	41.5	66	41.5	10	----	41.5	10	41.5	0.0	8	-8.0
Middle-RW100	15	1	0.0	41.4	66	41.4	10	----	41.4	10	41.4	0.0	8	-8.0
Middle-RW150	16	1	0.0	41.6	66	41.6	10	----	41.6	10	41.6	0.0	8	-8.0
Middle-RW200	17	1	0.0	41.3	66	41.3	10	----	41.3	10	41.3	0.0	8	-8.0
Middle-RW300	18	1	0.0	41.0	66	41.0	10	----	41.0	10	41.0	0.0	8	-8.0
Middle-RW400	19	1	0.0	41.6	66	41.6	10	----	41.6	10	41.6	0.0	8	-8.0
Wever-RW	21	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	10	67.4	0.0	8	-8.0
Wever-RW25	22	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	10	66.0	0.0	8	-8.0
Wever-RW50	23	1	0.0	64.7	66	64.7	10	----	64.7	10	64.7	0.0	8	-8.0
Wever-RW75	24	1	0.0	63.1	66	63.1	10	----	63.1	10	63.1	0.0	8	-8.0
Wever-RW100	25	1	0.0	61.7	66	61.7	10	----	61.7	10	61.7	0.0	8	-8.0
Wever-RW150	26	1	0.0	59.3	66	59.3	10	----	59.3	10	59.3	0.0	8	-8.0
Wever-RW200	27	1	0.0	56.6	66	56.6	10	----	56.6	10	56.6	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Wever-RW300	28	1	0.0	53.9	66	53.9	10	----	53.9	0.0	8	-8.0
Wever-RW400	29	1	0.0	51.6	66	51.6	10	----	51.6	0.0	8	-8.0
Intersection-RW	31	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
Intersection-RW25	32	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
Intersection-RW50	33	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
Intersection-RW75	34	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
Intersection-RW100	35	1	0.0	60.2	66	60.2	10	----	60.2	0.0	8	-8.0
Intersection-RW150	36	1	0.0	58.3	66	58.3	10	----	58.3	0.0	8	-8.0
Intersection-RW200	37	1	0.0	56.8	66	56.8	10	----	56.8	0.0	8	-8.0
Intersection-RW300	38	1	0.0	54.5	66	54.5	10	----	54.5	0.0	8	-8.0
Intersection-RW400	39	1	0.0	52.6	66	52.6	10	----	52.6	0.0	8	-8.0
Ringhaver-RW	41	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
Ringhaver-RW25	42	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
Ringhaver-RW50	43	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
Ringhaver-RW75	44	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
Ringhaver-RW100	45	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
Ringhaver-RW150	46	1	0.0	61.3	66	61.3	10	----	61.3	0.0	8	-8.0
Ringhaver-RW200	47	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
Ringhaver-RW300	48	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
Ringhaver-RW400	49	1	0.0	55.4	66	55.4	10	----	55.4	0.0	8	-8.0
Deschamps-RW	51	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
Deschamps-RW25	52	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
Deschamps-RW50	53	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
Deschamps-RW75	54	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
Deschamps-RW100	55	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
Deschamps-RW150	56	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
Deschamps-RW200	57	1	0.0	60.8	66	60.8	10	----	60.8	0.0	8	-8.0
Deschamps-RW300	58	1	0.0	58.2	66	58.2	10	----	58.2	0.0	8	-8.0
Deschamps-RW400	59	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
Receiver1	61	1	0.0	55.4	66	55.4	10	----	55.4	0.0	8	-8.0
Receiver2	62	1	0.0	58.0	66	58.0	10	----	58.0	0.0	8	-8.0
Receiver3	63	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0
Receiver4	64	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
Receiver5	65	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
Receiver6	66	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
Receiver7	67	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
Receiver8	69	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
Receiver9	70	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
Receiver10	71	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
Receiver11	72	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
Receiver12	73	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
Receiver13	74	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
Receiver14	75	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Receiver15	78	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
Receiver16	79	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
Receiver17	81	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
Receiver18	83	1	0.0	50.5	66	50.5	10	----	50.5	0.0	8	-8.0
Receiver19	84	1	0.0	51.7	66	51.7	10	----	51.7	0.0	8	-8.0
Receiver20	85	1	0.0	53.7	66	53.7	10	----	53.7	0.0	8	-8.0
Receiver21	86	1	0.0	50.9	66	50.9	10	----	50.9	0.0	8	-8.0
Receiver22	88	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
Receiver23	89	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
Receiver24	91	1	0.0	59.2	66	59.2	10	----	59.2	0.0	8	-8.0
Receiver25	92	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
Receiver26	93	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0
Receiver27	95	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
Receiver28	96	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
Receiver29	97	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
Receiver30	99	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
Receiver31	101	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
Receiver32	102	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
Receiver33	103	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
Receiver34	105	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
Receiver35	108	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
Receiver36	110	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
Receiver37	111	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
Receiver38	112	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
Receiver39	113	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
Receiver1a	115	1	0.0	51.3	66	51.3	10	----	51.3	0.0	8	-8.0
Receiver1b	116	1	0.0	48.8	66	48.8	10	----	48.8	0.0	8	-8.0
Receiver2a	117	1	0.0	52.2	66	52.2	10	----	52.2	0.0	8	-8.0
Receiver7a	118	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
Receiver8a	120	1	0.0	54.7	66	54.7	10	----	54.7	0.0	8	-8.0
Receiver9a	121	1	0.0	61.3	66	61.3	10	----	61.3	0.0	8	-8.0
Receiver9b	122	1	0.0	57.2	66	57.2	10	----	57.2	0.0	8	-8.0
Receiver10a	123	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver17a	125	1	0.0	52.2	66	52.2	10	----	52.2	0.0	8	-8.0
Receiver17b	126	1	0.0	50.5	66	50.5	10	----	50.5	0.0	8	-8.0
Receiver22a	128	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
Receiver22b	129	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
Receiver22c	130	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
Receiver23a	131	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
Receiver23b	132	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
Receiver27a	134	1	0.0	56.3	66	56.3	10	----	56.3	0.0	8	-8.0
Receiver27b	135	1	0.0	54.7	66	54.7	10	----	54.7	0.0	8	-8.0
Receiver28a	137	1	0.0	58.7	66	58.7	10	----	58.7	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/LUS 98

Receiver	# DUs	Noise Reduction		66	55.7	10	----	55.7	0.0	8	-8.0
		Min	Avg								
Dwelling Units		dB	dB	dB							
Receiver33a	139	1	0.0	55.7	66	55.7	10	55.7	0.0	8	-8.0
Receiver35a	141	1	0.0	69.1	66	69.1	10	69.1	0.0	8	-8.0
Receiver36a	143	1	0.0	62.0	66	62.0	10	62.0	0.0	8	-8.0
Receiver36b	144	1	0.0	58.4	66	58.4	10	58.4	0.0	8	-8.0
		Noise Reduction									
		Min	Avg	Max							
		dB	dB	dB							
All Selected		115	0.0	0.0	0.0						
All Impacted		24	0.0	0.0	0.0						
All that meet NR Goal		0	0.0	0.0	0.0						

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

5 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Cobb Rd Existing Align and Future Traffic
INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

BARRIER DESIGN:

68 deg F, 50% RH

ATMOSPHERICS:

Receiver

Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal
			LAeq1h	Crit'n	LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction	
			dBA	dBA	dBA	dBA	dB	dB		dB	dB	dB
Wheeling-RW	1	1	0.0	71.2	66	71.2	10	Snd Lvl	71.2	0.0	8	-8.0
Wheeling-RW25	2	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
Wheeling-RW50	3	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
Wheeling-RW75	4	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
Wheeling-RW100	5	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
Wheeling-RW150	6	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0
Wheeling-RW200	7	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
Wheeling-RW300	8	1	0.0	58.0	66	58.0	10	----	58.0	0.0	8	-8.0
Wheeling-RW400	9	1	0.0	55.8	66	55.8	10	----	55.8	0.0	8	-8.0
Middle-RW	11	1	0.0	43.2	66	43.2	10	----	43.2	0.0	8	-8.0
Middle-RW25	12	1	0.0	43.1	66	43.1	10	----	43.1	0.0	8	-8.0
Middle-RW50	13	1	0.0	43.4	66	43.4	10	----	43.4	0.0	8	-8.0
Middle-RW75	14	1	0.0	43.0	66	43.0	10	----	43.0	0.0	8	-8.0
Middle-RW100	15	1	0.0	43.0	66	43.0	10	----	43.0	0.0	8	-8.0
Middle-RW150	16	1	0.0	43.2	66	43.2	10	----	43.2	0.0	8	-8.0
Middle-RW200	17	1	0.0	42.9	66	42.9	10	----	42.9	0.0	8	-8.0
Middle-RW300	18	1	0.0	42.4	66	42.4	10	----	42.4	0.0	8	-8.0
Middle-RW400	19	1	0.0	43.0	66	43.0	10	----	43.0	0.0	8	-8.0
Wever-RW	21	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
Wever-RW25	22	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
Wever-RW50	23	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
Wever-RW75	24	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
Wever-RW100	25	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
Wever-RW150	26	1	0.0	61.1	66	61.1	10	----	61.1	0.0	8	-8.0
Wever-RW200	27	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

28	Wever-RW300	1	0.0	55.7	66	55.7	10	----	55.7	0.0	8	-8.0
29	Wever-RW400	1	0.0	53.4	66	53.4	10	----	53.4	0.0	8	-8.0
31	Intersection-RW	1	0.0	72.0	66	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
32	Intersection-RW25	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
33	Intersection-RW50	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
34	Intersection-RW75	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
35	Intersection-RW100	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
36	Intersection-RW150	1	0.0	60.2	66	60.2	10	----	60.2	0.0	8	-8.0
37	Intersection-RW200	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
38	Intersection-RW300	1	0.0	56.3	66	56.3	10	----	56.3	0.0	8	-8.0
39	Intersection-RW400	1	0.0	54.3	66	54.3	10	----	54.3	0.0	8	-8.0
41	Ringhaver-RW	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
42	Ringhaver-RW25	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
43	Ringhaver-RW50	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
44	Ringhaver-RW75	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
45	Ringhaver-RW100	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
46	Ringhaver-RW150	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
47	Ringhaver-RW200	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0
48	Ringhaver-RW300	1	0.0	58.4	66	58.4	10	----	58.4	0.0	8	-8.0
49	Ringhaver-RW400	1	0.0	56.5	66	56.5	10	----	56.5	0.0	8	-8.0
51	Deschamps-RW	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
52	Deschamps-RW25	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
53	Deschamps-RW50	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
54	Deschamps-RW75	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
55	Deschamps-RW100	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
56	Deschamps-RW150	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
57	Deschamps-RW200	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0
58	Deschamps-RW300	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
59	Deschamps-RW400	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
61	Receiver1	1	0.0	55.4	66	55.4	10	----	55.4	0.0	8	-8.0
62	Receiver2	1	0.0	58.0	66	58.0	10	----	58.0	0.0	8	-8.0
63	Receiver3	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0
64	Receiver4	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
65	Receiver5	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
66	Receiver6	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
67	Receiver7	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
69	Receiver8	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
70	Receiver9	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
71	Receiver10	1	0.0	70.5	66	70.5	10	Snd Lvl	70.5	0.0	8	-8.0
72	Receiver11	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
73	Receiver12	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
74	Receiver13	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
75	Receiver14	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Receiver15	78	1	0.0	62.2	66	62.2	10	---	62.2	0.0	8	-8.0
Receiver16	79	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
Receiver17	81	1	0.0	57.5	66	57.5	10	---	57.5	0.0	8	-8.0
Receiver18	83	1	0.0	52.2	66	52.2	10	---	52.2	0.0	8	-8.0
Receiver19	84	1	0.0	53.4	66	53.4	10	---	53.4	0.0	8	-8.0
Receiver20	85	1	0.0	55.5	66	55.5	10	---	55.5	0.0	8	-8.0
Receiver21	86	1	0.0	52.5	66	52.5	10	---	52.5	0.0	8	-8.0
Receiver22	88	1	0.0	70.9	66	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
Receiver23	89	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver24	91	1	0.0	59.3	66	59.3	10	---	59.3	0.0	8	-8.0
Receiver25	92	1	0.0	62.1	66	62.1	10	---	62.1	0.0	8	-8.0
Receiver26	93	1	0.0	63.1	66	63.1	10	---	63.1	0.0	8	-8.0
Receiver27	95	1	0.0	60.6	66	60.6	10	---	60.6	0.0	8	-8.0
Receiver28	96	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
Receiver29	97	1	0.0	63.8	66	63.8	10	---	63.8	0.0	8	-8.0
Receiver30	99	1	0.0	65.1	66	65.1	10	---	65.1	0.0	8	-8.0
Receiver31	101	1	0.0	60.9	66	60.9	10	---	60.9	0.0	8	-8.0
Receiver32	102	1	0.0	64.7	66	64.7	10	---	64.7	0.0	8	-8.0
Receiver33	103	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver34	105	1	0.0	61.5	66	61.5	10	---	61.5	0.0	8	-8.0
Receiver35	108	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
Receiver36	110	1	0.0	70.5	66	70.5	10	Snd Lvl	70.5	0.0	8	-8.0
Receiver37	111	1	0.0	64.8	66	64.8	10	---	64.8	0.0	8	-8.0
Receiver38	112	1	0.0	61.8	66	61.8	10	---	61.8	0.0	8	-8.0
Receiver39	113	1	0.0	64.7	66	64.7	10	---	64.7	0.0	8	-8.0
Receiver1a	115	1	0.0	51.3	66	51.3	10	---	51.3	0.0	8	-8.0
Receiver1b	116	1	0.0	48.9	66	48.9	10	---	48.9	0.0	8	-8.0
Receiver2a	117	1	0.0	52.2	66	52.2	10	---	52.2	0.0	8	-8.0
Receiver7a	118	1	0.0	56.8	66	56.8	10	---	56.8	0.0	8	-8.0
Receiver8a	120	1	0.0	54.8	66	54.8	10	---	54.8	0.0	8	-8.0
Receiver9a	121	1	0.0	61.4	66	61.4	10	---	61.4	0.0	8	-8.0
Receiver9b	122	1	0.0	57.3	66	57.3	10	---	57.3	0.0	8	-8.0
Receiver10a	124	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver17a	126	1	0.0	54.8	66	54.8	10	---	54.8	0.0	8	-8.0
Receiver17b	127	1	0.0	52.9	66	52.9	10	---	52.9	0.0	8	-8.0
Receiver22a	129	1	0.0	71.5	66	71.5	10	Snd Lvl	71.5	0.0	8	-8.0
Receiver22b	130	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
Receiver22c	131	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
Receiver23a	132	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
Receiver23b	133	1	0.0	64.8	66	64.8	10	---	64.8	0.0	8	-8.0
Receiver27a	135	1	0.0	56.5	66	56.5	10	---	56.5	0.0	8	-8.0
Receiver27b	136	1	0.0	55.0	66	55.0	10	---	55.0	0.0	8	-8.0
Receiver28a	138	1	0.0	59.8	66	59.8	10	---	59.8	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Receiver	# DUs	Noise Reduction	Noise Reduction		66	56.8	10	Snd Lvl	56.8	0.0	8	-8.0
			Min	Avg								
Dwelling Units			dB	dB								
Receiver33a	140	1	0.0	56.8	66	56.8	10	---	56.8	0.0	8	-8.0
Receiver35a	142	1	0.0	70.9	66	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
Receiver36a	144	1	0.0	64.1	66	64.1	10	---	64.1	0.0	8	-8.0
Receiver36b	145	1	0.0	60.4	66	60.4	10	---	60.4	0.0	8	-8.0
All Selected		115	0.0	0.0	0.0							
All Impacted		31	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

RESULTS: SOUND LEVELS

H.W. Lochner, Inc. - A.R. Patterson
 TNM Serial Number 52120

5 November 2002
 TNM 1.1
 Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
 Cobb Road Future Build Align and Traffic

RUN: INPUT HEIGHTS

BARRIER DESIGN:

ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless
 a State highway agency substantiates the use
 of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal	
				LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction		
			dBA	dBA	dBA	dBA	dBA		dBA	dB	dB	
Wheeling-RW	1	1	0.0	73.5	66	73.5	10	Snd Lvl	73.5	0.0	8	-8.0
Wheeling-RW25	2	1	0.0	71.5	66	71.5	10	Snd Lvl	71.5	0.0	8	-8.0
Wheeling-RW50	3	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
Wheeling-RW75	4	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
Wheeling-RW100	5	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
Wheeling-RW150	6	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
Wheeling-RW200	7	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
Wheeling-RW300	8	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
Wheeling-RW400	9	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
Middle-RW	11	1	0.0	44.2	66	44.2	10	----	44.2	0.0	8	-8.0
Middle-RW25	12	1	0.0	44.5	66	44.5	10	----	44.5	0.0	8	-8.0
Middle-RW50	13	1	0.0	44.9	66	44.9	10	----	44.9	0.0	8	-8.0
Middle-RW75	14	1	0.0	45.2	66	45.2	10	----	45.2	0.0	8	-8.0
Middle-RW100	15	1	0.0	44.9	66	44.9	10	----	44.9	0.0	8	-8.0
Middle-RW150	16	1	0.0	44.8	66	44.8	10	----	44.8	0.0	8	-8.0
Middle-RW200	17	1	0.0	44.4	66	44.4	10	----	44.4	0.0	8	-8.0
Middle-RW300	18	1	0.0	45.0	66	45.0	10	----	45.0	0.0	8	-8.0
Middle-RW400	19	1	0.0	46.5	66	46.5	10	----	46.5	0.0	8	-8.0
Wever-RW	21	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
Wever-RW25	22	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
Wever-RW50	23	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
Wever-RW75	24	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
Wever-RW100	25	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
Wever-RW150	26	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
Wever-RW200	27	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Wever-RW300	28	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
Wever-RW400	29	1	0.0	56.9	66	56.9	10	----	56.9	0.0	8	-8.0
Intersection-RW	31	1	0.0	76.7	66	76.7	10	Snd Lvl	76.7	0.0	8	-8.0
Intersection-RW25	32	1	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	8	-8.0
Intersection-RW50	33	1	0.0	77.5	66	77.5	10	Snd Lvl	77.5	0.0	8	-8.0
Intersection-RW75	34	1	0.0	73.9	66	73.9	10	Snd Lvl	73.9	0.0	8	-8.0
Intersection-RW100	35	1	0.0	77.1	66	77.1	10	Snd Lvl	77.1	0.0	8	-8.0
Intersection-RW150	36	1	0.0	76.2	66	76.2	10	Snd Lvl	76.2	0.0	8	-8.0
Intersection-RW200	37	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
Intersection-RW300	38	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
Intersection-RW400	39	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
Ringhaver-RW	41	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
Ringhaver-RW25	42	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
Ringhaver-RW50	43	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
Ringhaver-RW75	44	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
Ringhaver-RW100	45	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
Ringhaver-RW150	46	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
Ringhaver-RW200	47	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
Ringhaver-RW300	48	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
Ringhaver-RW400	49	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
Deschamps-RW	51	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
Deschamps-RW25	52	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
Deschamps-RW50	53	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
Deschamps-RW75	54	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
Deschamps-RW100	55	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
Deschamps-RW150	56	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
Deschamps-RW200	57	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
Deschamps-RW300	58	1	0.0	58.1	66	58.1	10	----	58.1	0.0	8	-8.0
Deschamps-RW400	59	1	0.0	56.3	66	56.3	10	----	56.3	0.0	8	-8.0
Receiver1	61	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
Receiver2	62	1	0.0	71.0	66	71.0	10	Snd Lvl	71.0	0.0	8	-8.0
Receiver3	63	1	0.0	71.0	66	71.0	10	Snd Lvl	71.0	0.0	8	-8.0
Receiver4	64	1	0.0	72.6	66	72.6	10	Snd Lvl	72.6	0.0	8	-8.0
Receiver5	65	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
Receiver6	66	1	0.0	71.7	66	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
Receiver7	67	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
Receiver8	69	1	0.0	72.0	66	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
Receiver9	70	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
Receiver10	71	1	0.0	72.8	66	72.8	10	Snd Lvl	72.8	0.0	8	-8.0
Receiver11	72	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
Receiver12	73	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
Receiver13	74	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
Receiver14	75	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Receiver15	78	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
Receiver16	79	1	0.0	72.1	66	72.1	10	Snd Lvl	72.1	0.0	8	-8.0
Receiver17	81	1	0.0	58.9	66	58.9	10	----	58.9	0.0	8	-8.0
Receiver18	83	1	0.0	56.8	66	56.8	10	----	56.8	0.0	8	-8.0
Receiver19	84	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
Receiver20	85	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
Receiver21	86	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
Receiver22	88	1	0.0	79.1	66	79.1	10	Snd Lvl	79.1	0.0	8	-8.0
Receiver23	89	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
Receiver24	91	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
Receiver25	92	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
Receiver26	93	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
Receiver27	95	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
Receiver28	96	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
Receiver29	97	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
Receiver30	99	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
Receiver31	101	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
Receiver32	102	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
Receiver33	103	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
Receiver34	105	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
Receiver35	108	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
Receiver36	110	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
Receiver37	111	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
Receiver38	112	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
Receiver39	113	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
Hess-existRW25	115	1	0.0	71.6	66	71.6	10	Snd Lvl	71.6	0.0	8	-8.0
Hess-existRW50	116	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
Hess-existRW75	117	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
Hess-existRW100	118	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
Hess-existRW150	119	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
Hess-existRW200	120	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
Landfill-existRW25	122	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
Landfill-existRW50	123	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
Landfill-existRW75	124	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
Landfill-existRW100	125	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
Landfill-existRW150	126	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
Landfill-existRW200	127	1	0.0	60.8	66	60.8	10	----	60.8	0.0	8	-8.0
Yontz-existRW25	129	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
Yontz-existRW50	130	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
Yontz-existRW75	131	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
Yontz-existRW100	132	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
Yontz-existRW150	133	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
Yontz-existRW200	134	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002

TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

PROJECT/CONTRACT:
Cobb Road Site B Wall Analysis
BARRIER DESIGN:
SiteBtotal6ft

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal
			L Aeq1h	dB	L Aeq1h	dB	Calculated	Crit'n		Calculated	Crit'n	
Receiver2	62	1	0.0	71.0	66	71.0	10	Snd Lvl	68.5	2.5	8	-5.5
Receiver3	63	1	0.0	71.0	66	71.0	10	Snd Lvl	69.3	1.7	8	-6.3
Receiver1b	176	1	0.0	62.1	66	62.1	10	----	60.8	1.3	8	-6.7
Receiver2a	177	1	0.0	64.0	66	64.0	10	----	63.0	1.0	8	-7.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		4	1.0	1.6	2.5							
All Impacted		2	1.7	2.1	2.5							
All that meet NR Goal		0	0.0	0.0	0.0							

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Road Site B Wall Analysis
BARRIER DESIGN: SiteBtotal8ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal	
			LAEq1h	dB	LAEq1h	dB	Calculated	Crit'n		Calculated	Goal		Calculated
Receiver2	62	1	0.0	66	71.0	66	71.0	10	Snd Lvl	67.1	3.9	8	-4.1
Receiver3	63	1	0.0	66	71.0	66	71.0	10	Snd Lvl	68.6	2.4	8	-5.6
Receiver1b	176	1	0.0	66	62.1	66	62.1	10	----	60.5	1.6	8	-6.4
Receiver2a	177	1	0.0	66	64.0	66	64.0	10	----	62.6	1.4	8	-6.6
Dwelling Units		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		4	1.4	2.3	3.9								
All Impacted		2	2.4	3.2	3.9								
All that meet NR Goal		0	0.0	0.0	0.0								

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Road Site B Wall Analysis
BARRIER DESIGN: SiteBtotal10ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal
			L Aeq1h	Crit'n	L Aeq1h	Crit'n	Calculated	Crit'n		Calculated	Goal	
Receiver2	62	1	0.0	66	71.0	66	71.0	10	Snd Lvl	66.1	4.9	8
Receiver3	63	1	0.0	66	71.0	66	71.0	10	Snd Lvl	68.1	2.9	8
Receiver1b	176	1	0.0	66	62.1	66	62.1	10	----	60.1	2.0	8
Receiver2a	177	1	0.0	66	64.0	66	64.0	10	----	62.1	1.9	8
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		4	1.9	2.9	4.9							
All Impacted		2	2.9	3.9	4.9							
All that meet NR Goal		0	0.0	0.0	0.0							

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
Cobb Road Site B Wall Analysis
BARRIER DESIGN: SiteBtotal12ft

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB
			LAeq1h	Crit'n	LAeq1h	Crit'n	Calculated	Sub'l Inc		Calculated LAeq1h	Noise Reduction	
			dB	dB	dB	dB	dB	dB		dB	dB	
Receiver2	62	1	0.0	66	71.0	66	71.0	10	Snd Lvl	65.6	5.4	8
Receiver3	63	1	0.0	66	71.0	66	71.0	10	Snd Lvl	67.9	3.1	8
Receiver1b	176	1	0.0	66	62.1	66	62.1	10	----	59.8	2.3	8
Receiver2a	177	1	0.0	66	64.0	66	64.0	10	----	61.7	2.3	8
Dwelling Units												
# DUs			Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected	4	2.3	3.3	5.4								
All Impacted	2	3.1	4.2	5.4								
All that meet NR Goal	0	0.0	0.0	0.0								

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Road Site B Wall Analysis
BARRIER DESIGN: SiteBtotal14ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB
			L Aeq1h	Crit'n	L Aeq1h	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction	
			dBA	dBA	dBA	dBA	dB	dB		dBA	dB	dB
Receiver2	62	1	0.0	71.0	66	71.0	10	71.0	Snd Lvl	65.4	5.6	8
Receiver3	63	1	0.0	71.0	66	71.0	10	71.0	Snd Lvl	67.8	3.2	8
Receiver1b	176	1	0.0	62.1	66	62.1	10	62.1	----	59.7	2.4	8
Receiver2a	177	1	0.0	64.0	66	64.0	10	64.0	----	61.6	2.4	8
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		4	2.4	3.4	5.6							
All Impacted		2	3.2	4.4	5.6							
All that meet NR Goal		0	0.0	0.0	0.0							

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002

TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: SiteK6ft

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h		No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier		Noise Reduction	Calculated minus Goal
			LAeq1h	Crit'n	LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated	Goal		
			dB	dB	dB	dB	dB	dB		dB	dB	dB	dB
Receiver23-e	207	1	0.0	66	67.8	66	67.8	10	Snd Lvl	65.1	2.7	8	-5.3
Receiver23-w	208	1	0.0	66	67.9	66	67.9	10	Snd Lvl	63.6	4.3	8	-3.7
Receiver23a-e	209	1	0.0	66	69.2	66	69.2	10	Snd Lvl	62.0	7.2	8	-0.8
Receiver23a-w	210	1	0.0	66	69.0	66	69.0	10	Snd Lvl	62.3	6.7	8	-1.3
Dwelling Units													
		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		4	2.7	5.2	7.2								
All Impacted		4	2.7	5.2	7.2								
All that meet NIR Goal		0	0.0	0.0	0.0								

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: SiteK8ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB			
			LAeq1h	Crit'n	LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction				
			dB	dB	dB	dB	dB	dB		dB	dB	dB			
Receiver23-e	207	1	0.0	67.8	66	67.8	10	67.8	10	Snd Lvl	64.3	3.5	8	-4.5	
Receiver23-w	208	1	0.0	67.9	66	67.9	10	67.9	10	Snd Lvl	61.9	6.0	8	-2.0	
Receiver23a-e	209	1	0.0	69.2	66	69.2	10	69.2	10	Snd Lvl	59.5	9.7	8	1.7	
Receiver23a-w	210	1	0.0	69.0	66	69.0	10	69.0	10	Snd Lvl	59.8	9.2	8	1.2	
Dwelling Units		# DUs	Noise Reduction												
			Min	Avg	Max										
			dB	dB	dB										
All Selected		4	3.5	7.1	9.7										
All Impacted		4	3.5	7.1	9.7										
All that meet NR Goal		2	9.2	9.4	9.7										

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: SiteK10ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB	
			L Aeq1h	dB	L Aeq1h	dB	Calculated	Crit'n		Calculated	Goal		Calculated
Receiver23-e	207	1	0.0	66	67.8	66	67.8	10	Snd Lvl	63.9	3.9	8	-4.1
Receiver23-w	208	1	0.0	66	67.9	66	67.9	10	Snd Lvl	60.8	7.1	8	-0.9
Receiver23a-e	209	1	0.0	66	69.2	66	69.2	10	Snd Lvl	57.9	11.3	8	3.3
Receiver23a-w	210	1	0.0	66	69.0	66	69.0	10	Snd Lvl	58.1	10.9	8	2.9
Dwelling Units													
		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		4	3.9	8.3	11.3								
All Impacted		4	3.9	8.3	11.3								
All that meet NR Goal		2	10.9	11.1	11.3								

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: SiteK12ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal	
			LAeq1h	dB	LAeq1h	dB	Calculated	Crit'n		Calculated	Goal		Calculated
Receiver23-e	207	1	0.0	66	67.8	66	67.8	10	Snd Lvl	63.6	4.2	8	-3.8
Receiver23-w	208	1	0.0	66	67.9	66	67.9	10	Snd Lvl	60.2	7.7	8	-0.3
Receiver23a-e	209	1	0.0	66	69.2	66	69.2	10	Snd Lvl	56.7	12.5	8	4.5
Receiver23a-w	210	1	0.0	66	69.0	66	69.0	10	Snd Lvl	57.1	11.9	8	3.9
Dwelling Units													
		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		4	4.2	9.1	12.5								
All Impacted		4	4.2	9.1	12.5								
All that meet NR Goal		2	11.9	12.2	12.5								

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: SiteK14ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

Receiver		No Barrier				With Barrier						
Name	No.	#DUs	Existing LAeq1h		Increase over existing		Type Impact		Noise Reduction			
			LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc	Calculated	Goal	Calculated	Goal		
			dBA	dBA	dB	dB			dBA	dB		
Receiver23-e	207	1	0.0	67.8	66	67.8	10	Snd Lvl	63.5	4.3	8	-3.7
Receiver23-w	208	1	0.0	67.9	66	67.9	10	Snd Lvl	59.8	8.1	8	0.1
Receiver23a-e	209	1	0.0	69.2	66	69.2	10	Snd Lvl	55.9	13.3	8	5.3
Receiver23a-w	210	1	0.0	69.0	66	69.0	10	Snd Lvl	56.1	12.9	8	4.9
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		4	4.3	9.7	13.3							
All Impacted		4	4.3	9.7	13.3							
All that meet NR Goal		3	8.1	11.4	13.3							

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
Cobb Rd Barrier Analysis for Sites K & T
SiteT6ft

BARRIER DESIGN: Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier		Increase over existing		Type Impact	Noise Reduction		Calculated minus Goal	
				LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Calculated		
			dBA	dBA	dBA	dBA	dBA		dBA	dBA	dBA	
Receiver36a	194	1	0.0	61.6	66	61.6	10	----	61.7	-0.1	8	-8.1
Receiver36b	195	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
Receiver36e	204	1	0.0	65.8	66	65.8	10	----	64.9	0.9	8	-7.1
Receiver36w	205	1	0.0	65.3	66	65.3	10	----	64.2	1.1	8	-6.9
Dwelling Units												
# DUs			Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected	4		-0.1	0.5	1.1							
All Impacted	0		0.0	0.0	0.0							
All that meet NR Goal	0		0.0	0.0	0.0							

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: SiteT8ft

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	# DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB	
		L _{Aeq1h}	Crit'n	L _{Aeq1h}	Crit'n	Calculated	Sub'l Inc		Calculated LA _{eq1h}	Noise Reduction		
		dB	dB	dB	dB	dB	dB		dB	dB	dB	
Receiver36a	194	1	0.0	61.6	66	61.6	10	----	61.7	-0.1	8	-8.1
Receiver36b	195	1	0.0	58.6	66	58.6	10	----	58.5	0.1	8	-7.9
Receiver36e	204	1	0.0	65.8	66	65.8	10	----	64.4	1.4	8	-6.6
Receiver36w	205	1	0.0	65.3	66	65.3	10	----	63.6	1.7	8	-6.3
Dwelling Units		# DUs		Noise Reduction								
		Min	Avg	Max								
		dB	dB	dB								
All Selected	4	-0.1	0.8	1.7								
All Impacted	0	0.0	0.0	0.0								
All that meet NR Goal	0	0.0	0.0	0.0								

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: Site T10ft

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB	
		L Aeq1h	Crit'n	L Aeq1h	Crit'n	Calculated	Crit'n		Calculated	Goal		
		dBA		dBA		dB			dBA		dB	
Receiver36a	194	1	0.0	61.6	66	61.6	10	----	61.5	0.1	8	-7.9
Receiver36b	195	1	0.0	58.6	66	58.6	10	----	58.5	0.1	8	-7.9
Receiver36e	204	1	0.0	65.8	66	65.8	10	----	64.2	1.6	8	-6.4
Receiver36w	205	1	0.0	65.3	66	65.3	10	----	63.4	1.9	8	-6.1
Dwelling Units												
	# DUs	Noise Reduction										
		Min	Avg	Max								
		dB		dB		dB		dB		dB		
All Selected	4	0.1		0.9		1.9						
All Impacted	0	0.0		0.0		0.0						
All that meet NR Goal	0	0.0		0.0		0.0						

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: Site T12ft
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB
			LAeq1h	Crit'n	LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction	
			dBA	dBA	dBA	dBA	dB	dB		dBA	dB	
Receiver36a	194	1	0.0	61.6	66	61.6	10	61.2	----	61.2	0.4	8
Receiver36b	195	1	0.0	58.6	66	58.6	10	58.4	----	58.4	0.2	8
Receiver36e	204	1	0.0	65.8	66	65.8	10	65.8	----	64.1	1.7	8
Receiver36w	205	1	0.0	65.3	66	65.3	10	63.2	----	63.2	2.1	8
Dwelling Units												
		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		4	0.2	1.1	2.1							
All Impacted		0	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

RESULTS: SOUND LEVELS

1465-Cobb Road/US 98

H.W. Lochner, Inc. - A.R. Patterson
TNM Serial Number 52120

8 November 2002
TNM 1.1
Calculated with TNM 1.1

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1465-Cobb Road/US 98
RUN: Cobb Rd Barrier Analysis for Sites K & T
BARRIER DESIGN: SiteT14ft

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type Impact	With Barrier		Calculated minus Goal dB
			LAeq1h	Crit'n	LAeq1h	Crit'n	Calculated	Sub'l Inc		Calculated LAeq1h	Noise Reduction	
			dBA	dBA	dBA	dBA	dB	dB		dBA	dB	
Receiver36a	194	1	0.0	61.6	66	61.6	10	61.1	----	0.5	8	-7.5
Receiver36b	195	1	0.0	58.6	66	58.6	10	58.3	----	0.3	8	-7.7
Receiver36e	204	1	0.0	65.8	66	65.8	10	64.1	----	1.7	8	-6.3
Receiver36w	205	1	0.0	65.3	66	65.3	10	63.1	----	2.2	8	-5.8
Dwelling Units												
		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB		dB							
All Selected		4	0.3	1.2	2.2							
All Impacted		0	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							