

**STATE ROAD 45 (U.S. 41) / STATE ROAD 700 (U.S. 98)  
PROJECT DEVELOPMENT  
AND  
ENVIRONMENTAL STUDIES  
PASCO AND HERNANDO COUNTIES, FLORIDA  
State Project Nos. 14010-1514, 08010-1519  
& 08010-1509  
W.P. Nos. 7115924, 7112085 & 7112086  
Federal Aid No. F-8888(27)**

# **NOISE REPORT**

**S.R. 52 in Pasco County  
to C.R. 485B in Hernando County**

**Submitted To:  
THE FLORIDA DEPARTMENT OF TRANSPORTATION**

**Submitted By:  
GREINER, INC.  
Tampa, Florida**

**JUNE 1989**

## EXECUTIVE SUMMARY

A noise impact evaluation was conducted in order to determine the effect of proposed improvements to S.R. 45 (U.S. 41) from S.R. 52 in Pasco County to S.R. 700 (U.S. 98) in Hernando County, and S.R. 700 (U.S. 98) from S.R. 45 (U.S. 41) to C.R. 485B in Hernando County.

Results of the evaluation indicate that the project will contribute to increased noise levels in noise sensitive areas and the exceedance of FHWA Noise Abatement Criteria. Most of the impacted areas are single family homes and mobile homes. A number of noise abatement measures were examined, and none were determined to be feasible for the reduction of noise levels at impacted locations. Noise barriers, in particular, are not considered feasible because S.R. 45 (U.S. 41) and S.R. 700 (U.S. 98) are arterial roadways with numerous driveways and cross streets which do not facilitate the design of effective barriers. However, future noise impacts can be minimized through local land use ordinances regarding zoning, building setbacks, and building construction codes.

The projected increase in noise is an unavoidable consequence of the proposed improvements.

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## **INTRODUCTION**

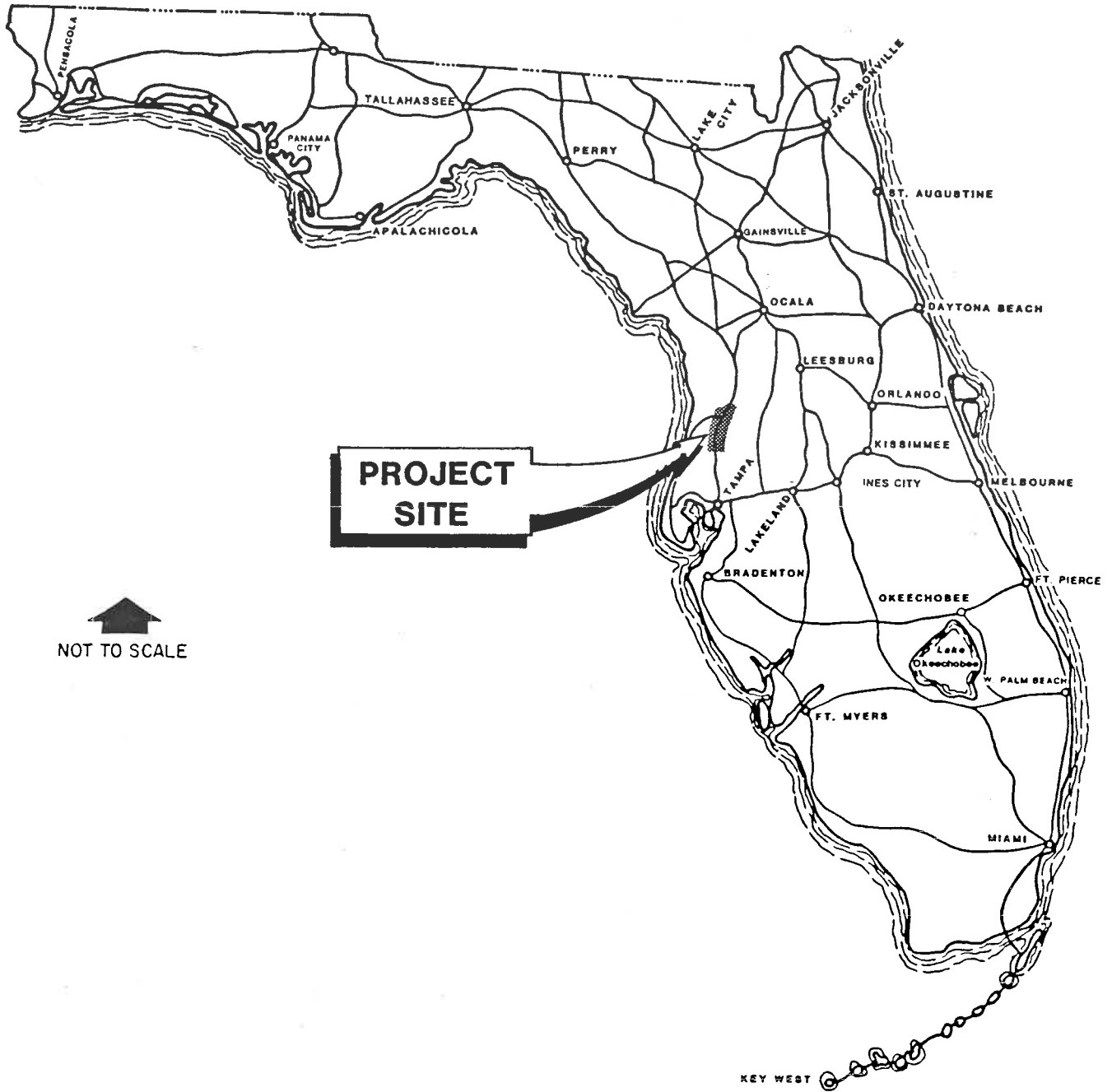
The Florida Department of Transportation (FDOT) is investigating the feasibility of improving S.R. 45 (U.S. 41) from S.R. 52 in Pasco County to S.R. 700 (U.S. 98) in Hernando County, and S.R. 700 from S.R. 45 to C.R. 485B in Hernando County. The total project length is 19.3 miles (17.4 miles on S.R. 45 and 1.9 miles on S.R. 700). Location and vicinity maps of the project area are presented on Exhibits 1 and 2, respectively. The objective of this report is to document existing noise levels, anticipated noise levels, possible noise impacts, and the applicability of noise mitigation measures associated with the proposed improvements. This report is in accordance with Title 23 Code of Federal Regulations, Part 772, U.S. Department of Transportation, Federal Highway Administration (FHWA), Procedures for Abatement of Highway Traffic Noise and Construction Noise.

### **Existing Facility**

In their present configurations, S.R. 45 and S.R. 700 are two-lane roadways. S.R. 45 has 28 feet of pavement with 6-foot grassed shoulders. The rural right-of-way on S.R. 45 varies in width from 100 to 250 feet, while urban right-of-way is approximately 128 feet wide. S.R. 700 has 24 feet of pavement with 8-foot grassed shoulders and right-of-way widths of 50 to 190 feet. The existing typical sections are shown on Exhibit 3. There are two bridge structures within the project limits.

### **Proposed Improvements**

This project involves upgrading the existing S.R. 45 and S.R. 700 two-lane facilities to multi-lane divided facilities. The improvements on S.R. 45 from S.R. 52 to Moreland



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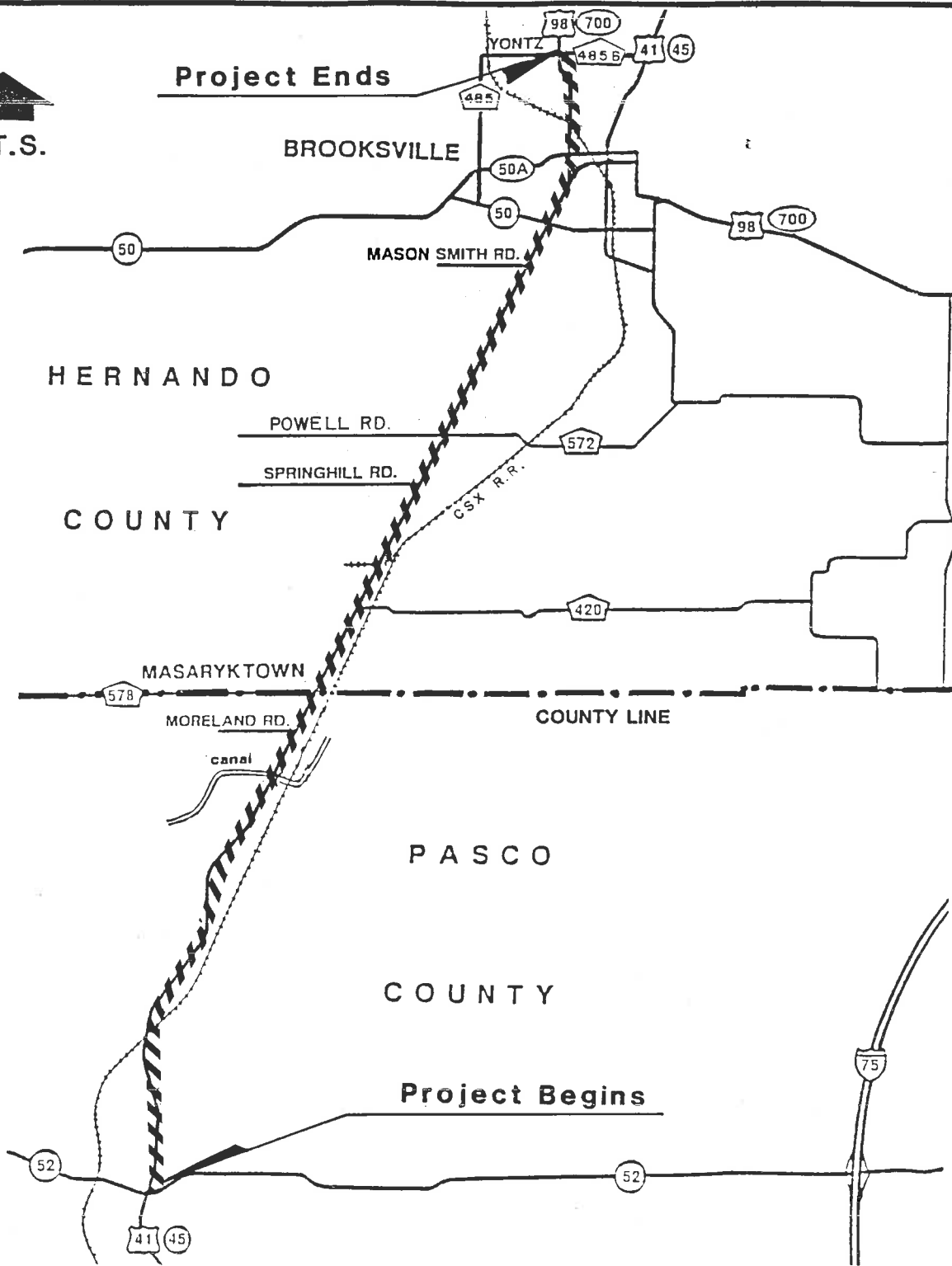
**S.R. 45 (U.S. 41) / S.R. 700 (U.S. 98)**

From S.R. 52 to C.R. 485B

Pasco and Hernando Counties, Florida

**LOCATION MAP**

EXHIBIT 1



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**LEGEND**

 Project Area

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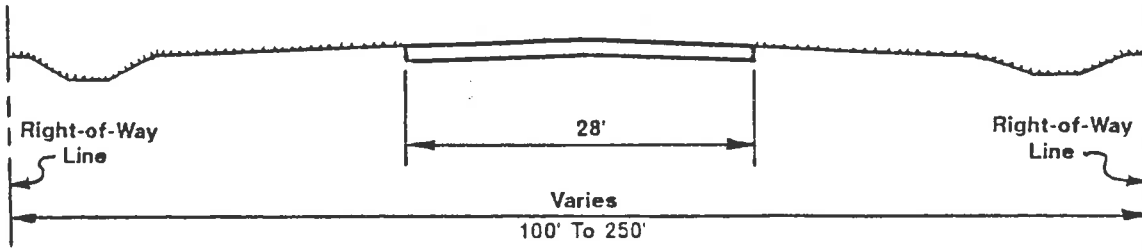
**S.R. 45 (U.S. 41) / S.R. 700 (U.S. 98)**

From S.R. 52 to C.R. 485B

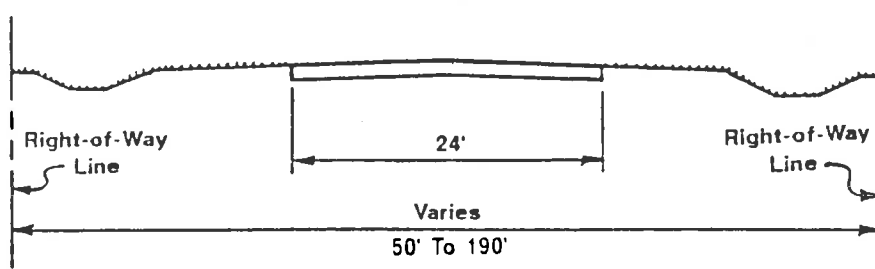
Pasco and Hernando Counties, Florida

**VICINITY MAP**





**S.R. 45 (U.S. 41)**



**S.R. 700 (U.S. 98)**

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**S.R. 45 (U.S. 41) / S.R. 700 (U.S. 98)**

From S.R. 52 to C.R. 485B

Pasco and Hernando Counties, Florida

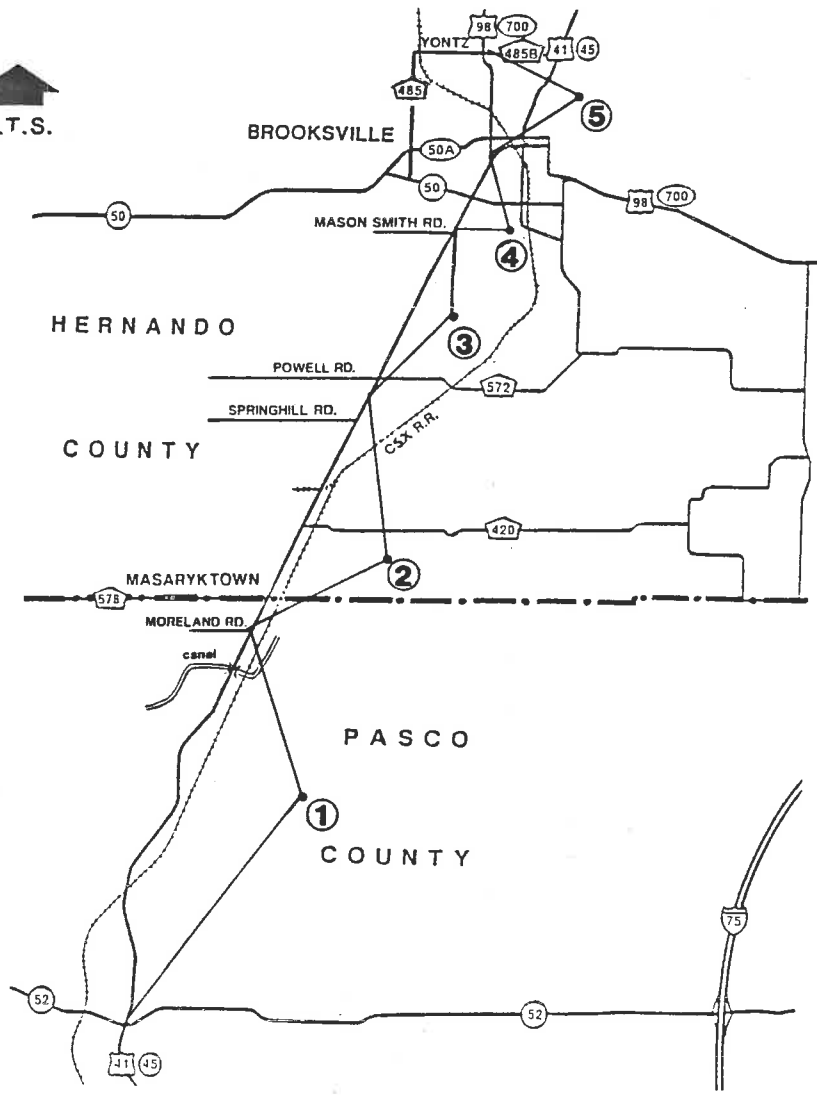
**EXISTING TYPICAL SECTION**

Road would include a rural four-lane divided section with provisions for future expansion to an ultimate six-lane divided section. From Moreland Road to 1,400 feet north of Springhill Road, S.R. 45 is to be improved to an urban six-lane divided section. A rural six-lane divided section is proposed from 1,400 feet north of Springhill Road to 1,400 feet south of Mason Smith Road. From 1,400 feet south of Mason Smith Road to S.R. 700, S.R. 45 is to be improved to an urban six-lane divided section. The improvements on S.R. 700 from S.R. 45 to C.R. 485B would be an urban four-lane divided section. Typical sections of the proposed improvements are provided on Exhibit 4. The bridge structure located at Scotts Big 'D' Creek is recommended for replacement. The bridge at Canal C-534 is recommended for improvement without replacement. Further details regarding the proposed improvements are provided in the Preliminary Engineering Report for this project.

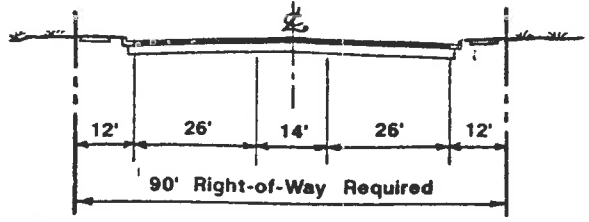
## NOISE ANALYSIS

### Noise Sensitive Areas

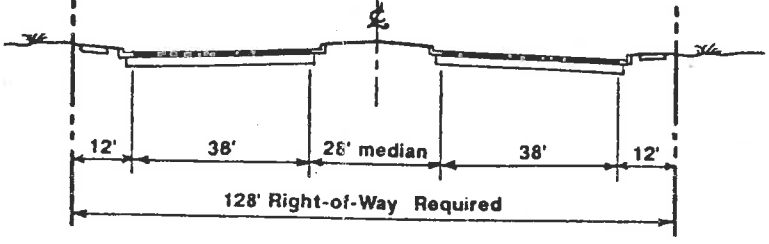
The existing land uses in the project area are primarily commercial, residential, and agricultural/pasture. Noise sensitive areas include single family homes, mobile homes, motels, a park, a meeting hall, a library, picnic benches, and a church. Existing land uses in the project area are shown on Exhibit 5. Because there are portions along the study corridor that are not fully developed, some changes in land use could occur in the future.



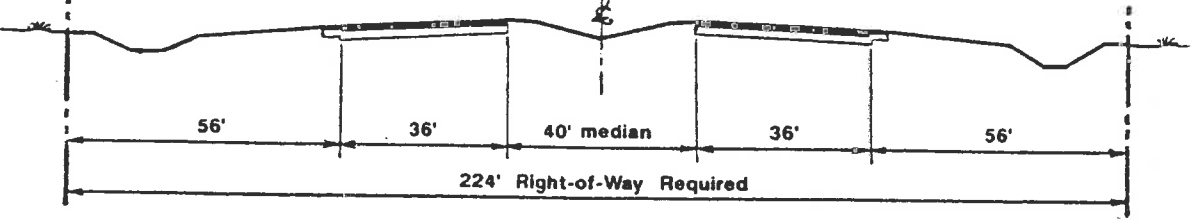
⑤ FOUR LANE - URBAN CONSTRUCTION



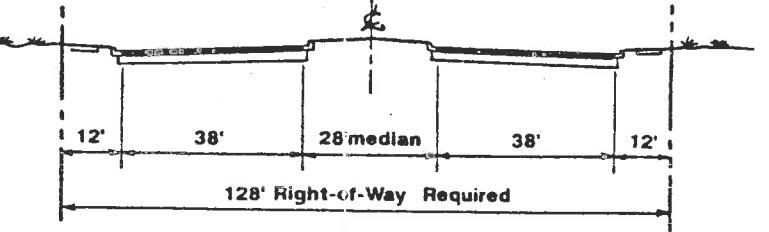
④ SIX LANE - URBAN CONSTRUCTION



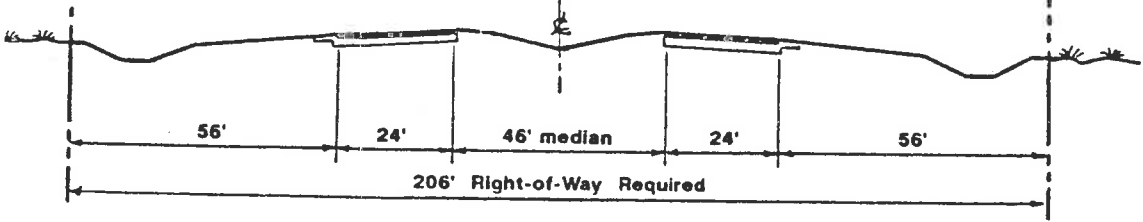
③ SIX LANE - RURAL CONSTRUCTION



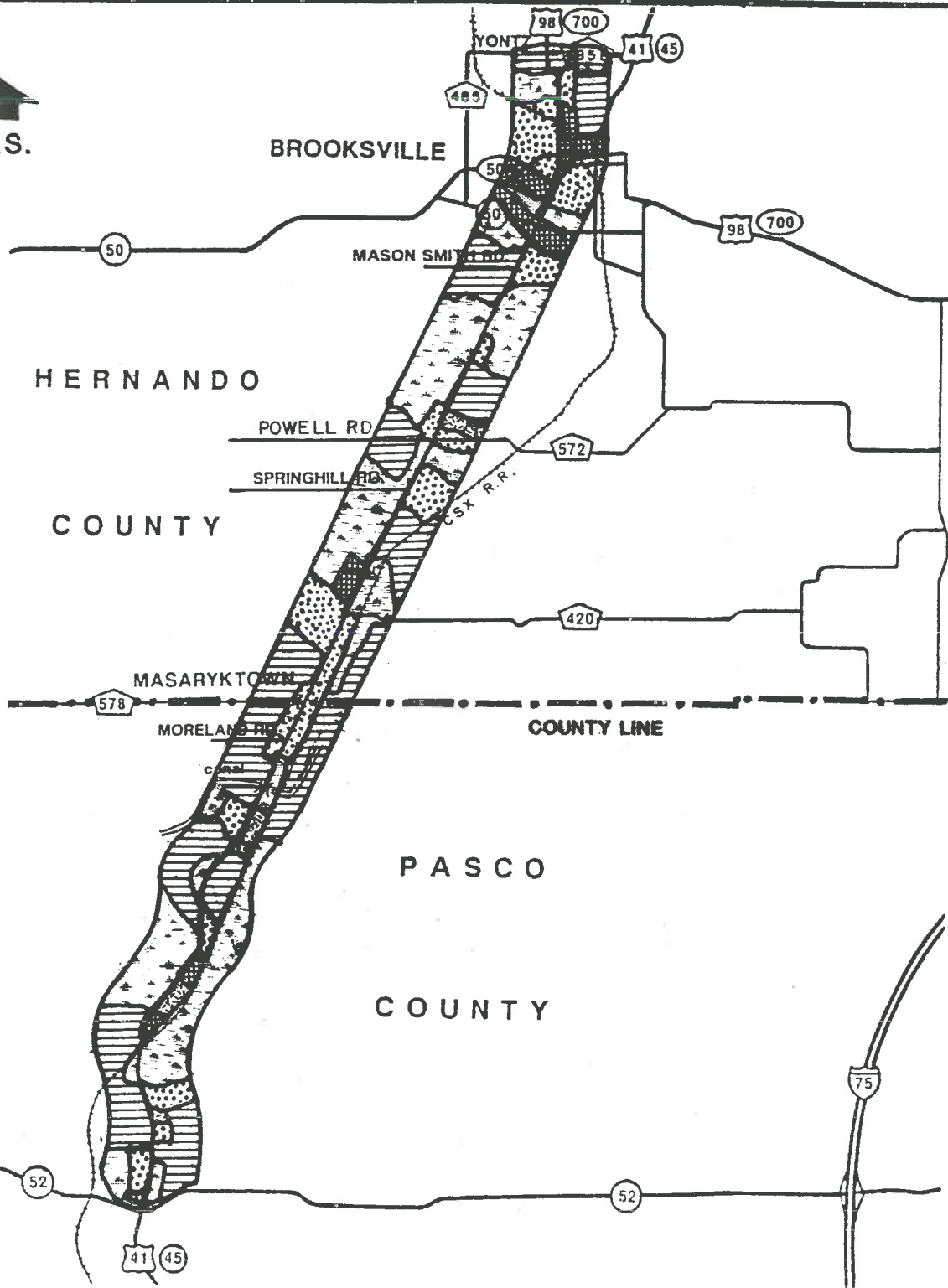
② SIX LANE - URBAN CONSTRUCTION



① FOUR LANE - RURAL CONSTRUCTION



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NOISE REPORT  
S.R. 45 (U.S. 41)/ S.R. 700 (U.S.98)  
From S.R. 52 to C.R. 485B  
Pasco and Hernando Counties, Florida  
**PROPOSED TYPICAL SECTIONS**



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**LEGEND**

-  Agricultural Land
-  Mobile Homes
-  Single Family
-  Commercial
-  Park
-  Wetlands & Woodlands

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**NOISE REPORT**

**S.R. 45 (U.S. 41) / S.R. 700 (U.S. 98)**

From S.R. 52 to C.R. 485B  
Pasco and Hernando Counties, Florida

**EXISTING LAND USE**

### Measured Noise Levels

Noise monitoring was conducted in the project area in order to identify existing noise levels and to validate the computer model used in noise prediction analysis. The procedures for noise monitoring were based on the methodologies described in the FHWA reports, Fundamentals and Abatement of Highway Traffic Noise and Sound Procedures for Measuring Highway Noise. The measure utilized for monitoring and prediction analyses was the hourly equivalent sound level, Leq (1). Hourly Leq is the equivalent steady state sound level which in an hour would contain the same acoustic energy as the time-varying sound level during the same period. Leq is measured in A-weighted decibels (dBA), which closely approximates human frequency response.

Noise measurements were taken at six sites in the study area (Exhibit 6) on November 30, 1988. Measurements were taken for a period of 15 minutes at each site with a Larson Davis Model 700 sound level analyzer. Sites were selected to be representative of a variety of traffic and land use characteristics. Traffic data, including volume, speed, and vehicle mix, were also obtained. Measured Leq noise levels were found to range from 62 to 69 dBA. The highest level, 69 dBA, was measured at Site 5 which is located approximately 66 feet from the centerline of S.R. 45. The results of the monitoring are provided in Table 1.

### Predicted Noise Levels

Existing and future noise levels within the study area were evaluated by considering noise measurements and by predicting traffic noise levels with the FHWA computer

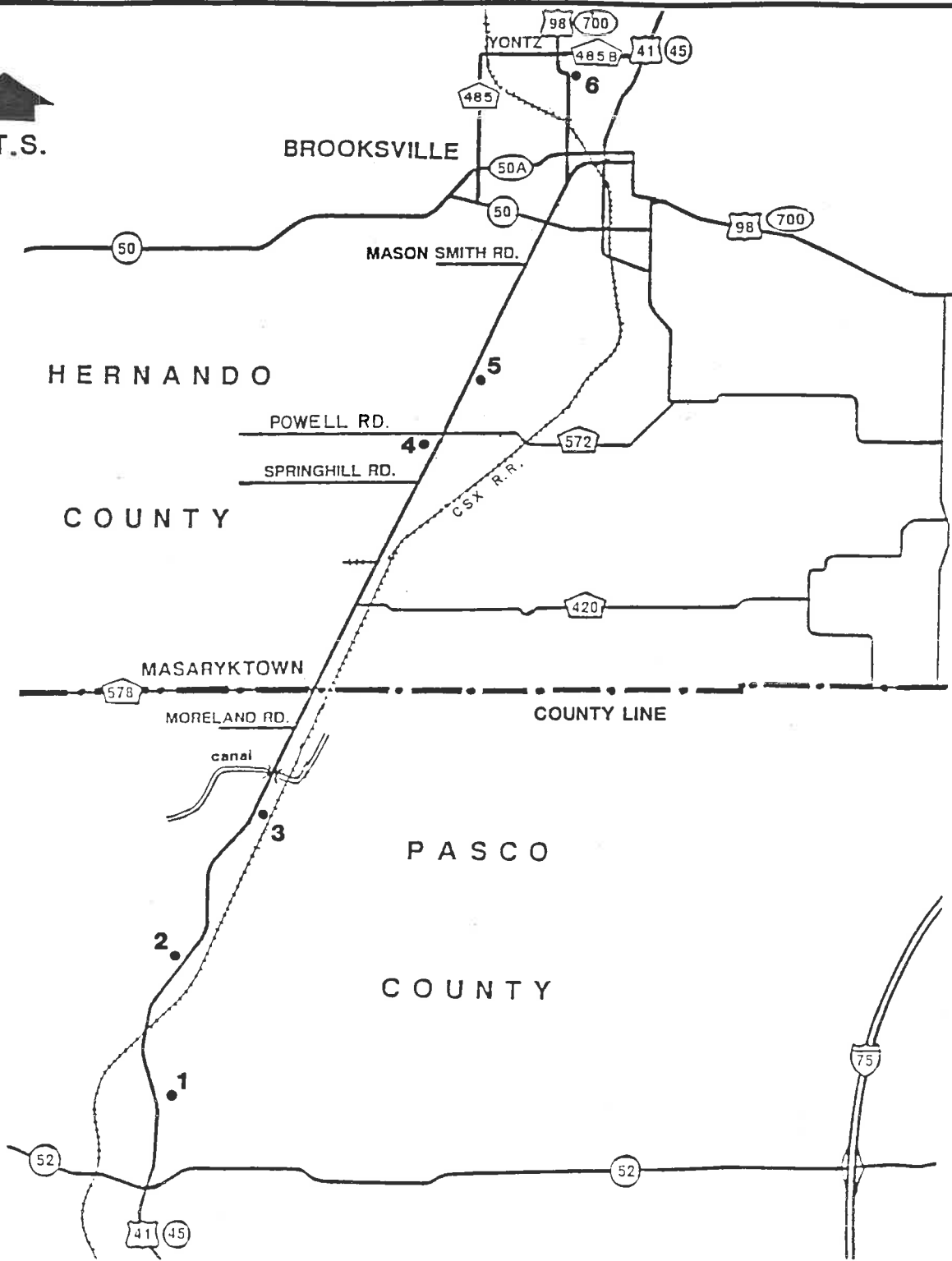
TABLE 1  
NOISE MONITORING DATA SUMMARY

Site	Hourly Leg (dBA)		Hourly Vehicle Volume						Distance To Roadway Centerline (ft.)	Estimated Speed (MPH)	Notes
	Measured	Predicted	Near Lanes		Far Lanes		A	MT			
			A	MT	HT	A			MT	HT	
1	62	65	66	0	30	246	0	30	105	50	Greenfield Retirement Home
2	65	66	102	0	54	156	12	30	117	50	Detroit Resort Motel
3	62	65	180	0	66	108	0	60	162	50	Sevilla Mobile Homes
4	64	66	486	24	78	522	6	102	198	50	Single Family Homes
5	69	72	414	12	78	426	12	42	66	50	Pine Cabin Rentals
6	64	67	276	6	36	180	18	48	78	35	Single Family Homes

NOTE: A=Automobile  
MT=Medium Truck  
HT=Heavy Truck



N.T.S.



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**S.R. 45 (U.S. 41) / S.R. 700 (U.S. 98)**

From S.R. 52 to C.R. 485B  
Pasco and Hernando Counties, Florida

**NOISE MONITORING SITES**

EXHIBIT 6

prediction model STAMINA 2.0. The computer model was validated by running the program with the traffic data gathered during noise monitoring, and by comparing measured results with predicted results (Table 1). Predicted and measured levels were found to be within an acceptable difference of 3 dBA. Based on this comparison, the STAMINA model was considered to be a reliable tool for the determination of noise levels for this project.

Noise prediction analyses were performed for the Existing Condition in 1988 and the No-Build and Build Conditions in 2010. The traffic characteristics used to perform the analysis represent the conditions (vehicle volume and mix) present during the peak hour (demand) or at level-of-service (LOS) C, whichever was less. For modeling purposes, the posted speed limits were used for all roadway segments. Traffic assumptions for modeling are provided on Table 2. Traffic volumes for noise modeling were derived from traffic projections contained in a separate Traffic Memorandum for this project. Traffic projections assumed annual growth rates ranging from 1.6% (at the intersection of S.R. 45 and S.R. 700) to 2.4% (from S.R. 50 to S.R. 700). The Peak Hour Factor (K) was assumed to be 9% for S.R. 45 and 11% for S.R. 700. Vehicle mix percentages for S.R. 45 during peak hour were assumed to be 94% cars, 2% medium trucks and 4% heavy trucks. Vehicle mix percentages for S.R. 700 were assumed to be 88% cars, 4% medium trucks and 8% heavy trucks.

The approximate noise levels at properties adjacent to the roadway were estimated by determining the noise levels at specific distances from the roadway for the various segments of each study scenario. Table 3 compares the distances from the roadway centerline where noise levels of 67 dBA are estimated to occur. As would be expected,



**TABLE 2**  
**TRAFFIC DATA FOR NOISE ANALYSIS**

Roadway Sections	Vehicle Type	Hourly Traffic Characteristics (LOS C or Peak)					
		1987		2010			
		Existing		No-Build		Build	
		Volume	Speed	Volume	Speed	Volume	Speed
S.R. 45 from S.R. 52 to Moreland Road	A	805	55	1,335*	55	1,862	55
	MT	17	55	28*	55	39	55
	HT	34	55	57*	55	79	55
S.R. 45 from Moreland Road to Kollar Street	A	1,014*	50	1,335*	50	2,448	55
	MT	22*	50	28*	50	52	55
	HT	43*	50	57*	50	104	55
S.R. 45 from Kollar Street to Hooza Street	A	1,014*	45	1,335*	45	2,448	55
	MT	22*	45	28*	45	52	55
	HT	43*	45	57*	45	104	55
S.R. 45 from Hozza Street to Ayers Road	A	1,014*	50	1,335*	50	2,448	55
	MT	22*	50	28*	50	52	55
	HT	43*	50	57*	50	104	55
S.R. 45 from Ayers Road to Barnett Road	A	1,335*	55	1,335*	55	3,287	55
	MT	28*	55	28*	55	70	55
	HT	57*	55	57*	55	140	55
S.R. 45 from Barnett Road to S.R. 700	A	715*	40	715*	40	2,228*	45
	MT	15*	40	15*	40	47*	45
	HT	30*	40	30*	40	95*	45
S.R. 700 from S.R. 45 to Ward Avenue	A	669*	35	669*	35	1,373*	45
	MT	30*	35	30*	35	62*	45
	HT	61*	35	61*	35	125*	45
S.R. 700 from Ward Avenue to Yontz Road	A	669*	45	669*	45	1,373*	45
	MT	30*	45	30*	45	62*	45
	HT	61*	45	61*	45	125*	45

NOTE: A = Automobile  
 MT = Medium Truck  
 HT = Heavy Truck  
 \* = Level-of-Service "C" Volume

**TABLE 3**  
**NOISE ISOPLETHS**  
**Hourly Leq of 67 dBA**

<u>Roadway Section</u>	<u>Approximate Distance From Roadway Centerline (ft)</u>		
	<u>1987</u>	<u>2010</u>	
	<u>Existing</u>	<u>No-Build</u>	<u>Build</u>
S.R. 45 from S.R. 52 to Moreland Road	97	135	150
S.R. 45 from Moreland Road to Kollar Street	100	118	200
S.R. 45 from Kollar Street to Hooza Street	87	103	200
S.R. 45 from Hooza Street to Ayers Road	100	118	200
S.R. 45 from Ayers Road to Barnett Road	135	135	245
S.R. 45 from Barnett Road to S.R. 700	58	58	146
S.R. 700 from S.R. 45 to Ward Avenue	70	70	150
S.R. 700 from Ward Avenue to Yontz Road	94	94	150

comparison of Table 2 and Table 3 shows that the areas of greatest change in traffic volumes are predicted to receive the greatest change in noise levels.

### **Noise Impact Analysis**

The noise impact potential of the proposed project was determined by comparing land use, existing noise levels, and predicted noise levels with established criteria which consider exceedance and significant increase.

### **Exceedance Impacts**

FHWA Noise Abatement Criteria, shown in Table 4, establish guidelines for traffic noise impact assessment with respect to land use. When the traffic noise of a proposed roadway project is predicted to approach or exceed the criteria established for certain activity categories, noise abatement measures must be considered. For purposes of impact evaluation, the FDOT considers "approach" to normally mean within 2 dBA of the FHWA Noise Abatement Criteria. Consequently, for this evaluation, noise impacts were identified for any location within the study area which was predicted to exceed a noise level of 2 dBA less than the FHWA criteria for the appropriate activity category. For example, while the FHWA criteria for Activity Category B is 67 dBA, a value of 65 dBA was used in this evaluation to determine noise impacts. Areas which would approach or exceed criteria are identified in Table 5 and are shown on Exhibit 7. A summary of noise impacts is found in Table 6.

Predicted noise levels were determined to approach or exceed the Noise Abatement Criteria for Activity Category B for the Existing, No-Build and Build Conditions. Activity Category B impacts were identified primarily at single family homes and mobile homes.

**TABLE 4**  
**FHWA NOISE ABATEMENT CRITERIA**

<u>Activity Category</u>	<u>Hourly Leq (dBA)</u>	<u>Description of Activity Category</u>
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, 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.

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References: 23 CFR, Part 772

**TABLE 5**  
**NOISE IMPACT ESTIMATES**

<u>Site Number</u>	<u>Site Description</u>	<u>Hourly Leq (dBA)</u>			<u>Increase With Project</u>
		<u>1987 Existing</u>	<u>2010</u>		
			<u>No-Build</u>	<u>Build</u>	
1-2	Single Family Home	65*	67**	70**	5
3	Single Family Home	68**	70**	76**	8
4	Mobile Home	65*	67**	70**	5
5	Mobile Home	63	66*	68**	5
6	Mobile Home	60	62	65*	5
7	Single Family Home	62	65*	66*	4
8-12	D & M Trailer Park	66*	69**	74**	8
13	D & M Trailer Park	60	62	65*	5
14	Single Family Home	63	65*	67**	4
15	Single Family Home	70**	72**	76**	6
16	Single Family Home	64	66*	68**	4
17	Mobile Home	71**	73**	69**	0
18	Mobile Home	68**	70**	67**	0
19	Single Family Home	64	66*	68**	4
20	Single Family Home	64	66*	65*	1
21	Tennis Courts	65*	67**	66*	1
22	Single Family Home	68**	70**	69**	1
23-24	Single Family Home	65*	67**	66*	1
25	Mobile Home	65*	67**	66*	1
26	Mobile Home	63	65*	64	1
27	Mobile Home	63	65*	68**	5
28-29	Mobile Home	65*	67**	69**	4
30	Single Family Home	63	66*	65*	2
31	Single Family Home	64	66*	65*	1
32-33	Single Family Home	65*	67**	66*	1
34	Single Family Home	62	65*	65*	3
35	Single Family Home	64	66*	66*	2
36	Single Family Home	65*	67**	68**	3
37	Single Family Home	62	65*	66*	4
38-40	Single Family Home	63	65*	66*	3
41	Single Family Home	65*	67**	68**	3
42	Single Family Home	62	64	65*	3
43	Single Family Home	62	65*	66*	4
44	Single Family Home	65*	67**	68**	3
45	Single Family Home	62	65*	65*	3
46	Mobile Home	63	65*	65*	2
47	Single Family Home	65*	67**	66*	1
48	Mobile Home	63	65*	68**	5
49	Mobile Home	66*	68**	66*	0
50-51	Single Family Home	66*	68**	66*	0
52-53	Single Family Home	66*	69**	66*	0
54	Single Family Home	65*	67**	66*	1
55	Mobile Home	70**	72**	69**	0
56	Single Family Home	68**	70**	67**	0

**TABLE 5**  
**NOISE IMPACT ESTIMATES**  
**(Continued)**

<u>Site Number</u>	<u>Site Description</u>	<u>Hourly Leq (dBA)</u>			<u>Increase With Project</u>
		<u>1987 Existing</u>	<u>2010</u>		
			<u>No-Build</u>	<u>Build</u>	
57-58	Single Family Home	66*	69**	66*	0
59-60	Single Family Home	65*	67**	66*	1
61	Mobile Home	65*	67**	71**	6
62	Mobile Home	67**	69**	74**	7
63	Mobile Home	64	66*	71**	7
64	Mobile Home	66*	69**	74**	8
65	Mobile Home/Big Oak Campground	71**	73**	Taken with project	
66	Mobile Home/Big Oak Campground	63	65*	68**	5
67	Mobile Home/Big Oak Campground	66*	69**	74**	8
68	Single Family Home	63	65*	68**	5
69	Mobile Home	63	65*	65*	2
70	Mobile Home	65*	67**	66*	1
71	Single Family	63	65*	65*	2
72	Sevilla Mobile Home Court	62	65*	64	2
73-75	Sevilla Mobile Home Court	63	65*	65*	2
76	Single Family Home	63	65*	65*	2
77	Single Family Home	66*	68**	67**	1
78	Single Family Home	68**	70**	69**	1
79	Single Family Home	66*	69**	67**	1
80	Single Family Home	63	65*	66*	3
81	Single Family Home	66*	69**	69**	3
82	Single Family Home	66*	68**	68**	2
83	Single Family Home	71**	73**	74**	3
84	Single Family Home	63	65*	66*	3
85-88	Single Family Home	65*	67**	68**	3
89	Single Family Home	64	66*	66*	2
90	Single Family Home	64	66*	67**	3
91	Mobile Home	66*	68**	68**	2
92-93	Mobile Home	63	65*	66*	3
94	Mobile Home	65*	67**	68**	3
95-96	Single Family Home	64	66*	66*	2
97	Single Family Home	66*	68**	68**	2
98	Single Family Home	63	65*	66*	3
99	Single Family Home	62	65*	65*	3
100	Single Family Home	64	66*	66*	2
101-108	Single Family Home	65*	66*	70**	5
109	Single Family Home	64	65*	69**	5
110	Single Family Home	63	64	68**	5

**TABLE 5**  
**NOISE IMPACT ESTIMATES**  
**(Continued)**

Site Number	Site Description	Hourly Leq (dBA)			Increase With Project
		1987 Existing	2010 No-Build    Build		
111-112	Single Family Home	65*	66*	69**	4
113	Single Family Home	64	65*	68**	4
114	Single Family Home	66*	67**	70**	4
115	Single Family Home	63	64	67**	4
116	Single Family Home	65*	66*	69**	4
117	Single Family Home	66*	68**	70**	4
118	Single Family Home	65*	66*	70**	5
119	Mobile Home	64	65*	69**	5
120	Single Family Home	67**	68**	73**	6
121-124	Single Family Home	66*	67**	71**	5
125	Single Family Home	67**	68**	71**	4
126	Mobile Home	67**	68**	71**	4
127	Single Family Home	68**	69**	72**	4
128	Single Family Home	65*	66*	69**	4
129-130	Single Family Home	65*	66*	71**	6
131	Single Family Home	62	64	68**	6
132	Single Family Home	66*	67**	73**	7
133	Single Family Home	63	65*	69**	6
134	Single Family Home	66*	67**	72**	6
135	Mobile Home	67**	68**	72**	5
136	Single Family Home	66*	67**	71**	5
137	Single Family Home	63	64	68**	5
138-139	Single Family Home	62	63	67**	5
140	Single Family Home	65*	66*	70**	5
141	Pool (Masary Hotel)	62	63	67**	5
142	Mobile Home	66*	67**	71**	5
143	Single Family Home	65*	66*	70**	5
144-145	Single Family Home	66*	67**	70**	4
146	Single Family Home	64	65*	69**	5
147	Single Family Home	66*	68**	72**	6
148	Single Family Home	67**	68**	73**	6
149-150	Single Family Home	62	63	67**	5
151-152	Mobile Home	62	63	67**	5
153	Single Family Home	67**	68**	72**	5
154	Single Family Home	69**	70**	72**	3
155	Single Family Home	66*	67**	70**	4
156	Single Family Home	67**	68**	71**	4
157	Single Family Home	65*	66*	69**	4
158	Mobile Home	61	61	66*	5
159-160	Mobile Home	66*	66*	69**	3
161-162	Single Family Home	66*	66*	69**	3
163	Single Family Home	65*	65*	69**	4
164	Mobile Home	61	61	65*	4
165	Single Family Home	63	63	67**	4
166	Mobile Home	62	62	66*	4

**TABLE 5**  
**NOISE IMPACT ESTIMATES**  
**(Continued)**

<u>Site Number</u>	<u>Site Description</u>	<u>Hourly Leq (dBA)</u>			<u>Increase With Project</u>
		<u>1987 Existing</u>	<u>2010</u>		
			<u>No-Build</u>	<u>Build</u>	
167	Mobile Home	66*	66*	70**	4
168	Mobile Home	68**	68**	72**	4
169	Single Family Home	66*	66*	70**	4
170	Single Family Home	64	64	67**	3
171	Single Family Home	70**	70**	73**	3
172	Single Family Home	62	62	66*	4
173	Single Family Home	67**	67**	70**	3
174	Single Family Home	62	62	65*	3
175	Single Family Home	65*	65*	69**	4
176	Single Family Home	63	63	67**	4
177	Mobile Home	69**	69**	72**	3
178	Mobile Home	71**	71**	74**	3
179	Mobile Home	65*	65*	68**	3
180	Single Family Home	63	63	66*	3
181	Mobile Home	64	64	67**	3
182	Mobile Home	62	62	65*	3
183-184	Single Family Home	69**	69**	73**	4
185	Mobile Home	65*	65*	69**	4
186	Single Family Home	63	63	66*	3
187	Mobile Home	66*	66*	69**	3
188	Single Family Home	69**	69**	72**	3
189	Single Family Home	70**	70**	75**	5
190	Single Family Home	67**	67**	71**	4
191	Single Family Home	67**	67**	70**	3
192-193	Single Family Home	65*	65*	70**	5
194	Single Family Home	67**	67**	71**	4
195	Single Family Home	64	64	67**	3
196	Single Family Home	66*	66*	69**	3
197-198	Single Family Home	65*	65*	70**	5
199	Single Family Home	63	63	66*	3
200	Single Family Home	63	63	68**	5
201	Single Family Home	63	63	65*	2
202	Single Family Home	70**	70**	71**	1
203	Mobile Home	63	63	66*	3
204	Single Family Home	65*	65*	67**	2
205-208	Pine Cabins	70**	70**	71**	1
209	Single Family Home	70**	70**	71**	1
210	Single Family Home	67**	67**	71**	4
211-212	Single Family Home	69**	69**	71**	2
213	Single Family Home	67**	67**	70**	3
214	Single Family Home	64	64	67**	3
215	Single Family Home	62	62	65*	3
216	Single Family Home	69**	69**	75**	6
217	Single Family Home	68**	68**	70**	2



**TABLE 5**  
**NOISE IMPACT ESTIMATES**  
**(Continued)**

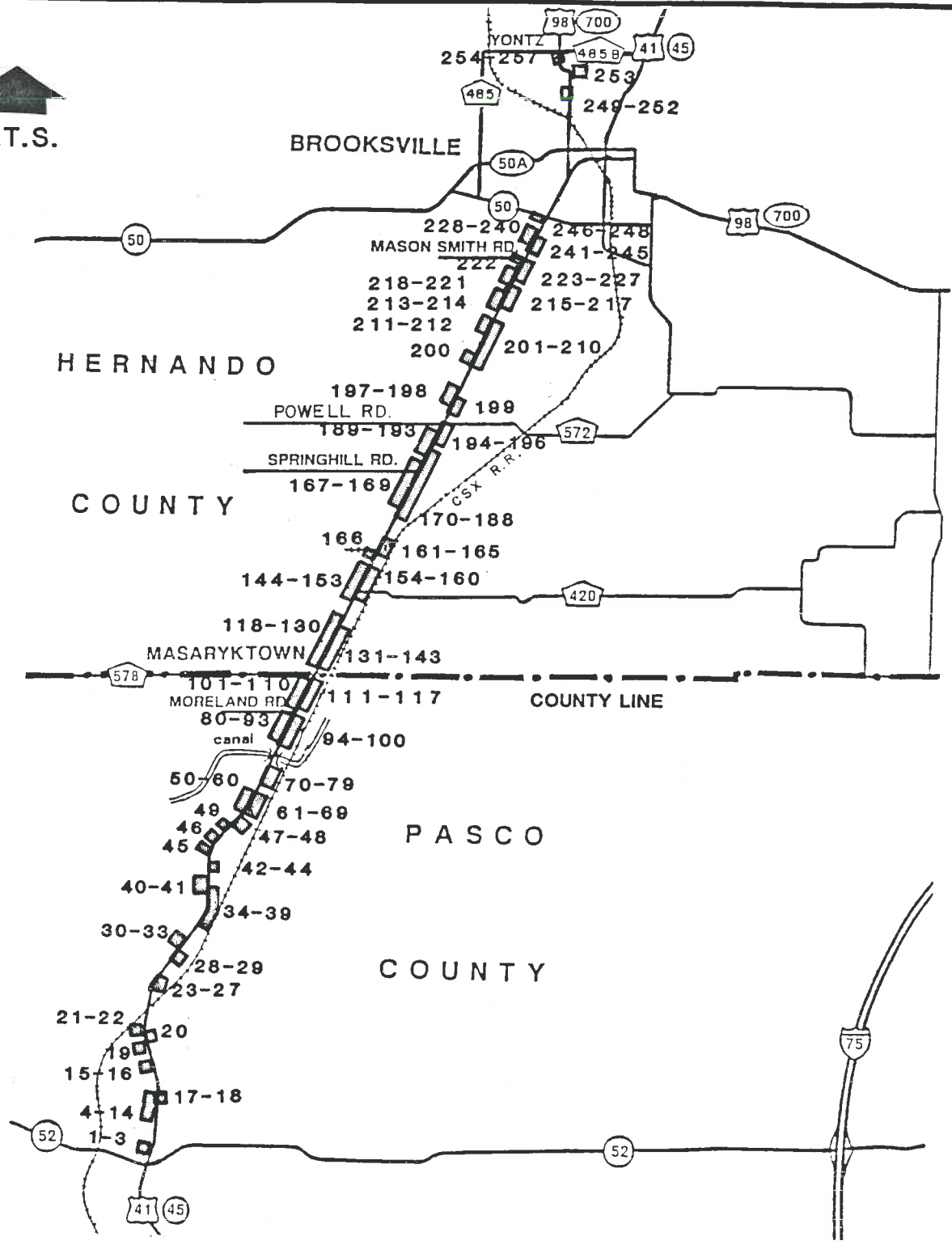
<u>Site Number</u>	<u>Site Description</u>	<u>Hourly Leq (dBA)</u>			<u>Increase With Project</u>
		<u>1987 Existing</u>	<u>2010</u>		
			<u>No-Build</u>	<u>Build</u>	
218-219	Single Family Home	69**	69**	71**	2
220	Single Family Home	65*	65*	68**	3
221	Single Family Home	63	63	67**	4
222	Single Family Home	63	63	68**	5
223	Single Family Home	62	62	67**	5
224-225	Evergreen Mobile Home	62	62	67**	5
226	Single Family Home	72**	72**	78**	6
227	Single Family Home	69**	69**	71**	2
228-229	Mobile Home	62	62	66*	4
230-232	Single Family Home	61	61	65*	4
233	Single Family Home	65*	65*	69**	4
234	Single Family Home	63	63	65*	2
235	Mobile Home	69**	69**	73**	4
236-238	Mobile Home	64	64	68**	4
239	Mobile Home	62	62	65*	3
240	Single Family Home	62	62	66*	4
241	Mobile Home	67**	67**	71**	4
242	Single Family Home	64	64	67**	3
243	Single Family Home	71**	71**	74**	3
244	Single Family Home	66**	67**	70**	4
245	Single Family Home	67**	67**	70**	3
246-248	Single Family Home	69**	69**	73**	4
249-250	Flamingo Mobile Home	64	64	69**	5
251	Flamingo Mobile Home	68**	68**	72**	4
252	Flamingo Mobile Home	63	63	66*	3
253	Single Family Home	65*	65*	71**	6
254-255	Single Family Home	64	64	69**	5
256	Single Family Home	63	63	68**	5
257	Single Family Home	61	61	67**	6

\* Noise levels predicted to approach noise abatement criteria.

\*\* Noise levels predicted to exceed noise abatement criteria.

**TABLE 6**  
**NOISE IMPACT SUMMARY**

<u>Land Use</u>	<u>Number of Locations Approaching or Exceeding FHWA Criteria</u>		
	<u>1987</u> <u>Existing</u>	<u>2010</u>	
		<u>No-Build</u>	<u>Build</u>
Single Family Homes (units)	117	147	183
Mobile Homes (units)	36	47	68
Pool at Hotel	0	1	1
Tennis Courts	1	1	1
<b>Total</b>	<b>154</b>	<b>196</b>	<b>253</b>



Greiner, Inc.

**FLORIDA DEPARTMENT OF TRANSPORTATION**

**NOISE REPORT**

**S.R. 45 (U.S. 41) / S.R. 700 (U.S. 98)**

From S.R. 52 to C.R. 485B

Pasco and Hernando Counties, Florida

**NOISE IMPACTED AREAS**

 Noise Impacted Areas

### **Substantial Increase Impacts**

Noise impacts may occur when noise levels are predicted to increase substantially, yet not approach or exceed the FHWA Noise Abatement Criteria. These impacts occur primarily when proposed roadway improvements are planned in the vicinity of noise sensitive areas where existing noise levels are relatively low. The figure shown on Exhibit 8 is used to determine if noise level increases are substantial by comparing existing levels with projected noise level increases for Activity Category B. Comparison of Exhibit 8 with predicted noise levels for the Build and No-Build Conditions indicates that substantial increases do not occur within the study area.

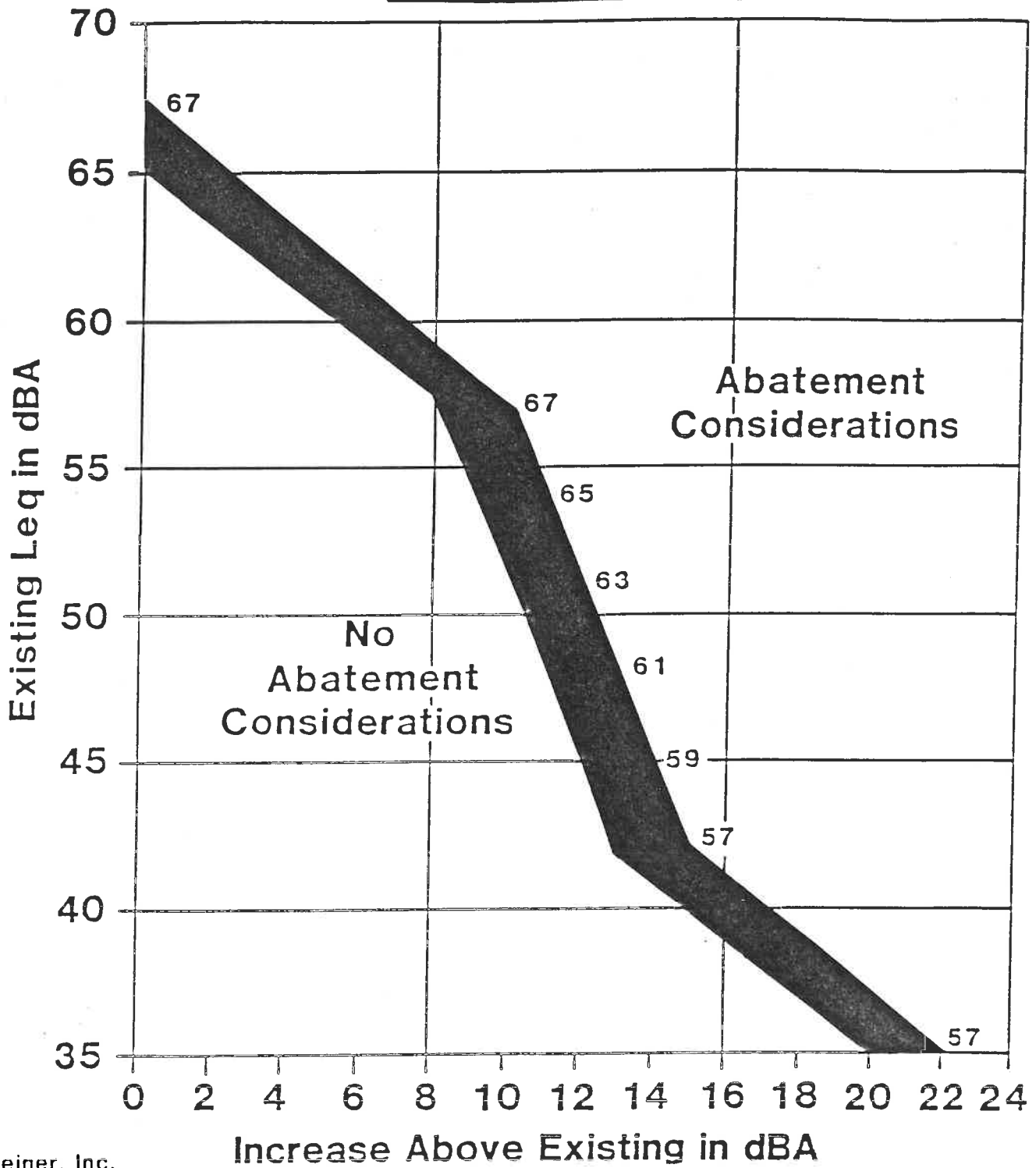
### **Noise Abatement Measures**

The FHWA requires that when the noise levels of a proposed federal roadway project approach or exceed Noise Abatement Criteria, various noise abatement measures must be considered. The following discussion addresses the applicability of these measures to the proposed project.

### **Alignment Selection**

Alignment selection involves the orientation of the project location in such a way as to minimize impacts and costs. For noise abatement, alignment selection is primarily a matter of siting the roadway at a sufficient distance from noise sensitive areas. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. An alternative on new alignment is not viable because it does not eliminate the need

# Activity Category B



Greiner, Inc.

## FLORIDA DEPARTMENT OF TRANSPORTATION

NOISE REPORT

**S.R. 45 (U.S. 41) / S.R. 700 (U.S. 98)**

From S.R. 52 to C.R. 485B  
Pasco and Hernando Counties, Florida

**SUBSTANTIAL INCREASE CRITERIA**

EXHIBIT 8

to improve the existing S.R. 45/S.R. 700 route due to traffic demand on the corridor. The preferred roadway alignment requires right-of-way acquisition from either the east or west sides of the facility but avoids acquisition from both sides at the same location. This was accomplished in order to minimize the number of relocations and to utilize the existing pavement to the greatest extent possible. Shifting the alignment within the corridor is not effective because it would result in increased relocations and does not substantially reduce noise impacts due to the presence of sensitive sites along both sides of the roadway.

#### **Traffic System Management Measures**

Traffic management measures which limit vehicle type, speed, volume, and time of operations are often effective noise abatement measures. For this project, traffic management measures are not considered appropriate for noise abatement due to their effect on the capacity and level-of-service of the improved roadway. It was determined that a reduction in speed limit of 10 mph would result in a noise level reduction of approximately 2 to 3 dBA. Because most people cannot detect a noise reduction of 3 dBA and because reducing the speed limit would reduce roadway capacity, it is not considered a viable noise abatement measure.

#### **Noise Barriers**

Noise barriers reduce noise levels by blocking the sound path between a roadway and sensitive areas. This measure is most often used on high speed limited access facilities where noise levels are high and there is adequate space for continuous barriers. S.R.

45 is an arterial roadway in which the areas impacted by noise are in locations unsuitable for barrier construction because connecting roadways and driveways do not allow for barriers which would be continuous enough to provide substantial noise reduction. Because of the horizontal constraints, barriers of any reasonable height would not be effective. For these reasons, modeling with the OPTIMA barrier program was not necessary.

The use of vegetation for noise barriers is not considered to be effective in the actual reduction of noise levels for this project. This is due to the substantial amount of right-of-way necessary to make vegetation barriers effective. FHWA research has shown that vegetative barriers should be composed of closely spaced, densely foliated trees and shrubs, and should be approximately 100 feet wide in order to provide a 5 dBA reduction in noise levels. This, together with the arterial characteristics of the roadway, does not allow for effective vegetative barriers.

#### **Property Acquisition**

Property acquisition to provide buffer zones or space for barrier construction is not recommended or necessary for noise abatement for this project. Proper land use controls to establish and maintain existing buffered areas should be utilized by Pasco and Hernando counties.

## **Soundproofing**

Soundproofing is the process of reducing interior noise levels through modification of affected structures. The FHWA participates in the funding of soundproofing of public or non-profit structures, of which none were found to be affected. The State of Florida participates in the funding of soundproofing only when a portion of the parcel of property an affected structure is located on is purchased for right-of-way. This is accomplished as a "cost to cure" and the amount of compensation is determined during right-of-way acquisition negotiations between the Department and the property owner.

## **Land Use Controls**

One of the most effective noise abatement measures for this project is the proper use of land use controls to minimize future impacts. Local jurisdictions with zoning control should use the noise level isopleths provided in this report to develop policies to limit the growth of noise sensitive land uses adjacent to the roadway. These policies should be implemented through zoning and building codes.

## **Summary of Noise Abatement Feasibility**

Based on the noise analyses performed, there are no apparent solutions available to mitigate the noise impacts at the identified noise impacted areas. Future noise impacts will be minimized through prudent land use controls implemented by local jurisdictions.



## **CONSTRUCTION NOISE**

The construction and development of the proposed project would result in temporary noise increases within the study area. The noise would be generated primarily from heavy equipment used in hauling materials and building the roadway. Sensitive areas located close to the construction alignment may temporarily experience increased noise levels; however, no areas within the study area where quiet is of extraordinary significance would be impacted by construction noise.

Construction noise will be minimized to the greatest extent practicable through the adherence to controls listed in the latest edition of FDOT's Standard Specifications for Road and Bridge Construction.

## **COORDINATION WITH LOCAL OFFICIALS**

Federal Aid Highway Program Manual (FHPM) 7-7-1 (Process Guidelines), FHPM 7-7-5 (Public Hearing and Location/Design Approval), and FHPM 7-7-3 delegate to highway agencies the responsibility for taking measures that are prudent and feasible to assure the location and design of highways are compatible with existing and planned land uses. The agency responsible for this project is the FDOT. The FDOT will promote compatibility between land development and the operation of the proposed facility. To accomplish this goal, the FDOT will cooperate with the Pasco County Metropolitan Planning Organization, Hernando County and other local officials by furnishing:

1. appropriate generalized future noise levels (for various distances from highway improvement) for both developed and undeveloped lands or properties in the immediate vicinity of the project (Table 3);
2. information that may be useful to local communities to protect future land development from becoming incompatible with anticipated highway noise levels; and
3. the FHWA policy regarding land use development or changes which are initiated after issuance of FHPM 7-7-3 (described in paragraph [12c (2)] of that document).

Continued coordination with local agencies and officials has been accomplished during the development of this study and a copy of this report will be provided to appropriate local planning authorities in order to assist in the development of compatible future land use criteria.