## FINAL NOISE STUDY REPORT

## STATE ROAD 52 PD&E STUDY FROM I-75 (SR 93) to E. of EMMAUS CEMETERY ROAD

Pasco Work Order Number: C 3623.00 WPI Segment Number: 408827 1

Prepared for:



**Pasco County Engineering Services Department** 

June 2005

In cooperation with the Florida Department of Transportation

#### **FINAL**

# NOISE STUDY REPORT STATE ROAD 52 PD&E STUDY FROM I-75 (SR 93) to E. of EMMAUS CEMETERY ROAD IN PASCO COUNTY, FLORIDA

Pasco Work Order Number: C 3623.00 WPI Segment Number: 408827 1

#### Prepared for:

**Pasco County Engineering Services Department** 

#### Prepared by:

Wilson Miller, Inc. 15438 N. Florida Avenue Suite 200 Tampa, Florida 33613

And

**Environmental Science Associates, Inc.** 

2685 Ulmerton Road, Suite 102 Clearwater, Florida 33762

June 2005

#### **EXECUTIVE SUMMARY**

Pasco County in cooperation with the Florida Department of Transportation (FDOT) has conducted a study to evaluate and document possible traffic noise level changes that might result from the proposed improvements to State Road 52 (SR 52) from Interstate 75 (I-75) to the east of Emmaus Cemetery Road, a distance of 1.9 miles. The plans call for widening SR 52 from a two lane undivided roadway to a six lane divided urban roadway.

This Noise Study Report was prepared in accordance with the FDOT <u>Project Development and Environment (PD&E) Manual</u>, Part 2, Chapter 17 (October 6, 2003). Prediction of all traffic noise levels was performed using the Federal Highway Administration's (FHWA's) computer model, Traffic Noise Model (TNM) Version 2.5.

The objectives of the noise study were to identify noise sensitive sites adjacent to the project corridor, to evaluate future traffic noise levels at these sites with and without the improvements, and to evaluate the need and effectiveness of noise abatement measures. Additional objectives include the evaluation of construction noise and the identification of future noise level contours adjacent to the project corridor.

Predicted noise levels for the Build Alternatives were calculated and compared to the No-Build Alternative and to the existing condition noise levels at all of the noise sensitive sites identified as part of the field review. None of the evaluated sites are predicted to experience a substantial increase (i.e., an increase of 15 or more decibels above the existing noise level as a direct result of the Build Alternative). A single noise sensitive site will experience noise levels that will approach or exceed the FHWA Noise Abatement Criteria (NAC) under the Build Alternative while no sites currently approach or exceed the NAC. Likewise, the NAC is not expected to be approached or exceeded under the Future No-Build Alternative.

The site that will approach or exceed the NAC is a single family residence north of SR 52. Abatement alternatives were evaluated for this location. This included traffic management techniques, alignment modifications, property acquisition, land use controls, and noise barriers.

A noise barrier was evaluated for the single residence predicted to be affected by the proposed improvements. The results of the analysis indicate that Barrier 1 would not provide the minimum required reduction in traffic noise at a cost below the cost reasonable criteria.

## **TABLE OF CONTENTS**

<u>Title</u>		<u>Page</u>
1.0	INTRODUCTION 1.1 Purpose 1.2 Project Description	1 1 1
2.0	PROPOSED IMPROVEMENTS	1
3.0	TRAFFIC NOISE ANALYSIS 3.1 Noise Abatement Criteria 3.2 Noise Sensitive Sites 3.3 Noise Model 3.4 Traffic Data 3.5 Measured Noise Levels 3.6 Predicted Noise Levels	1 2 2 3 3 4 5
4.0	EVALUATION OF ABATEMENT ALTERNATIVES 4.1 Traffic Management Measures 4.2 Alignment Modifications 4.3 Land Use Controls 4.4 Noise Barriers 4.4.1 Noise Barrier 1	6 6 7 7 7
5.0	CONSTRUCTION NOISE AND VIBRATION	8
6.0	PUBLIC COORDINATION 6.1 Coordination with Local Officials 6.2 Public Involvement	8 8 8
7.0	CONCLUSIONS	9
8.0	REFERENCES	10

#### **APPENDICES**

Appendix A: Field Data Sheets Appendix B: TNM Input/Output

## **LIST OF TABLES**

<u>Table</u>		Page
1	FHWA Noise Abatement Criteria	2
2	Noise Sensitive Receivers	3
3	Traffic Data for SR 52	4
4	Noise Model Validation	5
5	Predicted Traffic Noise Levels	6
6	Noise Barrier Analysis: Barrier 1 – Site 1	8

## **LIST OF FIGURES**

<u>Figure</u>		<u>Follows</u>
1	Project Location Map	Page 1
2	Proposed Typical Section	Figure 1
3	Noise Sensitive Sites and Monitoring Locations	Page 2
4	Pasco County Comprehensive Land Use Plan 2015	Figure 3
5	Noise Contours	Page 7
6	Barrier 1	Figure 5

#### 1.0 INTRODUCTION

Pasco County in cooperation with the Florida Department of Transportation (FDOT) has conducted a study to evaluate and document possible traffic noise level changes that might result from the proposed improvements to State Road 52 (SR 52) from Interstate 75 (I-75) to the east of Emmaus Cemetery Road, a distance of 1.9 miles. Figure 1 indicates the limits of the proposed project.

This Noise Study Report (NSR) was prepared in accordance with the FDOT Project Development and Environment (PD&E) Manual, Part 2, Chapter 17 (October 6, 2003). All noise levels described in this report are expressed in A-weighted decibels (dBA) in terms of one-hour equivalent steady-state sound level – LAeq1h.

#### 1.1 Purpose

The objectives of the noise study are to identify noise sensitive sites adjacent to the project corridor, to evaluate future traffic noise levels at these sites with and without the improvements, and to evaluate the need and effectiveness of noise abatement measures. Additional objectives include the evaluation of construction noise and the identification of future noise level contours adjacent to the project corridor.

#### 1.2 Project Description

The proposed project involves the widening of SR 52 from a two-lane undivided highway to a six-lane divided urban highway from the intersection of SR 52 and I-75 eastward a distance of 1.9 miles in Pasco County.

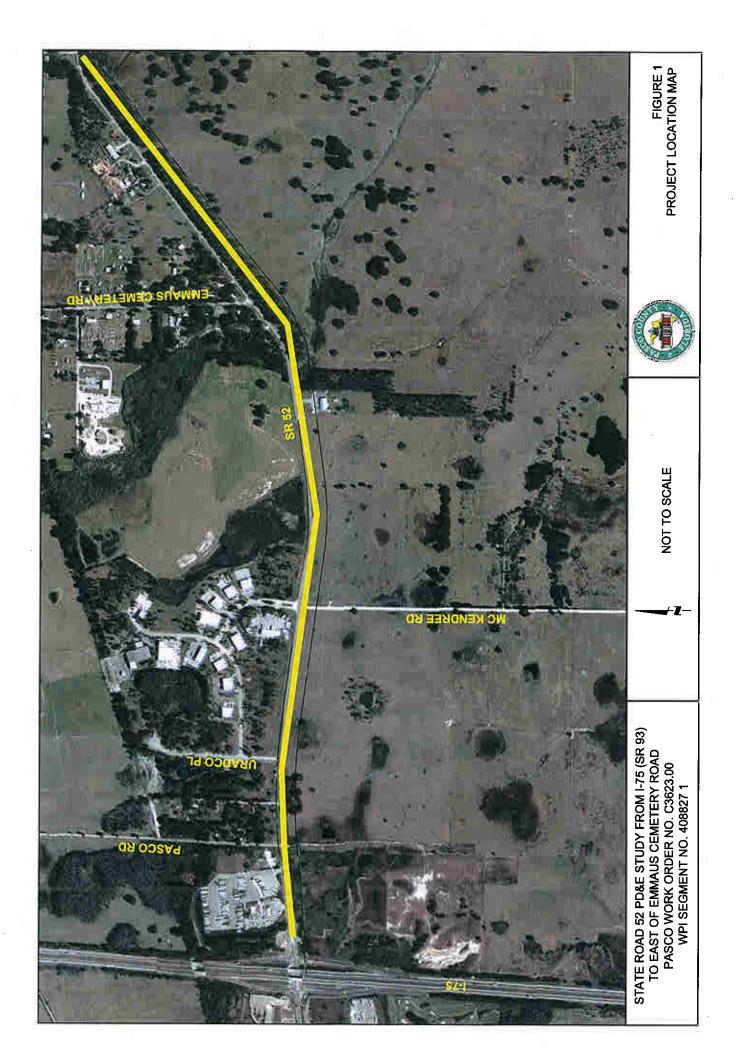
#### 2.0 PROPOSED IMPROVEMENTS

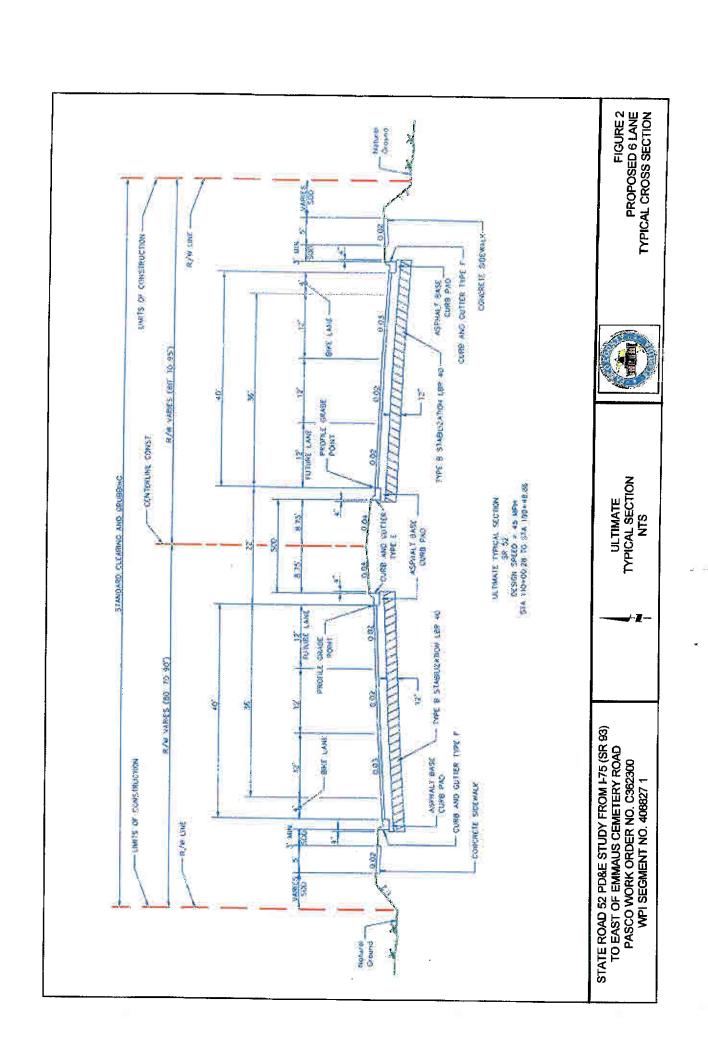
This study will evaluate the traffic noise associated with the existing roadway, the proposed roadway (Build Alternative), and the future No-Build Alternative. Figure 2 illustrates the proposed typical section for SR 52 as a six-lane divided facility. The roadway would include three 12 foot travel lanes in each direction with a raised 22 foot median. A four (4) foot bike lane is proposed for each direction along with a five (5) foot sidewalk in each direction. At the eastern end of the project the proposed six-lane roadway would taper back to a two-lane undivided rural typical section. It is anticipated that most widening would take place to the south of the existing roadway.

#### 3.0 TRAFFIC NOISE ANALYSIS

The noise levels presented in this report are expressed in A-weighted decibels (dBA). This scale most closely approximates the response characteristics of the human ear to low level sound. All noise levels are reported as LAeq1h. The term LAeq1h is defined as the level (A-weighted) equivalent steady-state sound level which in a 1-hour period contains the same acoustic energy as the time-varying sound level during the same 1-hour period.

All predicted noise levels were produced using the FHWA computer prediction model for highway traffic noise — Traffic Noise Model (TNM) Version 2.5, April 14, 2004. TNM propagates sound energy, in one-third octave bands, between highways and nearby receivers, taking into account the intervening ground's acoustical characteristics, topography, and rows of buildings.





#### 3.1 Noise Abatement Criteria

To evaluate traffic noise, the FHWA has established Noise Abatement Criteria (NAC). As shown in Table 1, the NAC vary according to land use activity and traffic noise sensitivity.

When predicted traffic noise levels "approach" or exceed the NAC, or when predicted traffic noise levels increase substantially from existing levels, Florida Statute 335.17 requires that noise abatement measures be consistent with 23 CFR 772. The FDOT defines the word "approach" as within 1 dBA of the NAC, and a substantial increase occurs if noise levels are predicted to increase by 15 dBA or more as a direct result of the transportation improvement project.

**Table 1: FHWA Noise Abatement Criteria** 

Activity		
Category	Description	L <sub>Aeq1h</sub> *
А	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	57 (Exterior)
В	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 (Exterior)
С	Developed lands, properties or activities not included in Categories A or B above.	72 (Exterior)
D	Undeveloped lands.	N/A
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.	52 (Interior)

Source: Code of Federal Regulations, Title 23, Part 772

#### 3.2 Noise Sensitive Sites

A noise sensitive site is any property (owner occupied, rented or leased) where frequent exterior human use occurs and where a lowered noise level would be of benefit. A field evaluation of the project area revealed 12 potentially noise sensitive receivers within the project corridor. All receivers are located north of SR 52 and all but two of the receiver sites are residential in nature. The exceptions are the San Antonio Community Church, located east of Emmaus Cemetery Road and the Piney Grove Missionary Baptist Church located to the west of Emmaus Cemetery Road. Table 2 lists the location and description of each noise sensitive site. The location of these sites is shown on Figure 3. All abutting property south of SR 52 is currently undeveloped, agricultural, or industrial in nature and is not considered sensitive to traffic noise. The Pasco County Comprehensive Plan (Figure 4) shows this corridor as being a mixed use or residential classification for the year 2015. Future development that may be built adjacent to the south of SR 52 will be responsible for the provision of noise abatement if the development is permitted after the date of public knowledge, which for this project will be the date that the State Environmental Impact Report (SEIR) is approved by FDOT. Noise contours associated with the proposed improvement project are included in this report and can be used by local government and developers to assist in considering the potential for traffic noise effects on future development.

 $<sup>^*</sup>$   $L_{Aeq1h}$  - values that contain the same amount of acoustic energy as a time varying A-weighted sound level over a period of one hour.

Table 2: Noise Sensitive Receivers

Noise		
Sensitive		
i		
Receiver	Property Address	Land Use
1	31427 State Road 52, San Antonio, FL 33576	Single Family Residence
2	31345 State Road 52, San Antonio, FL 33576	Single Family Residence
3	31315 State Road 52, San Antonio, FL 33576	Single Family Residence
4	31331 State Road 52, San Antonio, FL 33576	Single Family Residence
5	31251 State Road 52, San Antonio, FL 33576	Religious Facility
6	31221 State Road 52, San Antonio, FL 33576	Single Family Residence
7	31157 State Road 52, San Antonio, FL 33576	Single Family Residence
8	116542 Emmaus Cemetery Road, San Antonio, FL 33576	Single Family Residence
9	11638 Emmaus Cemetery Road, San Antonio, FL 33576	Single Family Residence
10	11637 Emmaus Cemetery Road, San Antonio, FL 33576	Single Family Residence
11	31027 State Road 52, San Antonio, FL 33576	Religious Facility
12	31005 State Road 52, San Antonio, FL 33576	Single Family Residence
Source: Envir	onmental Science Associates, Inc., 2004	

#### 3.3 Noise Model

Input parameters necessary to run TNM 2.5 include: detailed roadway geometry, receiver locations, propagation characteristics, shielding, and traffic data. The propagation path between the noise sensitive sites and SR 52 is generally considered to be an acoustically "soft" site. This means that the intervening ground surface is mostly grass or low vegetation. The preliminary design concepts were used to develop roadway geometry along with the plans available for the existing roadway. The roadway geometry and receiver locations were evaluated in the field and mapped using plan sheets and recent aerial photography.

#### 3.4 Traffic Data

Traffic noise level predictions are made for the traffic characteristics that yield the worst hourly traffic noise on a regular basis. Generally, the worst hourly traffic volume is the peak-hour level of service (LOS) C or demand LOS, whichever is less. The design year for this project is 2030.

Table 3 contains the data used in the prediction of traffic noise for this project for all reasonable alternatives. A Peak-hour factor (K) of 9.32% was used along with a directional (D) factor of 56.84% and a truck factor (T) of 2.08% for medium trucks, 1.57% for heavy trucks, and 0.36% for buses. From a traffic perspective the project was broken up into three segments. From west to east, the first segment extended from I-75 to McKendree. The second segment extended from McKendree to Clinton and the third segment extended from Clinton to east of Emmaus Cemetery Road.

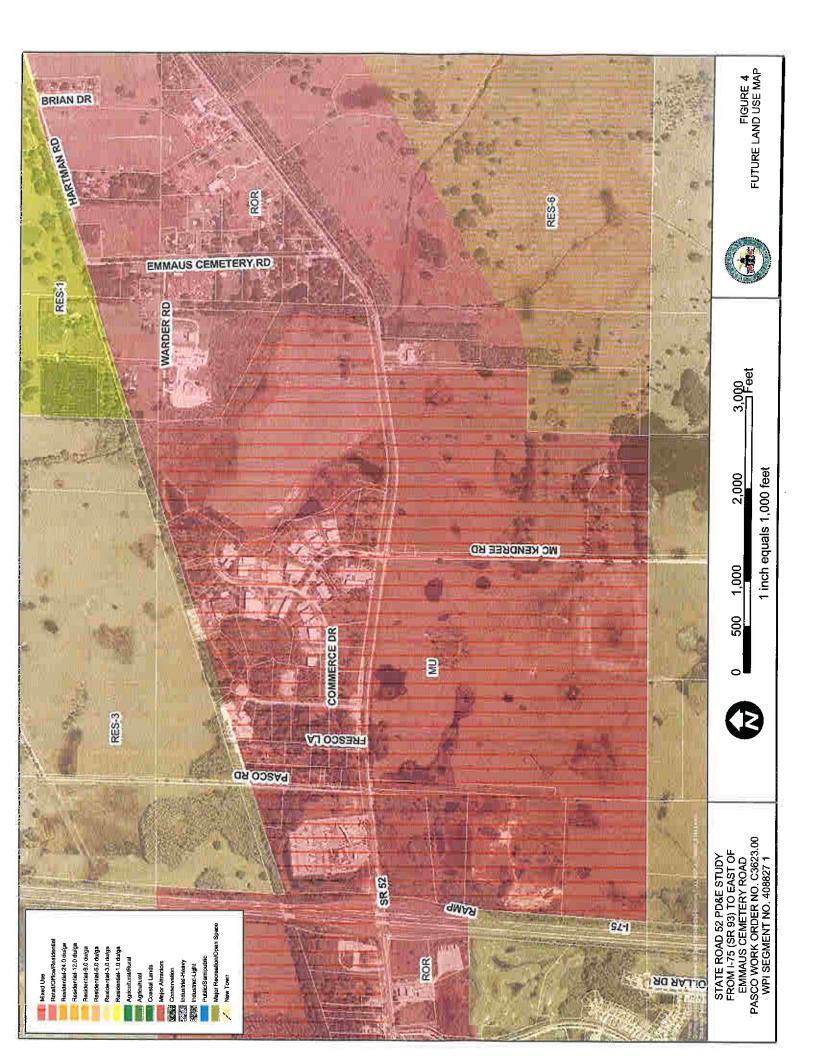


Table 3: Traffic Data for SR 52

			Traffic Volume by Vehicle Type					
		Direction		Medium	Heavy	Buses	Speed	
Segment	Alternative	Of Flow	Cars	Trucks(a)	Trucks(b)	(c)	(mph)	
	Existing (2004)	Off-Peak	506	8	11	2	45	
1.75.4-	Existing (2004)	Peak	666	11	14	2	45	
I-75 to McKendree	No-Build (2030)	Off-Peak	506	8	11	2	45	
Microstoree	140-Build (2030)	Peak	666	11	14	2	45	
	Future Build	Off-Peak	1730	28	37	6	50	
	(2030)	Peak	2278	37	49	9	50	
	Existing (2004)	Off-Peak	506	8	11	2	45	
		Peak	666	11	14	2	45	
McKendree	No-Build (2030)	Off-Peak	506	8	11	2	45	
to Clinton		Peak	666	11	14	2	45	
	Future Build	Off-Peak	1266	21	27	5	50	
	(2030)	Peak	1668	27	36	6	50	
	Existing (2004)	Off-Peak	506	8	11	2	45	
	Existing (2004)	Peak	666	11	14	2	45	
Clinton to E.	No-Build (2030)	Off-Peak	506	8	11	2	45	
of Emmaus	140-Build (2000)	Peak	666	11	14	2	45	
	Future Build	Off-Peak	672	11	15	3	50	
	(2030)	Peak	885	14	19	3	50	

Source: SR 52 SEIR Traffic Analysis Report, Wilson Miller, Inc., 2004

- (a) Medium truck all cargo vehicles having 2 axles and 6 tires.
- (b) Heavy truck all cargo vehicles having 3 or more axles.
- (c) Bus all vehicles having 2 or 3 axles carrying 9 or more passengers.

#### 3.5 Measured Noise Levels

To validate the computer noise model, field measurements were taken at locations within the project area which are representative of noise sensitive areas within the study limits. Field measurements were generally conducted according to procedures described in the requirements of the FDOT PD&E Manual, Part 2, Chapter 17. Noise levels were measured with a calibrated Larson-Davis Sound Level Meter Model 700 equipped with a microphone and windscreen. All measurements were taken with the microphone 5 feet above the ground, which correlates with the average height of the human ear. Traffic speeds were recorded with a Stalker Solo Plus radar gun. Traffic volumes and classification were recorded during each 10 minute measuring period.

The location of the traffic noise measurements are shown on Figure 3 while Table 4 presents the field measurement data along with the validation results. The noise level prediction model is within an acceptable level of accuracy if measured and predicted noise levels are within the FDOT tolerance standard of 3 dBA. As shown in Table 4, the ability of TNM 2.5 to accurately predict noise levels for this project has been confirmed. A copy of the field measurement data sheets can be found in Appendix A.

**Table 4: Noise Model Validation** 

			Field Measured	Computer Predicted	Difference		
Location	Date	Time	(dBA)	(dBA)	(dBA)		
Site 1 – 80' n. of the edge of		9:39 - 9:49 AM	65.5	65.1	0.4		
pavement of SR 52 at San Antonio Community Church	12/21/04	9:53 -10:03 AM	63.5	65.0	-1.5		
Antonio Community Charon		10:07 - 10:17 AM	64.5	65.0	-0.5		
Site 2 70' n. of the edge of	12/21/04	10:35 - 10:43 AM	64.5	65.2	-0.7		
pavement of SR 52, 550' w. of Corporate Lake Blvd.		10:47 - 10:57 AM	65.0	65.5	-0.5		
or corporate take bivo.		11:00 - 11:10 AM	63.0	65.4	-2.4		
Source: Environmental Science Associates, Inc., 2004							

#### 3.6 Predicted Noise Levels

Predicted noise levels for the Build Alternatives were calculated and compared to the No-Build Alternative and to the existing condition noise levels at all of the noise sensitive sites identified as part of the field review. Traffic noise prediction input and output data can be found in Appendix B.

Table 5 presents the predicted noise levels for the existing condition and the No-Build Alternatives and compares the increase in the predicted Build Alternative noise levels above the predicted existing condition. As shown by the comparisons for each noise sensitive site, none of the evaluated sites are predicted to experience a substantial increase (i.e., an increase of 15 or more decibels above the existing noise level as a direct result of the Build Alternative). The location of the noise sensitive sites modeled is presented in Figure 3.

As can be seen from the data in Table 5, a single noise sensitive site will experience traffic noise levels that will approach or exceed the NAC under the Build Alternative. No sites currently approach or exceed the NAC. Likewise, the NAC is not expected to be approached or exceeded under the Future No-Build Alternative.

The site that is predicted to approach or exceed the NAC is a single family residence north of SR 52.

**Table 5: Predicted Traffic Noise Levels** 

Tubio or 11ou	locca Traille 11013				1			
		P	redicted LAec	Difference				
			(dBA)	Existing	Approach			
Noise		Existing	No-Build	Build	vs.	or		
Sensitive		Condition	Alternative	Alternative	Build	Exceed		
Site #	Land Use	(2004)	(2030)	(2030)	(dBA)	NAC?		
1	SF Residential	61.3	61.3	67.7	6.4	Yes		
2	SF Residential	56.3	56.3	63.7	7.4	No		
3	SF Residential	49.4	49.4	54.2	4.8	No		
4	SF Residential	58.5	58.5	65.3	6.8	No		
5	Church (Interior)	47.5	47.5	52.6	5.1	No		
6	SF Residential	55.2	55.2	60.2	5.0	No		
7	SF Residential	59.6	59.6	64.9	5.3	No		
8	SF Residential	55.7	55.7	60.8	5.1	No		
9	SF Residential	60.2	60.2	65.3	5.1	No		
10	SF Residential	57.1	57.1	62.3	5.2	No		
11	Church (Interior)	41.5	41.5	46.1	4.6	No		
12	SF Residential	60.2	60.2	64.3	4.1	No		
PREDICT	ED MINIMUM	41.5	41.5	46.1	4.1			
PREDICT	ED MAXIMUM	61.3	61.3	67.7	7.4			
Total Sites	Approaching or							
Exceed	ing the NAC	0	0	1		1		
Source: Environmental Science Associates, Inc., 2004								

#### 4.0 EVALUATION OF ABATEMENT ALTERNATIVES

Since noise levels along the study corridor were determined to exceed the NAC for Activity Category B land use, the feasibility and reasonableness of noise abatement measures were evaluated. As outlined in Part 2, Chapter 17, of the PD&E Manual, these measures may include traffic system management, alignment modification, land use controls, and noise barriers.

#### 4.1 Traffic Management Measures

Traffic control measures that limit motor vehicle speeds and reduce traffic volumes can be effective noise mitigation measures. However, these measures also negate a project's ability to accommodate forecasted traffic volumes. For example, a substantial speed reduction on SR 52 would lower traffic noise levels; however, the capacity of the roadway to service traffic would also be reduced. Since SR 52 is a primary roadway supporting the Pasco County area, reducing traffic volumes or prohibiting truck traffic is not a viable measure. Therefore, this method of noise mitigation is not considered reasonable.

#### 4.2 Alignment Modifications

Alignment modification involves orienting and/or siting the roadway at sufficient distances from the residential areas so as to minimize traffic noise. Since this project involves lane additions to the existing roadway, the existing alignment dictates the proposed horizontal and vertical alignment.

#### 4.3 Land Use Controls

Another noise abatement measure is the use of land use controls to minimize noise level changes to future development. Pasco County planning agencies with land use control authority should anticipate changes to future noise levels along SR 52. This NSR will be made available to Pasco County planning authorities to assist in the siting of future compatible land uses. The noise contours provided in Figure 5 should be used to assist in developing setback distances for future noise sensitive land uses.

#### 4.4 Noise Barriers

Noise barriers reduce noise levels by blocking the sound path between a roadway and noise sensitive sites. In order to be effective in reducing traffic-induced noise levels, a noise barrier must be relatively long, continuous (with no intermittent openings) and sufficiently high enough to provide the necessary reduction in noise levels.

In order for a noise barrier to be considered feasible and economically reasonable it must meet the following minimum conditions:

- Provide a minimum insertion loss (noise reduction) of at least an average of 5 dBA for the affected receivers with a design goal of 10 dBA or more being desirable.
- Cost must not exceed \$35,000 per benefited receiver unless a higher level of expenditure can be justified by other circumstances.

Noise barriers were evaluated at areas along SR 52 where the traffic noise levels are predicted to approach or exceed the NAC as a result of the Build Alternative. TNM 2.5 was used to analyze the effectiveness of each noise barrier. Each barrier was analyzed at varying heights ranging from 8 to 22 feet at various lengths in order to determine the most effective barrier design with the optimum height and length meeting the above conditions.

#### 4.4.1 Noise Barrier 1

A noise barrier was investigated at Site 1, a single-family residence located north of SR 52 and east of Emmaus Cemetery Road. (See Figure 6) An optimized barrier 289 feet long and ranging in height from 8 to 22 feet was investigated as a potential measure to reduce the anticipated traffic noise levels. As shown in Table 6, a barrier at this location, while capable of providing the required minimum insertion loss of 5 dBA or more, was determined to not be cost reasonable.

Based on the results of the noise barrier modeling effort, it has been determined that a noise barrier evaluated for the single affected residence is not cost reasonable. Therefore noise abatement in the form of noise barriers is not anticipated in conjunction with this project.

WPI Segment #: 408827 1



Table 6: Noise Barrier Analysis: Barrier 1 - Site 1

	A	ffecte	d Re	ceiver	s Wit	h	Numbe	er of Ben	efited			
	h	nserti	on Lo	oss of	(dBA	)	R	eceivers				
												Cost
Barrier						10				Total	Cost Per	Reason
Height						or	Affect-	*		Estimated	Benefited	-able
(ft)	5	6	7	8	9	>	ed	Other	Total	Cost	Receiver	Yes/No
8	1	0	0	0	0	0	1	0	1	\$57,800	\$57,800	No
10	0	1	0	0	0	0	1	0	1	\$72,250	\$72,250	No
12	0	0	0	1	0	0	1	0	1	\$86,700	\$86,700	No
14	0	0	0	1	0	0	1	0	1	\$101,150	\$101,150	No
16	0	0	0	1	0	0	1	0	1	\$115,600	\$115,600	No
18	0	0	0	0	1	0	1	0 .	1	\$130,050	\$130,050	No
20	0	0	0	0	1	0	1	0	1	\$144,500	\$144,500	No
22	0	0	0	0	1	0	1	0	1	\$158,950	\$158,950	No

Source: Environmental Science Associates, Inc., 2004

#### 5.0 CONSTRUCTION NOISE AND VIBRATION

During the construction phase of the project, short-term noise levels may be generated by mobile and stationary construction equipment. The range of construction noise depends on the noise characteristics of the equipment and activities involved (e.g., pile driving), the construction schedule (time of day and duration of the activity), and the distance from a noise sensitive site.

Several residences and the Piney Grove Missionary Baptist Church abutting SR 52 on the north side could be considered susceptible to construction vibration. Construction noise could be temporary at any location and will be controlled by adherence to the most recent edition of the FDOT <u>Standard Specifications for Road and Bridge Construction</u>.

#### 6.0 PUBLIC COORDINATION

#### 6.1 Coordination with Local Officials

Local officials can promote compatibility between land development and highways. A copy of this report will be provided to the Pasco County agencies responsible for controlling land use. The 66 dBA noise contour shown in Figure 5 and the other predicted noise levels provided in this report can be used by Pasco County to restrict development of exterior land uses associated with residences, motels, schools, churches, and recreational facilities which would be considered incompatible with traffic noise generated from SR 52. Pasco County officials can use the noise contour data to establish compatible development of currently undeveloped parcels or compatible redevelopment in areas where land use changes.

#### 6.2 Public Involvement

The Public Hearing for the project was held on April 21, 2005, from 5:00 p.m. to 7:30 p.m. at the Pasco County Historic Courthouse, located at 37918 Meridian Avenue, Dade City, Florida. The purpose of the hearing was to present the results of the PD&E study, and to provide the public with an opportunity to express their views regarding the project. A total of fourteen (14)

<sup>\*</sup> Other = Receivers determined to be unaffected by the project (traffic noise levels less than 66 dBA) but benefited by the noise barrier.

individuals attended the hearing. No comments related to noise were received either at the hearing or during the comment period which followed.

#### 7.0 CONCLUSIONS

Noise levels at 12 locations (10 residences and two churches) were modeled using TNM 2.5. The result of the noise predictions indicates that only one site is expected to approach or exceed the NAC for Activity Category B under the Build Alternative. The increase in noise levels from both the existing condition and No-Build to the Build Alternative is predicted to range from 4.1 to 7.4 dBA. No substantial increases above existing noise levels are predicted to occur.

Noise barriers were evaluated at the site along SR 52 that is predicted to approach or exceed the NAC as a result of the Build Alternative. According to the results, the noise barrier adjacent to Site 1 would not provide at least 5 dBA of noise reduction and meet the reasonable cost criterion of \$35,000 per benefited site. Based on the noise analysis performed to date, there appears to be no apparent solutions available to mitigate traffic noise at the affected residence.

#### 8.0 REFERENCES

Florida Department of Transportation "Project Development and Environment Manual." Part 2, Chapter 17, October 5, 2003. Available at: www.dot.state.fl.us/emo/pubs/pdeman/pdeman.htm

Florida Department of Transportation "Standard Specifications for Road and Bridge Construction." 2004; 974 pages. Available from FDOT Maps and Publications, Mail Station 12, 605 Suwannee Street, Tallahassee, FL 32399-0450.

## **APPENDICES**

## APPENDIX A Field Data Sheets

Date: 12-21-04	-04 Measurement Taken By: Mike Mulbarger							
Project: SR 52 from I-7	'5 to east o	f Emmaus Cen	netery Road in F	Paso County				
Site Identification: Site	1 - 80' nort	th of the edge o	of pavement of S	SR 52 at the San	Antonio Commu	unity Church		
Start Time: 9:39	Е	nd Time: 9:49						
Wind D	rature: S	tart 56	End 57	Cloudy: Wind Speed: Humidity:	Start 2.9 mph	End 1.7 mph End 44%		
Equipment: Sound Level Meter								
Date of	Last Trace	eable Meter Ca	Serial N libration: Nov. 4 Start 114 dB	, 2004	Battery Check:	Start 58 End 5	:3	
	nse Setting	•	Fast		Weighting Scale			

## TRAFFIC DATA

Type: Larson-Davis CA250 Serial Number: 1655

	Eastbou	Eastbound SR 52		I SR 52
Vehicle Types	Volume	Speed	Volume	Speed
Autos	81	51	52	51
Medium Trucks	3	44	2	33
Heavy Trucks	8	47	5	49
Buses	0	0	0	0
Motorcycles	0	0	0	0
Duration (in minutes)	1	0	10	•

INLOOLIO SOMMANI								
LMAX	LEQ	65.5	L10	L50	L90	Other		
Major Noise S	ource(s	): Traffic	on SR 52					
Background N	oise So	urce(s):						
Unusual Even	ts:							
Other Notes/O	bserva	tions:						

Calibrator

Type: Larson-Davis CA250

Run # 2

Date: 12-21-04	-04 Measurement Taken By: Mike Mulbarger							
Project: SR 52 from I-7	5 to east of Emmaus Ce	metery Road in I	Paso County					
Site Identification: Site 1	- 80' north of the edge	of pavement of	SR 52 at the Sar	n Antonio Community Ch	urch			
Start Time: 9:52	End Time: 10:0	)2						
	Sky: Clear X Temperature: Start 5 Wind Direction: Start Ea		7 Wind Ś	peed: Start 1.9 mph	End 2.8 mph End			
51%				•				
Equipment:								
Sound Level Me	eter e							
Type: La	arson-Davis Model 700	Serial I	Number: 2041					
Date of	Last Traceable Meter Ca	alibration: Nov. 4	, 2004					
	alibration Reading: se Settings:		End 114 dB SlowX	Battery Check: Start 53 Weighting Scale: A	End 50 Other			

## TRAFFIC DATA

Serial Number: 1655

		-			
	Eastbo	und SR 52	Westbound SR 52		
Vehicle Types	Volume	Speed	Volume	Speed	
Autos	57	52	51	54	
Medium Trucks	2	56	3	56	
Heavy Trucks	3	52	6	53	
Buses	0	0	0	0	
Motorcycles	0	0	0	0	
Duration (in minutes)	,,	10	10	)	

LMAX	LEQ	63.5	L10	L50	L90	Other		
Major Noise Source(s): Traffic on SR 52								
Background Noise Source(s): Birds & insects								
Unusual Events:								
Other Notes/Observations: Light breeze, some agricultural noise in background.								

Run #3

ate: 12-21-04 Measurement Taken By: Mike Mulbarger							
Project: SR 52 from I-75 to east of Emmaus Cemetery Road in Paso County							
Site Identification: Site 1 - 80' north of the edge of pavement of SR 52 at the San Antonio Community Church							
Start Time: 10:07	End Time: 10:1	17					
Weather Conditions:	Sky: Clear X Temperature: Start 6 Wind Direction: Start Ea	0 End 5	8 Wind S	speed: S	•	End 2.3 mph End 51%	
Equipment:				-,-			
Sound Level Me	eter						
Type: L	arson-Davis Model 700	Serial	Number: 2041				
Date of	Last Traceable Meter Ca	alibration: Nov. 4	4, 2004				
	alibration Reading: nse Settings:	Start 114 dB Fast	End 114 dB Slow X	•	heck: Start 50 g Scale: A	End 50 Other	
Calibrator	_				-		
Type: L	arson-Davis CA250	Serial N	Number: 1655				

## TRAFFIC DATA

	Eas	stbound SR 52	Westbo	Westbound SR 52		
Vehicle Types	Volume	Speed	Volume	Speed		
Autos	56	49	50	52		
Medium Trucks	1	42	1	55		
Heavy Trucks	8	47	6	52		
Buses	0	0	0	0		
Motorcycles	0	0	0	0		
Duration (in minutes)		10	10			

LMAX	LEQ	64.5	L10	L50	L90	Other		
Major Noise Source(s): Traffic on SR 52								
Background Noise Source(s): Birds & insects								
Unusual Events: General aviation overflight at 10:09								
Other Notes/Observations: Light breeze, some agricultural noise in background.								

Run # 1

Date: 12-21-04	Measurement Taken By: Mike Mulbarger								
Project: SR 52 from I-75 to east of Emmaus Cemetery Road in Paso County									
Site Identification: Site 2	- 70' no	orth of th	e edge	of paven	nent of S	SR 52, 5	50' west	of Corporate La	ke Blvd.
Start Time: 10:35		End Tim	ne: 10:4	5					
	ature:	Start 59	)	End 60		Wind S		Other: Start 2.9 mph Start 49%	
Equipment: Sound Level Meter							. <b>.</b>		
Type: Larson-Davis Model 700 Serial Number: 2041  Date of Last Traceable Meter Calibration: Nov. 4, 2004									
Field Calibration Response Settir	Readin	g:	Start 11	4 dB	End 114			Check: Start 52 ng Scale: A	End 50 Other
Calibrator	_		' <u></u>			_	_	_	
Type: Larson-Da	avis CA2	250		Serial N	lumber:	1655			

## **TRAFFIC DATA**

	•						
	Eastbou	ınd SR 52	Westbound SR 52				
Vehicle Types	Volume	Speed	Volume	Speed			
Autos	59	46	56	48			
Medium Trucks	3	35	4	47			
Heavy Trucks	11	42	8	47			
Buses	0	0	0	0			
Motorcycles	0	0	0	0			
Duration (in minutes)		10		10			

INCOULTS SOMMAN								
LMAX	LEQ	64.5	L10	L50	L90	Other		
Major Noise Source(s): Traffic on SR 52								
Background Noise Source(s): Insects, birds								
Unusual Events:								
Other Notes/Observations: Light breeze with some gusts								

Run # 2

Date: 12-21-04 Measurement Taken By: Mike Mulbarger									
Project: SR 52 from I-75 to east of Emmaus Cemetery Road in Paso County									
Site Identification: Site 1	- 70' no	rth of the	edge (	of paven	nent of S	SR 52, 5	50' west	of Corporate La	ke Blvd.
Start Time: 10:47	1	End Time	e: 10:5	7					
Tempera	ature:	Clear; Start 60 Start Eas		End 64	4				End 2.5 mph End 39%
Equipment: Sound Level Meter							-		
Type: Larson-Davis Model 700 Serial Number: 2041  Date of Last Traceable Meter Calibration: Nov. 4, 2004									
Field Calibration Response Settin	Reading	g: S	Start 11	4 dB	•		•	Check: Start 50 ng Scale: A	End 50 Other
Calibrator	via CAG			_	Lumbari	1655	_	-	
Type: Larson-Da	IVIS CAZ	อบ		ornal in	lumber:	1000			

## **TRAFFIC DATA**

	Eastbou	und SR 52	Westt	Westbound SR 52		
Vehicle Types	Volume	Speed	Volume	Speed		
Autos	60	46	50	48		
Medium Trucks	3	47	2	45		
Heavy Trucks	2	45	11	46		
Buses	0	0	0	0		
Motorcycles	0	0	0	0		
Duration (in minutes)		10		10		

## **RESULTS SUMMARY**

Other Notes/Observations:

LMAX	LEQ	65.0	L10	L50	L90	Other		
Major Noise Source(s): Traffic on SR 52								
Background Noise Source(s): Birds & insects								
Inusual Events: Car horn at 10:56								

Type: Larson-Davis CA250

Other Notes/Observations: Light breeze with gusts

Run #3

Date: 12-21-04	Measurement Taken	By: Mike Mulbarg	er			
Project: SR 52 from I-	75 to east of Emmaus C	emetery Road in	Paso County			
Site Identification: Site	1 - 70' north of the edg	e of pavement of	SR 52, 550' wes	t of Corpo	rate Lake Blvd.	ı
Start Time: 11:00	End Time: 11	:10				
Weather Conditions:	Sky: ClearX_ Temperature: Start Wind Direction: Start I		4 Wind S	peed:	Other: Start 2.1 mph Start 37%	End 2.9 mph End 43%
Equipment:			, , , , , , , , , , , , , , , , , , , ,	٠,,		
Sound Level M	leter					
Type: l	Larson-Davis Model 700	) Serial	Number: 2041			
Date of	f Last Traceable Meter (	Calibration: Nov. 4	4, 2004			
Field C	Calibration Reading:	Start 114 dB	End 114 dB	Battery C	Check: Start 48	End 48
Respon	nse Settings:	Fast	Slow X	Weightin	g Scale: A	Other
Calibrator	-		<del>_</del> _	-	<del>-</del>	

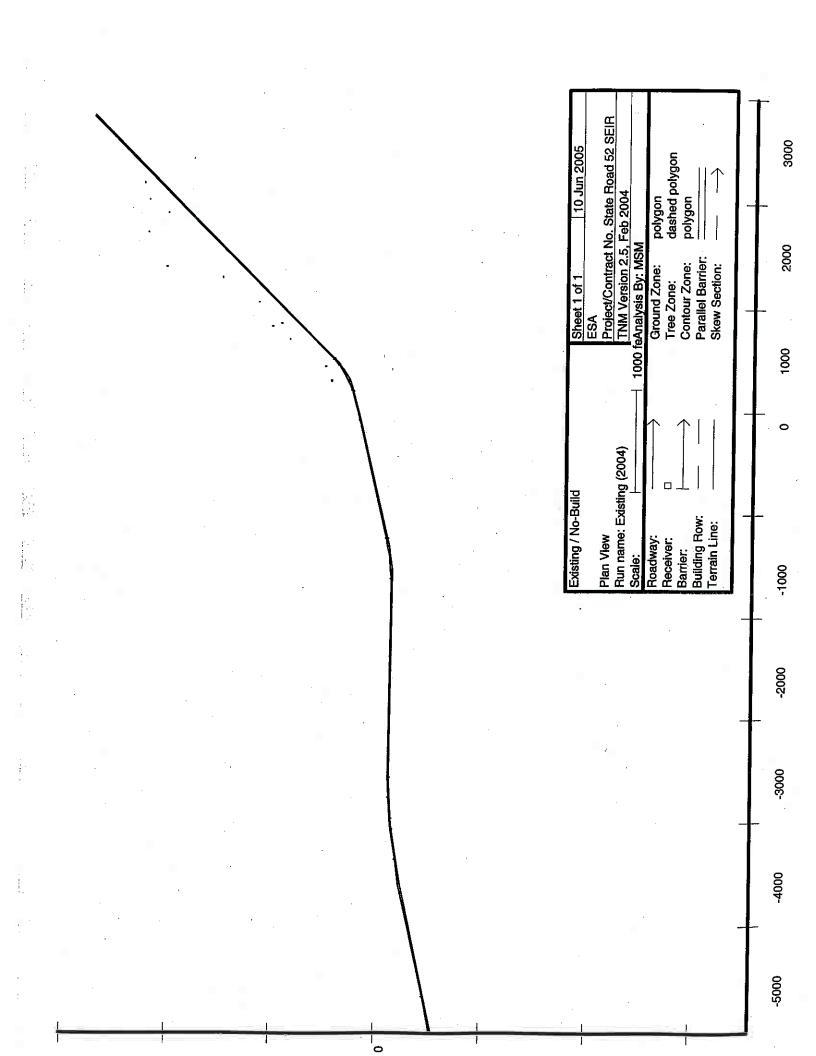
## **TRAFFIC DATA**

Serial Number: 1655

	Eastbo	ound SR 52	West	bound SR 52
Vehicle Types	Volume	Speed	Volume	Speed
Autos	67	47	56	48
Medium Trucks	2	51	3	53
Heavy Trucks	6	44	9	47
Buses	0	0	0	0
Motorcycles	0	0	0	0
Duration (in minutes)		10		10

			IVEO	JEIO GOWIN		
LMAX	LEQ	63.0	L10	L50	L90	Other
Major Noise So	urce(s)	: Traffic c	n SR 52			
Background No	ise Sou	ırce(s): B	irds & insects			
Unusual Events	<b>s</b> :					

## APPENDIX B TNM Input/Output



Ś
>-
4
-
-
⋖
O
Œ
느
_
₽.
7
=

State Road 52 SEIR

a State highway agency substantiates the use of a different type with the approval of FHWA Average pavement type shall be used unless Vehicles Affected % Percent Constraint Speed mp. Flow Control Control Device 94.10 94.10 94.10 100.00 102.50 105.00 104.60 103.30 102.80 99.60 99.60 100.00 100.30 100.70 95.20 95.20 95.40 95.50 96.00 96,00 96.00 96.00 107.50 10 June 2005 -578.0 -472.0 -236.0 -196.0 -157.0 -147.0 -134.0 -127.0 -125.0 -112.0 -142.0 -139.0 -97.0 276.0 304.0 167.0 242.0 338.0 431.0 374.0 383.0 425.0 2,727.0 2,738.0 Coordinates (pavement) **TNM 2.5** -6,150.0 -5,670.0 -4,361.0 -4,064.0 -3,767.0 -3,567.0 4,597.0 -1,242.0 -99.0 -3,964.0 -1,642.0 -1,542.0 -1,403.0 192.0 289.0 342.0 395.0 445.0 456.0 507.0 2,811.0 498.0 -1,322.0 2,817.0 O 9 8 6 8 2 8 8 8 8 12 13 15 5 17 Š State Road 52 SEIR Existing / No-Build Points Name 9 걸 5 <del>-</del> 14 2 9 8 6 ន က Ŋ ဖ ω \_ 4 O 7 12.0 12.0 12.0 Width WB SR 52 712+22.31 to 616+60 EB SR 52 616+60 to 712+22.31 EB SR 52 611+60 to 616+60 PROJECT/CONTRACT: NPUT: ROADWAYS Roadway Name RUK MSM ESA

Struct? ő

Type

Average

Average

Average Average Average Average Average

Average Average Average

Average

Average

Average Average Average

Average Average Average Average

Average Average

Average

Average

Segment Pvmt

G:\204XXX\204292 - WILSON MILLER SR52 SEIR\TNM 2.5\Existing (2004)

From the Park

INPUT: ROADWAYS

IPUI: IRAFFIC FOR LAeq1h Volumes	ASS
----------------------------------	-----

State Road 52 SEIR

PROJECT/CONTRACT: Estating / No-Build   PROJECT/CONTRACT: Estating / No-Build   PROJECT/CONTRACT:   Estating / No-Build   PROJECT/CONTRACT:   Estating / No-Build   Project   Project	ESA MSM				10 June 2005 TNM 2.5	e 2005 5								
Name         No.         Segment         MTrucks         HTrucks         HTrucks         HTrucks         Bluses           EB SR 52 611+60 to 616+60         1         1         506         45         8         45         11         45         2         45           EB SR 52 616+60 to 572+22.31         1         1         506         45         8         45         11         45         2         45           EB SR 52 616+60 to 772+22.31         1         3         50         45         8         45         11         45         2         45           EB SR 52 616+60 to 772+22.31         1         4         506         45         8         45         11         45         2         45           5         5         5         6         45         8         45         11         45         2         45           6         8         506         45         8         45         11         45         2         45           7         506         45         8         45         11         45         2         45           8         10         11         506         45         8         45<	INPUT: TRAFFIC FOR LAeq1h Volume PROJECT/CONTRACT: RUN:	State Existi	52 SEIR 9-Bulld	÷										
Name         No.         Segment         MITCOR         HTTLUCKS         EB sees           Vol. Vol. Vir.         S.         V         S.         S.         V         S.         S.         S.	Roadway	Points												
Autos         MTrucks         HTrucks         HTrucks         Buses           V         S         V         S         V         S         V         S           Veht/hr         mph         Veht/hr <th>Name</th> <th>Name</th> <th>No.</th> <th>Segmen</th> <th>   </th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Name	Name	No.	Segmen	 									
V         S         V         S         V         S         V         S           Vehf/hr         mph         Pehf/hr         Mph         Pehf         1         45         2         45	•			Autos	,	MTruck	10	HTruck	G	Buses		Motore	Voles	
VerVint         mph         VerVint         mph         VerVint         mph         VerVint         mph         VerVint         mph         VerVint         mph         VerVint           2         4         506         45         8         45         11         45         2         45           4         506         45         8         45         11         45         2         45           5         506         45         8         45         11         45         2         45           6         506         45         8         45         11         45         2         45           7         506         45         8         45         11         45         2         45           8         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           11         506         45         8         45         11 <th></th> <th></th> <th></th> <th><b> </b>  </th> <th></th> <th>   </th> <th></th> <th>&gt;</th> <th>S</th> <th><u> </u></th> <th>S</th> <th><b>&gt;</b></th> <th>S</th> <th>_</th>				<b> </b>				>	S	<u> </u>	S	<b>&gt;</b>	S	_
1         506         45         8         45         11         45         2         45           2         4         506         45         8         45         11         45         2         45           4         506         45         8         45         11         45         2         45           6         506         45         8         45         11         45         2         45           7         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           16         506				ven/nr		veh/hr		veh/hr	mph	veh/hr	ubh	veh/hr	mph	_
2       3       506       45       8       45       11       45       2       45         4       506       45       8       45       11       45       2       45         6       506       45       8       45       11       45       2       45         7       506       45       8       45       11       45       2       45         9       506       45       8       45       11       45       2       45         10       506       45       8       45       11       45       2       45         11       506       45       8       45       11       45       2       45         11       506       45       8       45       11       45       2       45         12       506       45       8       45       11       45       2       45         14       506       45       8       45       11       45       2       45         15       506       45       8       45       11       45       2       45         16       506 </td <td>EB SH 52 611+60 to 616+60</td> <td>-</td> <td>-</td> <td>206</td> <td></td> <td>æ</td> <td></td> <td>į</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>  c</td>	EB SH 52 611+60 to 616+60	-	-	206		æ		į						c
3         506         45         8         45         11         45         2         45           4         506         45         8         45         11         45         2         45           6         506         45         8         45         11         45         2         45           7         506         45         8         45         11         45         2         45           9         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           13         506         45         8         45         11         45         2         45           14         506         45         8         45         11         45         2         45           16         506         45		2	2											ľ
4         506         45         8         45         11         45         2         45           6         506         45         8         45         11         45         2         45           7         506         45         8         45         11         45         2         45           8         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           13         506         45         8         45         11         45         2         45           14         506         45         8         45         11         45         2         45           15         506         45         8         45         11         45         2         45           16         506         45 <td>EB SH 52 616+60 to 712+22.31</td> <td>-</td> <td>က</td> <td>506</td> <td></td> <td>80</td> <td></td> <td></td> <td><u></u></td> <td></td> <td></td> <td></td> <td>Ö</td> <td>C</td>	EB SH 52 616+60 to 712+22.31	-	က	506		80			<u></u>				Ö	C
5         506         45         8         45         11         45         2         45           6         506         45         8         45         11         45         2         45           7         506         45         8         45         11         45         2         45           9         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           13         506         45         8         45         11         45         2         45           14         506         45         8         45         11         45         2         45           15         506         45         8         45         11         45         2         45           16         506         45 <td></td> <td>2</td> <td>4</td> <td>506</td> <td></td> <td>8</td> <td></td> <td></td> <td></td> <td>,</td> <td></td> <td></td> <td></td> <td>7</td>		2	4	506		8				,				7
6         506         45         8         45         11         45         2         45           7         506         45         8         45         11         45         2         45           9         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           13         506         45         8         45         11         45         2         45           14         506         45         8         45         11         45         2         45           15         506         45         8         45         11         45         2         45           16         506         45         8         45         11         45         2         45           18         506         45 <td></td> <td>က</td> <td>5</td> <td>506</td> <td></td> <td>8</td> <td></td> <td></td> <td></td> <td>2</td> <td></td> <td></td> <td>)  </td> <td>7</td>		က	5	506		8				2			)	7
7         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           13         506         45         8         45         11         45         2         45           14         506         45         8         45         11         45         2         45           15         506         45         8         45         11         45         2         45           16         506         45         8         45         11         45         2         45           17         506         45         8         45         11         45         2         45           20         506         45<		4	9	206		8							) 5   c	ء اح
8         506         45         8         45         11         45         2         45           10         506         45         8         45         11         45         2         45           11         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           13         506         45         8         45         11         45         2         45           14         506         45         8         45         11         45         2         45           15         506         45         8         45         11         45         2         45           16         506         45         8         45         11         45         2         45           18         506         45         8         45         11         45         2         45           20         506         45         8         45         11         45         2         45           20         506         45<		Ω.	7	506		8								
10       506       45       8       45       11       45       2       45         11       506       45       8       45       11       45       2       45         12       506       45       8       45       11       45       2       45         13       506       45       8       45       11       45       2       45         14       506       45       8       45       11       45       2       45         15       506       45       8       45       11       45       2       45         16       506       45       8       45       11       45       2       45         17       506       45       8       45       11       45       2       45         18       506       45       8       45       11       45       2       45         20       506       45       8       45       11       45       2       45         21       506       45       8       45       11       45       2       45         21       506 <t< td=""><td></td><td>9</td><td>80</td><td>506</td><td></td><td>8</td><td>45</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		9	80	506		8	45							
10         506         45         8         45         11         45         2         45           12         506         45         8         45         11         45         2         45           13         506         45         8         45         11         45         2         45           14         506         45         8         45         11         45         2         45           15         506         45         8         45         11         45         2         45           16         506         45         8         45         11         45         2         45           17         506         45         8         45         11         45         2         45           18         506         45         8         45         11         45         2         45           20         506         45         8         45         11         45         2         45           20         506         45         8         45         11         45         2         45           20         506         45		7	6	206		8	45			2				7
11       506       45       8       45       11       45       2       45         12       506       45       8       45       11       45       2       45         14       506       45       8       45       11       45       2       45         15       506       45       8       45       11       45       2       45         16       506       45       8       45       11       45       2       45         17       506       45       8       45       11       45       2       45         19       506       45       8       45       11       45       2       45         20       506       45       8       45       11       45       2       45         21       506       45       8       45       11       45       2       45         21       506       45       8       45       11       45       2       45         22       506       45       8       45       11       45       2       45         22       506 <t< td=""><td></td><td>8</td><td>10</td><td>506</td><td></td><td>8</td><td>45</td><td>=</td><td></td><td>2</td><td></td><td></td><td>,  </td><td>9</td></t<>		8	10	506		8	45	=		2			,	9
12     506     45     8     45     11     45     2     45       14     506     45     8     45     11     45     2     45       15     506     45     8     45     11     45     2     45       16     506     45     8     45     11     45     2     45       17     506     45     8     45     11     45     2     45       18     506     45     8     45     11     45     2     45       20     506     45     8     45     11     45     2     45       21     506     45     8     45     11     45     2     45       21     506     45     8     45     11     45     2     45       22     506     45     8     45     11     45     2     45       22     506     45     8     45     11     45     2     45		6	11	206		80	45	=		2			)	)
13     506     45     8     45     11     45     2     45       14     506     45     8     45     11     45     2     45       16     506     45     8     45     11     45     2     45       17     506     45     8     45     11     45     2     45       19     506     45     8     45     11     45     2     45       20     506     45     8     45     11     45     2     45       21     506     45     8     45     11     45     2     45       21     506     45     8     45     11     45     2     45       22     506     45     8     45     11     45     2     45       22     506     45     8     45     11     45     2     45		10	12	506		8	45	11		2			0	0
14         506         45         8         45         11         45         2         45           15         506         45         8         45         11         45         2         45           17         506         45         8         45         11         45         2         45           18         506         45         8         45         11         45         2         45           19         506         45         8         45         11         45         2         45           20         506         45         8         45         11         45         2         45           21         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45			13	506		8	45	Ξ		2			0	0
15         506         45         8         45         11         45         2         45           16         506         45         8         45         11         45         2         45           17         506         45         8         45         11         45         2         45           19         506         45         8         45         11         45         2         45           20         506         45         8         45         11         45         2         45           21         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45		12	4	206		8	45	11		2			0	0
16     506     45     8     45     11     45     2     45       17     506     45     8     45     11     45     2     45       19     506     45     8     45     11     45     2     45       20     506     45     8     45     11     45     2     45       21     506     45     8     45     11     45     2     45       22     506     45     8     45     11     45     2     45		13	12	206		8	45	11		2	<u> </u>	0		0
17         506         45         8         45         11         45         2         45           18         506         45         8         45         11         45         2         45           20         506         45         8         45         11         45         2         45           21         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45		4 .	9	206		80	45	11	45	2		0		0
18         506         45         8         45         11         45         2         45           19         506         45         8         45         11         45         2         45           20         506         45         8         45         11         45         2         45           21         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45		15	17	206		8	45	11		2				0
20         506         45         8         45         11         45         2         45           21         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45		16	18	206		8	45	11		2		0		0
20         506         45         8         45         11         45         2         45           21         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45	7 (1)	1/	6	206		8	45	F		2		0		0
21         506         45         8         45         11         45         2         45           22         506         45         8         45         11         45         2         45		18	8	206		8	45	Ξ	45	2	45	0		0
22 506 45 8 45 11 45 2 45		19	27	206		8	45	11	45	2	45	0		0
	707	750	22	206	İ	8	45	Ŧ	45	2	45	0		C

The second secon

Mary and Mary

Kidari anada ana

	23		-	-	}						
	)	-					_		•		
	25	999	45	=	45	14	45	2	45	0	0
	56	999	45	1	45	14	45	2	45	0	o
	27	999	45	=	45	14	45	2	45	0	0
	28	999	45	Ξ	45	4	45	2	45	0	0
	59	999	45	11	45	14	45	2	45	0	0
	30	999	45	=	45	14	45	2	45	0	0
	31	999	45	1	45	4	45	2	45	0	0
	32	999	45	11	45	41	45	2	45	0	0
	33	999	45	=	45	14	45	N	45	0	0
10	34	999	45	=	45	14	45	2	45	0	0
	35	999	45	=	45	14	45	2	45	0	0
12	36	999	45	7	45	14	45	7	45	0	0
13	.37	999	45	1	45	14	45	2	45	0	0
14	88	999	45	11	45	14	45	2	45	0	0
	33	999	45	11	45	41	45	- 2	45	0	0
16	40	999	45	F	45	4	45	7	45	0	0
	41	999	45	-	45	<del>1</del>	45	7	45	0	0
18	42	999	45	=	45	14	45	2	45	0	0
19	43	999	45	=	45	4-	45	7	45	0	0
20	44	999	45	Ξ	45	14	45	2	45	0	0
	45										
	46	999	45	-	45	4	45	2	45	0	0
	47										
5 6 6 6 6 6 6 7 7 7 7 7 10 11 11 11 11 11 11 11 11 11		28 30 31 32 35 36 36 37 44 44 44 45 46 46		999 999	666 45 666 45	666       45       11         666       45       11	666         45         11         45           666         45	666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45       11       45       14         666       45 <t< td=""><td>666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45</td><td>666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45</td><td>666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11</td></t<>	666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45         14         45           666         45         11         45	666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45         2           666         45         11         45         14         45	666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11         45         14         45         2         45           666         45         11

INPUT: TRAFFIC FOR LAeq1h Volumes

SE SE	
ËIVE	
REC	
NPUT	

ESA

State Road 52 SEIR

10 June 2005 **TNM 2.5** 

INPUT: RECEIVERS

PROJECT/CONTRACT: RUN:

Receiver

State Road 52 SEIR

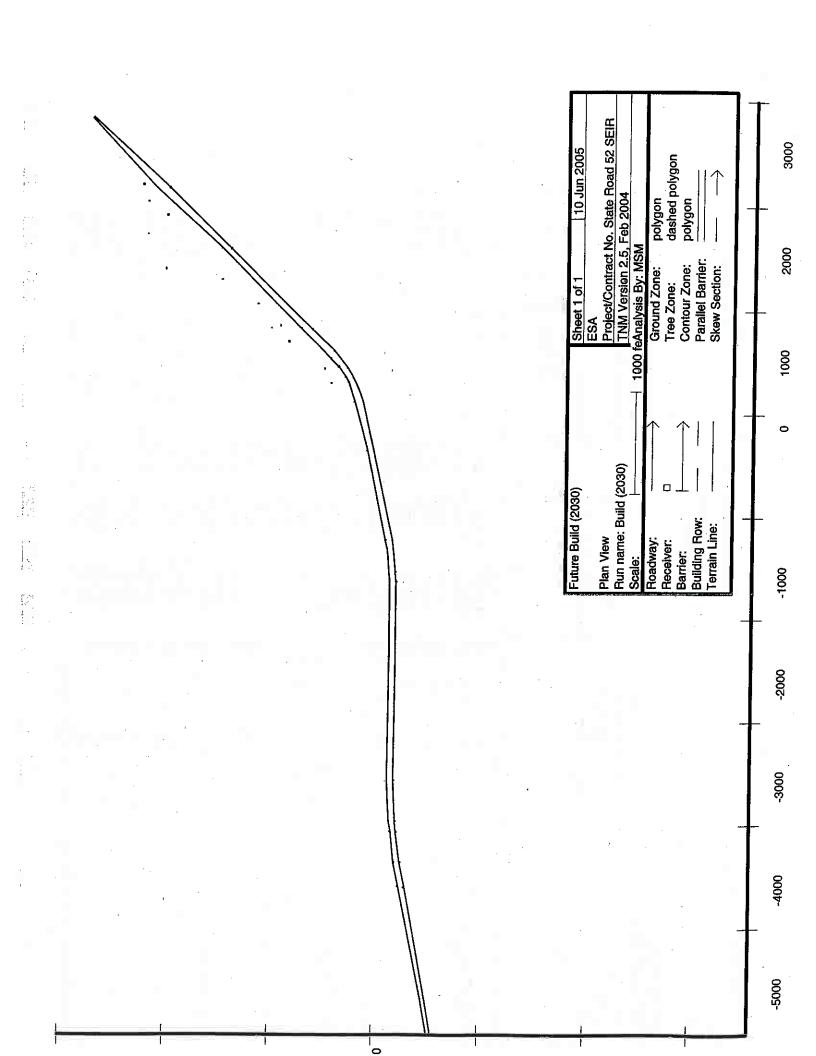
Existing / No-Build

Name	ō.	#DUs	#DUs Coordinates (ground)	(ground)		Height	Input Sour	aleve I br	Input Sound I evels and Criteria		A Chillips
			×	Z A		above	Existina	Impact Criteria	teria	Z Z	ב. לדו <u>ל</u> פ
						Ground		LAeq1h	Sub'l	Goal	Calc.
			Ħ.	ft		#	dBA	dBA	gg B	ВВ	<del></del>
	-	1	2,180.0	2,252.0	111.90	5.00	0.00	99	15.0	10.0	>
2	2	1	2,020.0	2,202.0	112.70	5.00	0.00	99			>
တ	3	-	1,713.0	2,210.0	111.90	5.00	0.00	99			\ \ \ \
4	4	-	1,892.0	2,020.0	111.70	5.00	0.00	99			>
വ	2	-	1,382.0	2,035.0	106.00	5.00	0.00	99	15.0		>
9	9	-	1,280.0	1,500.0	101.40	5.00	0.00	99			\ <u>\</u>
	7	-	1,048.0	1,153.0	100.00	5.00	0.00	99			>
80	8	-	815.0	1,020.0	99.20	2.00	0.00	99	15.0		>
6	O	-	840.0	935.0	99.00	5.00	0.00	99	15.0		>
10	10	-	687.0	853.0	98.40	5.00	0.00				<u> </u> >
	11	-	425.0	510.0	97.00	2.00	0.00	99	15.0		>
12	12	-	287.0	450.0	93.70	5.00	0.00	99	15.0		<b> </b>
			,			-					

ESA MSM							, ,	10 June 2005	902					
								inm 2.5 Calculated	INM 2.5 Calculated with TNM 2.5	2,5	•			
RESULTS: SOUND LEVELS  DED JECTICONITE ACT.		:				•	-						-	
FROSECT/CONTRACT:	State	State Road 52 SEIR Evieting / No.Build	2 SEIR											
BARRIER DESIGN:	INP	INPUT HEIGHTS	SE						Average	Average pavement type shall be used unless	shall be use	ed unless	-	
ATMOSPHERICS:	9 9	68 deg F, 50	% RH						a State hi	a State highway agency substantiates the use of a different type with approval of FHWA.	/ substantiat	es the us		
Receiver														
Name	No. #DUs	s Existing		No Barrier						With Barrier				
	-	L'Aeq1h		LAeq1h		Increa	Increase over existing	xisting	Type	Calculated	Noise Reduction	ction		
			Ö	Calculated	캶	Calculated	ated	Critin	Impact	LAeq1h	Calculated	Goal	Calculated	ted
							<u> </u>	Sub'l Inc					minus	
		<del>B</del> B	18	dBA	ABA	#		dB		дВА	æ	g	Goal	
1	<del> </del>	  -	0.0	61.3		99	61.3	15		613		,		
2	2	-	0:0	56.3		99	56.3	15		56.3				100
က	က	-	0.0	49.4		99	49.4	15		49.4				0.0
4	4	-	0.0	58.5		99	58.5	15		58.5	0.0		10	-10.0
2 22	5	₹-	0.0	47.5		99	47.5	15		47.5	0.0		9	-10.0
1 02	9	-	0:0	55.2		99	55.2	15	1	55.2	0.0		10	-10.0
,	/	-	0:0	59.6		99	59.6	15		59.6	0.0		9	-10.0
× 0	80	-	0:0	55.7		99	55.7	15	-	29.7	0.0		10	-10.0
	6	-	00	60.2		99	60.2	15	-	60.2	0.0		10	-10.0
0-	2	-	0.0	57.1		99	57.1	15	ı	57.1	0.0		10	-10.0
	-	-	0.0	61.5		99	61.5	15	1	61.5	0.0		10	-10.0
1.5	12	-	0.0	60.2		99	80.2	. 15	1	60.2	0.0		10	-10.0
Dwelling Units	# DOS	_	e Reduction	ction										
		Ξ	٨	Avg	Мах		٠				•			
The state of the s	_	ф	-	æ	g B	Γ-								
All Selected		12	0.0	0.0		000								
All impacted		0	0.0	0.0		00								
All that meet NR Goal		0	0.0	0.0		00								-
									The second secon					

State Road 52 SEIR

RESULTS: SOUND LEVELS



监
빎
Ŋ
귷
õ
Œ
ă
iń

INPUT: ROADWAYS

MSM					10 June 2005 TNM 2.5	10					
INPUT: ROADWAYS								:			
PROJECT/CONTRACT:	State Road	d 52 SEIR					Average p	Average pavement type shall be used unless State highway occurs on the state highway	e shail be u	sed unless	
RUN:	Future Build (2030)	ild (2030)		i			of a differ	a State Ingliway agency substantiates the use of a different type with the approval of EHWA	y substanti	ates the us	đ
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)	(pavement)		Flow Contro	troi		Segment	
			×		<b>&gt;</b>	7	Control	Speed	Percent	$\Box$	5
							Device	Constraint	Vehicles		Struct?
	ff		#		#	T.		quu	Arrected		
EB 99+00 to 103+94	36.0		48	-6 150 0	-580.0	7 70		id.	ę,		
		2	49	-5.670.0	4000					Average	
EB 103+94 to 137+00	36.0	_	202	-5.670.0		94.10					
		2	51	-4,597.0		-				Average	
		3	25	-4,361.0	-245.0					Avelage	
		4	53	-4,064.0						Average	
		5	54	-3,964.0						Average	
		9	22	-3,767.0	-183.0					Average	
		7	56	-3,567.0	-176.0					Average	
and a second		8	22	-2,400.0	-185.0					Avelage	
EB 137+00 to 157+40	36.0	-	\$	-2.400.0	-185.0						
		2	105	1.642.0	-1870					Average	_
		3	106	-1,542.0	-176.0	99.00				Average	
		4	107	1,403.0	-164.0	100.00				Average	
		5	108	-1,322.0	-154.0	100,30				Average	
		9	109	-1,242.0	-142.0	100.70				Average	
EB 157 : 40 to 400 - 70 00		7	110	-370.0	41.0	98.60				O COLOR	
LD 13/440 to 1884/6.02	36.0	_	11	-370.0	41.0	98.60				Average	
		2	112	98.0	145.0	95.20				Average	
		8	113	192.0	0.771	95.20				Average	
		4	114	289.0	215.0	95.40				Average	
		5	115	342.0	242.0	95.50				Average	
		9	116	440.0	300.0	95.90				Average	
			117	522.0	360.0	96.30				Average	
		<b>.</b>	118	0.009	420.0	99.20				Average	
G:\204XXX\204292 - WILSON MILLER SR52 SEIR\TNM 2.5\Build (2030)	SEIR\TNM 2.	5/Build (20	30)					-		Average	
								_			

Programme and the second

INPUT: ROADWAYS

State Road 52 SEIR

11 11 11 12 12 13 14 10 11 11 11 11 11 11 11 11 11				ļ				State Road 52 SEIR		
10			6	119	808.0	635.0	100.30		Average	
740         121         2,186.0         2,033.0         114.50           740         38.0         1         122         2,186.0         2,727.0         107.50           740         38.0         1         128         2,187.0         2,727.0         107.50           740         1         128         2,186.0         2,128.0         107.50           8         1         128         2,187.0         1,485.0         104.70           9         1         128         2,187.0         1,485.0         104.70           1         1         129         5,22.0         450.0         96.30           1         1         129         60.0         55.0         96.30           1         1         130         440.0         576.0         96.30           1         1         130         440.0         376.0         96.30           1         1         131         342.0         220.0         96.20           1         1         132         280.0         100.0         98.50           1         1         134         -1,422.0         220.0         96.20           2         1         1			10	120	1,576.0	1,417.0	104.70		Average	
7-40         12         2,817.0         2,727.0         107.50           7-40         36.0         1         124         2,811.0         2,732.0         107.50           8         126         2,811.0         2,738.0         107.50         114.50           8         126         1,578.0         1,485.0         104.70         104.70           9         128         522.0         450.0         36.20         36.20           9         131         342.0         370.0         100.30         36.40           10         132         280.0         252.0         36.40         36.40           9         132         280.0         250.0         36.50         36.40           10         138         132         280.0         36.50         36.40           1         134         98.0         253.0         36.50         36.40           1         134         98.0         250.0         36.50         36.50           1         134         98.0         223.0         36.50         36.50           2         135         1,462.0         100.0         36.50           3         148         -1,462.0		.	11	121	2,156.0	2,003.0	114.50		Average	
7+40         36.0         1         124         2,811.0         2,738.0         107.50           1         1         125         2,166.0         2,128.0         114.50           1         1         1         128         2,166.0         2,128.0         114.50           1         1         1         1         1         1         1         1           1         1         1         1         1         1         1         1         1           1         1         1         1         1         1         3         4         1 </td <td></td> <td></td> <td>12</td> <td>122</td> <td>2,817.0</td> <td>2,727.0</td> <td>107.50</td> <td></td> <td></td> <td></td>			12	122	2,817.0	2,727.0	107.50			
2   126   2,156   2,128   114,50   114,50   14,50	WB 199+76.02 to 157+40	36.0		124	2,811.0	2,738.0	107.50		Average	
4         126         1,576.0         1,485.0         104.70           5         128         688.0         730.0         100.30           6         128         522.0         450.0         86.30           7         130         440.0         376.0         86.30           8         131         342.0         385.0         86.50           9         132         289.0         282.0         86.50           10         138         142.0         282.0         86.50           11         134         98.0         223.0         86.50           12         138         -370.0         100.0         98.60           13         1,322.0         -47.0         100.0         98.60           14         138         -1,422.0         -82.0         100.0           15         138         -1,422.0         -82.0         100.0           15         14         138         -1,422.0         -82.0         100.0           16         14         138         -1,422.0         -125.0         100.0           17         14         -1,542.0         -125.0         102.0           18         14			2	125	2,156.0	2,128.0	114.50		Average	
6         127         808.0         730.0         100.30           6         128         600.0         527.0         89.20           7         130         440.0         376.0         98.30           8         141         342.0         376.0         98.30           9         132         289.0         285.0         96.40           10         133         182.0         250.0         96.20           11         14         38.0         223.0         96.20           0         36.0         1         138         220.0         98.60           0         36.0         1         138         370.0         100.0         98.60           0         36.0         1         136         -7.0         100.0         98.60           0         36.0         1         138         -1,422.0         -82.0         100.0           1         1         138         -1,422.0         -87.0         100.30           1         1         138         -1,422.0         -10.0         100.0           1         1         1,42         -2,400.0         -125.0         102.90           1 <t< td=""><td></td><td></td><td>က</td><td>126</td><td>1,576.0</td><td>1,495.0</td><td>104.70</td><td></td><td>Average</td><td></td></t<>			က	126	1,576.0	1,495.0	104.70		Average	
6         128         600.0         527.0         96.20           7         139         522.0         450.0         96.30           8         131         342.0         96.30         96.30           9         132         289.0         282.0         95.40           10         133         192.0         282.0         95.40           11         134         98.0         228.0         95.20           0         36.0         1         133         192.0         250.0           0         36.0         1         134         98.0         98.60           0         36.0         1         136         -1,242.0         -97.0         100.70           0         36.0         1         138         -1,242.0         -97.0         100.70           1         4         139         -1,403.0         -105.0         100.70           1         4         139         -1,403.0         -105.0         100.20           1         4         139         -1,403.0         -125.0         102.90           1         1         14         -1,542.0         -125.0         102.90           1			4	127	808.0	730.0	100.30		Average	
6   129   522.0   450.0   96.30			5	128	0.009	527.0	99.20		Average	
7         130         440.0         376.0         96.50           8         131         342.0         396.0         96.50           10         132         289.0         282.0         96.20           11         134         98.0         223.0         96.20           0         36.0         1         136         -370.0         100.0         98.60           0         36.0         1         136         -370.0         100.0         98.60           0         36.0         1         136         -370.0         100.0         98.60           0         36.0         1         136         -1,242.0         -87.0         100.0           1         2         137         -1,242.0         -87.0         100.0           1         3         138         -1,408.0         -165.0         100.0           4         138         -1,408.0         -118.0         99.60           4         136         1,408.0         -118.0         99.60           4         140         -1,542.0         -125.0         102.90           4         141         -2,400.0         -125.0         102.90 <t< td=""><td></td><td></td><td>9</td><td>129</td><td>522.0</td><td>450.0</td><td>96.30</td><td></td><td>Average</td><td></td></t<>			9	129	522.0	450.0	96.30		Average	
6         131         342.0         309.0         96.50           9         132         289.0         282.0         96.40           10         133         192.0         250.0         95.20           11         134         98.0         223.0         96.20           0         36.0         12         136         -37.0         100.0         98.60           0         36.0         1         136         -37.0         100.00         98.60           1         1         136         -1,242.0         -97.0         100.30           1         1         138         -1,403.0         -106.0         100.00           1         1         139         -1,408.0         -106.0         100.00           1         1         140         -1,542.0         -115.0         99.60           1         1         14         -1,642.0         -125.0         102.90           1         1         14         -1,642.0         -125.0         102.90           1         1         14         -3,640.0         -125.0         102.90           1         1         14         -3,640.0         -137.0         106			7	130	440.0	376.0	95.90		Average	
9         132         289.0         282.0         95.40           10         133         192.0         250.0         95.20           0         36.0         1         134         98.0         223.0         95.20           0         36.0         1         136         -370.0         100.0         98.60           0         36.0         1         136         -7,242.0         -87.0         100.70           1         2         13         -1,242.0         -87.0         100.00           1         3         138         -1,242.0         -87.0         100.00           1         4         139         -1,403.0         -105.0         100.00           1         5         140         -1,542.0         -127.0         99.60           4         36.0         1         14         -1,642.0         -127.0         99.60           4         36.0         1         14         -1,642.0         -125.0         102.90           4         36.0         1         14         -2,400.0         -125.0         102.90           5         14         -3,567.0         -125.0         10.6.90			8	131	342.0	309.0	95.50		Average	
10         133         192.0         250.0         95.20           0         36.0         1         134         98.0         223.0         95.20           0         36.0         1         136         -370.0         100.0         98.60           0         36.0         1         136         -1,242.0         -82.0         100.70           1         2         137         -1,242.0         -82.0         100.30           1         3         138         -1,322.0         -97.0         100.30           1         4         139         -1,482.0         -118.0         99.60           1         5         140         -1,542.0         -118.0         99.60           4         139         -1,482.0         -126.0         102.90           4         141         -1,542.0         -126.0         102.90           5         144         -3,567.0         -126.0         102.90           6         144         -3,567.0         -126.0         102.90           7         146         -3,964.0         -137.0         104.60           8         150         -4,597.0         -227.0         106.00			6	132	289.0	282.0	95.40		Average	
0         36.0         11         134         98.0         223.0         96.20           0         36.0         1         136         -370.0         100.0         98.60           0         36.0         1         136         -370.0         100.0         98.60           1         2         137         -1,242.0         -82.0         100.70           2         137         -1,242.0         -97.0         100.20           3         138         -1,322.0         -97.0         100.20           4         139         -1,403.0         -105.0         100.00           5         141         -1,542.0         -127.0         99.60           4         148         -2,400.0         -125.0         102.90           5         141         -3,567.0         -125.0         102.90           6         144         -3,567.0         -125.0         102.80           7         146         -3,964.0         -150.0         106.00           8         147         -4,064.0         -150.0         106.00           9         147         -4,694.0         -150.0         106.00           1         1 <t< td=""><td></td><td></td><td>9</td><td>133</td><td>192.0</td><td>250.0</td><td>95.20</td><td></td><td>Average</td><td> </td></t<>			9	133	192.0	250.0	95.20		Average	
0         36.0         12         135         -370.0         100.0         98.60           0         36.0         1         136         -370.0         100.0         98.60           2         137         -1,242.0         -82.0         100.70           4         138         -1,322.0         -97.0         100.30           5         140         -1,542.0         -118.0         99.60           6         141         -1,642.0         -127.0         99.60           7         142         -2,400.0         -125.0         102.90           8         144         -3,567.0         -125.0         102.90           9         1         144         -3,567.0         -125.0         102.90           9         1         144         -3,567.0         -125.0         102.90           9         1         144         -3,567.0         -125.0         102.90           9         1         144         -3,567.0         -125.0         102.90           9         1         144         -3,567.0         -125.0         102.00           9         1         144         -4,597.0         -127.0         100.00 <td></td> <td></td> <td>-</td> <td>134</td> <td>0.86</td> <td>223.0</td> <td>95.20</td> <td></td> <td>Average</td> <td></td>			-	134	0.86	223.0	95.20		Average	
0     36.0     1     136     -370.0     100.0     98.60     98.60       2     137     -1,242.0     -82.0     100.70     98.60     98.60       4     138     -1,322.0     -97.0     100.30     98.60       5     140     -1,542.0     -118.0     99.60     99.60       4     139     -1,403.0     -127.0     99.60     99.60       5     141     -1,542.0     -127.0     99.60     99.60       6     141     -1,542.0     -127.0     99.60     99.60       7     142     -2,400.0     -125.0     102.90     99.60       8     143     -2,400.0     -125.0     102.90     99.60       9     1     143     -2,400.0     -125.0     102.90     99.60       9     1     144     -3,567.0     -125.0     102.90     99.60       9     1     146     -3,767.0     -125.0     103.90     99.60       9     1     146     -3,964.0     -125.0     106.60     94.10       9     1     149     -4,964.0     -165.0     94.10     94.10       9     1     149     -4,597.0     -277.0     100.00     94.10			12	135	-370.0	100.0	98.60		B	
4         137         -1,242.0         -82.0         100.70           4         138         -1,322.0         -97.0         100.30           5         140         -1,542.0         -118.0         99.60           4         139         -1,403.0         -165.0         100.00           4         139         -1,403.0         -165.0         100.00           5         141         -1,542.0         -118.0         99.60           6         141         -1,642.0         -125.0         102.90           7         142         -2,400.0         -125.0         102.90           8         144         -3,567.0         -118.0         102.90           9         14         -3,567.0         -125.0         102.80           9         145         -3,567.0         -125.0         102.80           1         146         -3,964.0         -135.0         104.60           1         147         -4,064.0         -150.0         105.00           1         148         -4,361.0         -187.0         105.00           1         1         149         -4,597.0         -227.0         100.00           1	WB 157+40 to 137+00	36.0	<b></b> -	136	-370.0	100.0	98.60		Average	
4         138         -1,322.0         -97.0         100.30           4         139         -1,403.0         -105.0         100.00           4         139         -1,403.0         -105.0         100.00           4         139         -1,403.0         -118.0         99.60           4         141         -1,542.0         -127.0         99.60           5         141         -1,642.0         -127.0         99.60           6         141         -1,642.0         -127.0         99.60           7         142         -2,400.0         -125.0         102.90           8         143         -2,400.0         -125.0         102.90           9         144         -3,567.0         -118.0         102.90           1         145         -3,767.0         -125.0         103.00           1         146         -3,964.0         -137.0         105.00           1         147         -4,064.0         -150.0         105.00           1         149         -4,597.0         -227.0         100.00           1         15         -5,670.0         -454.0         94.10           1         15			2	137	-1,242.0	-82.0	100.70		Average	
4         139         -1,403.0         -105.0         100.00           5         140         -1,542.0         -118.0         99.60           4         36.0         1         142         -2,400.0         -127.0         99.60           4         36.0         1         142         -2,400.0         -125.0         102.90           2         144         -3,567.0         -125.0         102.90           3         145         -3,767.0         -125.0         102.80           4         146         -3,567.0         -125.0         102.80           5         147         -4,084.0         -137.0         104.60           6         148         -4,361.0         -187.0         106.00           7         149         -4,597.0         -227.0         100.00           8         150         -5,670.0         -454.0         94.10           8         150         -6,150.0         -543.0         94.10			က	138	-1,322.0	-97.0	100.30		Average	
4         140         -1,542.0         -118.0         99.60           4         36.0         1         142         -2,400.0         -127.0         99.60           4         36.0         1         142         -2,400.0         -125.0         102.90           5         144         -3,567.0         -125.0         102.80           6         144         -3,567.0         -125.0         103.30           7         146         -3,964.0         -137.0         104.60           8         147         -4,084.0         -150.0         105.00           9         148         -4,597.0         -227.0         100.00           8         150         -5,670.0         -454.0         94.10           9         1         151         -5,670.0         -543.0         94.10			4	139	-1,403.0	-105.0	100.00		Average	
4       6       141       -1,642.0       -127.0       99.60         4       36.0       1       142       -2,400.0       -125.0       102.90         2       144       -3,567.0       -125.0       102.80			5	140	-1,542.0	-118.0	99.60		Average	
4       36.0       1       142       -2,400.0       -125.0       102.90       -125.0       102.90         2       144       -2,400.0       -125.0       102.90       -125.0       102.90         3       145       -2,400.0       -125.0       102.80       -125.0       102.80         4       146       -3,567.0       -125.0       104.60       -125.0       104.60         5       147       -4,064.0       -150.0       105.00       -125.0       106.00         6       148       -4,361.0       -187.0       100.00       -125.0       100.00         7       149       -4,597.0       -227.0       100.00       -454.0       94.10         8       150       -5,670.0       -454.0       94.10       -454.0       94.10         8       152       -6,150.0       -543.0       94.10       -543.0       94.10			9	141	-1,642.0	-127.0	99.60		Average	
4     36.0     1     143     -2,400.0     -125.0     102.90       2     144     -3,567.0     -118.0     102.80       3     145     -3,767.0     -125.0     102.80       4     146     -3,964.0     -137.0     104.60       5     147     -4,064.0     -150.0     105.00       6     148     -4,361.0     -187.0     102.50       7     149     -4,597.0     -227.0     100.00       8     150     -5,670.0     -454.0     94.10       8     150     -5,670.0     -454.0     94.10       9     2     152     -6,150.0     -543.0     94.10			7	142	-2,400.0	-125.0	102.90			
2       144       -3,567.0       -118.0       102.80         3       145       -3,767.0       -125.0       103.30         4       146       -3,964.0       -137.0       104.60         5       147       -4,064.0       -150.0       105.00         6       148       -4,361.0       -187.0       102.50         7       149       -4,597.0       -227.0       100.00         8       150       -5,670.0       -454.0       94.10         8       151       -5,670.0       -454.0       94.10         9       2       152       -6,150.0       -543.0       94.10	WB 137+00 to 103+94	36.0	-	143	-2,400.0	-125.0	102.90		Average	
3     145     -3,767.0     -125.0     103.30       4     146     -3,964.0     -137.0     104.60       5     147     -4,064.0     -150.0     105.00       6     148     -4,361.0     -187.0     102.50       7     149     -4,597.0     -227.0     100.00       8     150     -5,670.0     -454.0     94.10       9     1     151     -5,670.0     -454.0     94.10       2     152     -6,150.0     -543.0     94.10			2	144	-3,567.0	-118.0	102.80		Average	
4       146       -3,964.0       -137.0       104.60         5       147       -4,064.0       -150.0       105.00         6       148       -4,361.0       -187.0       102.50         7       149       -4,597.0       -227.0       100.00         8       150       -5,670.0       -454.0       94.10         2       152       -6,150.0       -543.0       94.10			3	145	-3,767.0	-125.0	103.30		Average	
5     147     -4,064.0     -150.0     105.00       6     148     -4,361.0     -187.0     102.50       7     149     -4,597.0     -227.0     100.00       8     150     -5,670.0     -454.0     94.10       36.0     1     151     -5,670.0     -454.0     94.10       2     152     -6,150.0     -543.0     94.10			4	146	-3,964.0	-137.0	104.60		Average	
6         148         -4,361.0         -187.0         102.50           7         149         -4,597.0         -227.0         100.00           8         150         -5,670.0         -454.0         94.10           36.0         1         151         -5,670.0         -454.0         94.10           2         152         -6,150.0         -543.0         94.10			5	147	-4,064.0	-150.0	105.00		Average	
7     149     -4,597.0     -227.0     100.00       8     150     -5,670.0     -454.0     94.10       36.0     1     151     -5,670.0     -454.0     94.10       2     152     -6,150.0     -543.0     94.10			9	148	-4,361.0	-187.0	102.50		Average	
36.0     1     150     -5,670.0     -454.0     94.10       2     152     -6,150.0     -543.0     94.10			7	149	-4,597.0	-227.0	100.00		Average	
36.0     1     151     -5,670.0     -454.0     94.10       2     152     -6,150.0     -543.0     94.10	STORY OF STREET		8	150	-5,670.0	-454.0	94.10			
152 -6,150.0 -543.0 94.10	WE 103+94 to 99+00	36.0	_	151	-5,670.0	-454.0	94.10		Average	
			2	152	-6,150.0	-543.0	94.10			

တ္က
Ě
5
9
اء
등
اقِ
뜻
잂
O
드
A
E
ŽΙ
벌
=

ESA MSM				10 June TNM 2.5	10 June 2005 TNM 2.5							
INPUT: TRAFFIC FOR LAeq1h Volumes PROJECT/CONTRACT: RUN:	State Road 52 SEIR	SEIR		•								
Roadway	Points	2										
Name	Name	No.	Segment									
			Autos	•	MTrucks		HTrucks		Buses		Motorcycles	Cles
				S	>	S	^	S	_	S	>	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	ph	veh/hr	mph
EB 99+00 to 103+94	<b>T</b>	48	1730	20	28	20	37	50		50		
	2	49										
EB 103+94 to 137+00	-	20	1730	22	28	20	37	20	9	20	C	C
10.1.1	2	51	1730	20	28	50	37		9			
	-3	25	1730	20	28	50	37	50	9 (4			
	4	53	1730	20	28	20	37	50	9			
	5	54	1730	20	28	20	37	50	9			_
	9	55	1730	20	28	20	37	50	9 6			
	7	56	1730	20	28	22	37	3 2	9			2 0
	8	22						3			7	>
EB 137+00 to 157+40	-	104	1266	20	21	20	27	55	L C	, C		(
	2	135	1266	22	21	S	27	2 2	ט עמ			5
	3	106	1266	20	21	20	27	50	יין י			) c
	4	107	1266	20	21	22	27	20	2			ी
	5	98	1266	20	21	20	27	23	5		0	O
	9	2	1266	20	21	20	27	20	D		0	
ED 157.101.100	7	19						-				7
EB 137+40 to 188+76.02	-	Ξ	672	20	+	22	15	23	3	20	C	C
	2	12	672	22	11	20	15	22	8	22	0	
	80	<del>⊆</del>	672	20	11	20	7	20	3	20	C	0
	4 -	41.	672	23	11	S	15	22	8	200	0	
G-\204XYXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	2	115	672	22	-	20	15	20	6	20	0	0
Self Self Hallin Michael - 452-020 October 1962 Self	SEIR/TNM 2.5/Build (2030)	Build (	2030)							-		
										-		

The second secon

ود

Section 1

Control of the contro

6
20
<u>P</u>
₩.
ß
2
Z
Ē
S
R SR52
S
щ
5 - WILSON MILL
2
õ
=
3
**
4
8
:04XXX\20429
8
Ş
9

INPUT: TRAFFIC FOR LAeq1h Volumes			ļ	:		State	Road	2 SEIR					
	9	116	672	20	- 11	20	50 15	20	က	20	0	0	
	7	117	672	20	Ξ	20	15	20	8	20	0	0	
and the second s	8	118	672	20	=	20	15	20	က	20	0	0	_
	6	119	672	20	=	20	15	22	က	20	0		10
	10	120	672	20	=	20	5	22	က	20	0	0	T
	T-	121	672	20	F	20	15	20	ဇာ	20	0	0	
	12	122											1
WB 199+76.02 to 157+40	-	124	885	20	14	20	5	20	က	20	0	0	10
	2	125	885	20	4	20	19	20	6	20	0	0	1
	က	126	885	20	41	20	19	20	က	20	0	0	T
	4	127	885	50	4	20	19	20	က	20	0	0	· 1 <del></del>
	5	128	882	20	4	20	19	20	6	20	0	0	1_
	9	129	885	20	4	20	19	20	က	20	0	0	T=
	7	130	885	20	14	20	19	20	က	20	0	0	1-
	8	131	885	20	14	20	19	20	က	20	0	0	16
	6	132	882	20	4	20	19	20	69	20	0	0	т=
	10	133	882	20	4	20	19	52	3	20	0	0	-
To Principles	11	134	885	20	4	20	19	20	က	20	0	0	T-
	12	135					-						
WB 157+40 to 137+00	ļ	136	1668	20	27	20	36	20	9	20	0	0	<del></del>
	2	137	1668	20	27	20	98	22	9 .	20	0	0	
	3	138	1668	20	27	20	98	SS.	9	8	0	0	
	4	139	1668	20	27	20	99	22	9	20	0	0	T -
	5	140	1668	20	27	20	36	20	9	20	0	0	
	9	141	1668	20	27	20	36	20	မ	20	0	0	· -
	7	142											·
WB 137+00 to 103+94	-	143	2278	20	37	20	49	22	6	20	0	0	-
	2	144	2278	50	37	20	49	20	6	20	0	0	
	3	145	2278	20	37	20	49	20	6	20	0	0	
	4	146	2278	50	37	20	49	20	6	20	0	0	т_
	5	147	2278	20	37	20	49	20	6	20	0	0	r =
	9	148	2278	20	37	20	49	20	6	20	0	0	Т_
	7	149	2278	20	37	20	49	20	6	20	0	0	T <u>-</u>
	8	150							-			'	
				]	-	-		-	1	1	-		

	50	3
52 SEIR	50	
State Road 5	50 49	
	50 37	
	2278	
	151	152
Volumes	-	2
NPUT: TRAFFIC FOR LAcq1h Volu	WB 103+94 to 99+00	

1 2278 50 37 50 49 50 9 50 n n	2	
151 22.	152	

Section of the second

Back Suprement

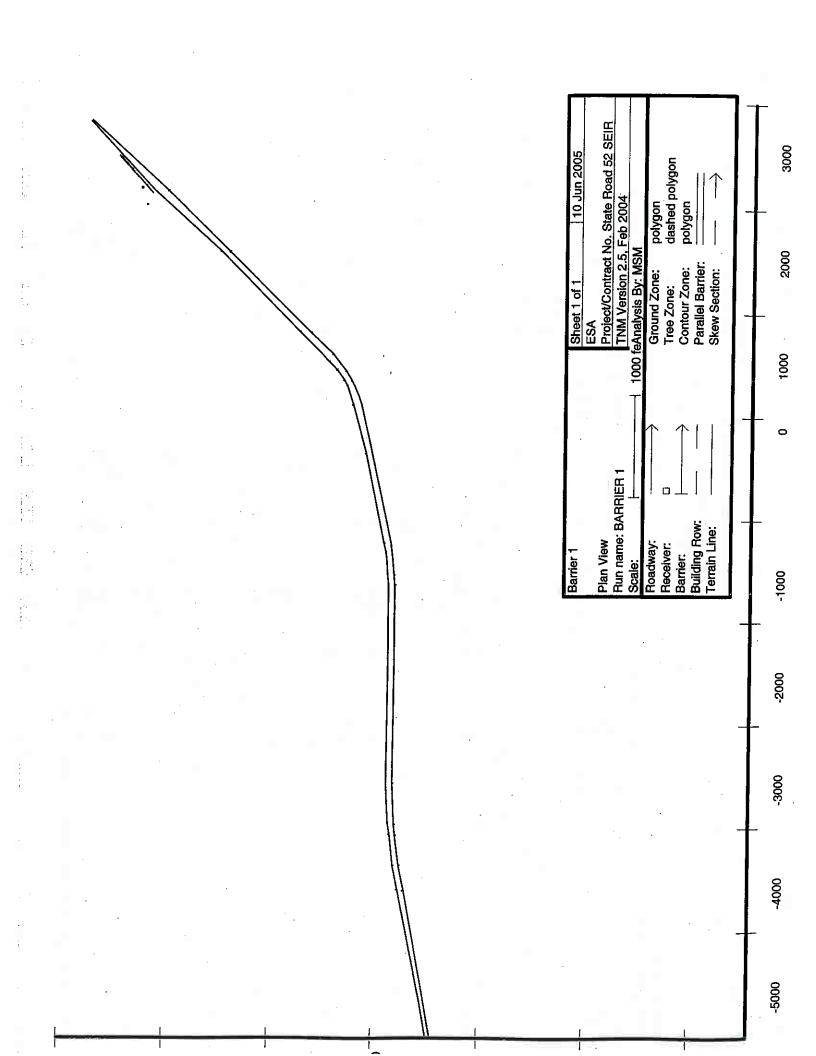
2.5/Build (2030)
SR52 SEIR\TNM
LSON MILLER
G:\204XXX\204292 - WI

ESA MSM	·					10 June 2005 TNM 2.5	905				
INPUT: RECEIVERS PROJECT/CONTRACT:	State Road 52	load 5	SEIR								
RUN:	<b>Future Build</b>	Build									
Receiver											
Name	O	#DUS	Coordinates (ground)	(ground)		Height	Input Sour	Input Sound Levels and Criteria	ind Criteria		Active
			×	٨	Z	apove	Existing	Impact Criteria	teria	Æ	3.
						Ground		LAeq1h	Sub'I	Goal	Calc.
			ft	Ħ	Ħ	ft	dBA	dBA	8	뜅	
	-	_	2,180.0	2,252.0	111.90	5.00	00:0	99	15.0	10.0	<b>&gt;</b>
2	2	-	2,020.0	2,202.0	112.70	5.00	00.00	99	15.0	10.0	>
3	3	-	1,713.0	2,210.0	111.90	5.00	0.00	99	15.0	10.0	>
4	4	-	1,892.0	2,020.0	111.70	5.00	0.00	99	15.0	10.0	<b>&gt;</b>
5	5	1	1,382.0	2,035.0	106.00	2.00	00.00	99	15.0	10.0	>
9	9	7	1,280.0	1,500.0	101.40	2.00	00.00	99	15.0	10.0	>
7	7	-	1,048.0	1,153.0	100.00	2.00	0.00	99	15.0	10.0	>
8	8	<del>-</del>	815.0	1,020.0	99.20	2.00	0.00	99	15.0	10.0	>
0	9	-	840.0	935.0	00'66	2.00	00.00	99	15.0	10.0	>
10	10	_	687.0	853.0	98.40	2.00	0.00	99	15.0	10.0	>
11	11	-	425.0	510.0	97.00	5.00	00.00	99	15.0	10.0	>
12	12	_	287.0	450.0	93.70	2.00	00:00	99	15.0	10.0	>-

INPUT: RECEIVERS

ESA	-					10 June 2005	205				
BESTI TS. COLIND LEVELS						Calculated	INM 2.5 Calculated with TNM 2.5	2.5			
PROJECT/CONTRACT:	State Road 5	State Road 52 SEIR	<u>u</u> 6		÷						
BARRIER DESIGN:	INPU	INPUT HEIGHTS	•				Average p	avement type	Average pavement type shall be used unless	d unless	
ATMOSPHERICS;	ép 89	68 deg F, 50% RH	_				a State hig of a differe	hway agency	a State highway agency substantlates the use of a different type with approval of FHWA.	s the use HWA.	
Receiver											
Name	#DUs	Existing	No Barrier					With Barrier			
	-	LAeq1h	LAeq1h		Increase over existing	existing -	Type	Calculated	Noise Reduction	tion	
			Calculated	Critin	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
			****			Sub'l Inc					minus
		dBA	dBA	dBA	фB	g B		dBA	ВВ	몆	88
	-	0.0	67.7	99 /	67.7	15	Snd LvI	L'19	0.0	10	-10.0
2	7	0.0	63.7	99 /	63.7	15	1	63.7		10	
3	8	0.0		5 66		15		54.2			
4		1 0.0				3 15	1	65.3		10	
5	2	0.0	52.6	99		3 15		52.6	0.0	10	
9 1	9	0.0						60.2	0.0	10	
,	7	0.0						64.9	0.0	10	-10.0
α (σ	80	0.0						8.09	0.0	10	-10.0
	6	0.0				3 15		65.3	0.0	10	-10.0
	0 :	0.0						62.3		10	-10.0
- And Andrews Control of the Control							Snd Lvl	66.1	0.0	10	-10.0
	12	1 0.0	64.3	99	64.3	15		64.3	0.0	10	-10.0
Dwelling Units	# DNs	Nois	e Reduction								
		Min	Avg	Max							
		<b>dB</b>	дB	ф							
All Selected	12	0.0	0.0	0.0	· · · · · ·						
All Impacted		2 0.0	0.0		1						
All that meet NR Goal		0.0	0.0								

RESULTS: SOUND LEVELS



ณ	
2	
멏	
œ	
0	
œ	
_	
<u>9</u>	
▔	
22	
ί'n	
••	

INPUT: ROADWAYS

SEIR

PROJUCT. FOADWAYS   State Road 52 SEIR							
## Points    Patrier 1   Points					;	,	
Barrier 1           ray         Points           4         96.0           1         48           3+94 to 103+94         36.0         1         48           3+94 to 137+00         36.0         1         48           3+94 to 137+40         5         5         54           4         5         5         54           4         5         5         5           4+00 to 157+40         36.0         1         104           5         1         104         105           6         1         1         108           7+40 to 199+76.02         36.0         1         111           7+40 to 199+76.02         36.0         1         111           7+40 to 199+76.02         36.0         1         111           8         1         113           14         4         114           15         1         1           14         4         114           15         1         1           16         1         1           17         1         1           11         1         1	State Road 52 SEIR			Average pavement type shall be used unless	pe shall be u	sed unless	
ray         Width         Name         No.           +00 to 103+94         36.0         1         48           3+94 to 137+00         36.0         1         48           3+94 to 137+00         36.0         1         48         52           7+00 to 157+40         36.0         1         104         55           7+00 to 157+40         36.0         1         104         4         107           10 to 157+40         36.0         1         104         104         104         105           10 to 157+40         36.0         1         104         107         108         10				of a different fune with the expression of	ncy substant! th the annroy	ates the use	m.
Width         Name         No.           +00 to 103+94         36.0         1         48           3+94 to 137+00         36.0         1         48         52           7+00 to 157+40         36.0         1         6         55           7+00 to 157+40         36.0         1         104         55           7+40 to 199+76.02         36.0         1         108         108           1010         4         107         110         111           1440 to 199+76.02         36.0         1         111         111           1440 to 199+76.02         36.0         1         111         111           145         1         1         111         1         111           146         5         115         115         116         116           147         6         115         116	Points				O Idda om m		
ft     ft       36.0     1     48       36.0     1     48       36.0     1     48       36.0     1     49       4     53     54       5     54     55       6     55     54       7     56     55       8     57     106       9     1     104       4     107     108       7     110     7       8     109     111       9     1     111       1     1     111       1     4     114       4     114     4       4     114       4     114       4     114       6     109       7     111       8     115       9     111       1     4     114       1     4     114       1     6     116       1     6     116       1     1     1       1     1     1       1     1     1       1     1     1       1     1     1       1     1     1	Name	Coordinates (pavement)	ment)	Flow Control		Seament	
ft     ft       36.0     1     48       36.0     1     48       2     49       36.0     1     50       4     4     53       6     55     54       7     56     57       8     57     106       9     1     104       10     4     107       10     5     108       10     7     110       10     7     110       10     7     111       10     113       10     113       11     114       11     116       11     116       11     116       11     114       11     116       11     116       11     116       11     116       11     116       12     116       13     111       14     114       15     115       16     116       17     116       11     116       11     111       11     111       11     111       11     111       11 <td< td=""><td></td><td>λ</td><td>Z</td><td>Control Speed</td><td>Percent</td><td></td><td>ő</td></td<>		λ	Z	Control Speed	Percent		ő
1			·· <u> </u>	Device Constraint			Struct?
36.0 1 48 2 49 2 49 2 49 3 52 4 53 4 53 4 53 6 55 6 55 8 57 8 57 8 57 8 57 8 57 9 106 9 109 9 110 9 111 9 111		#			Affected		
36.0 1 50 36.0 1 50 2 49 2 51 4 53 6 55 6 55 8 57 8 57 8 57 8 57 9 106 9 100 9 100 9 100 9 100 9 110 9 110			₌	uduu	%		
36.0   1   50   1	-		-580.0 94.10			Average	
36.0 1 50 2 51 3 52 4 53 5 54 6 55 8 57 8 57 8 57 8 57 9 106 9 108 9 108 9 108 9 108 9 108 9 110 1 111 1 104 1 108 1 110 1 111 1 111	2		493.0 94.10				
2     51       3     52       4     53       5     54       6     55       7     56       8     57       8     57       9     104       104     104       105     106       106     107       107     110       108     110       111     111       12     112       13     113       14     114       15     115       16     116       16     116       17     111       18     111       19     111       10     111       11     114       11     114       10     116       11     111       11     114       12     115       13     116       14     114       15     116       16     116       17     116       18     116       11     111       11     114       11     111       11     111       11     111       11     111	-	-5,670.0	-493.0 94.10			Average	
3   52   54   53   55   54   55   55   55   55		-4,597.0	-286.0 100.00			Average	
4     53       6     54       7     56       8     57       8     57       104     104       2     105       3     106       4     107       5     108       6     109       7     110       8     113       113     113       14     114       15     115       16     116       17     111       18     111       10     111       10     111       10     111       10     111       10     111       10     115       11     116       11     116       11     116       11     116       11     116       11     116       11     116       11     116       11     116       11     116       11     116       11     116       11     116       11     111       11     111       11     111       11     111       11     111   <		-4,361.0	-245.0 102.50			Average	
5     54       6     55       7     56       8     57       8     57       9     1     104       1     1     104       1     1     1       2     1     1       3     1     1       4     1     1       5     1     1       6     1     1       7     1     1       8     1     1       1     1     1		4,064.0				Average	
6 55 56     7 56     8 57     8 57     8 57     9 104     105     9 106     107     110     111     111     112     114     115     116     116     117     118     119     111		-3,964.0				Average	
7     56       8     57       8     57       96.0     1       106     3       107     4       108     6       109     7       110     7       111     111       2     112       3     113       4     114       4     114       5     115       6     116       7     111       8     115       9     115       100     116       110     116		-3,767.0	-183.0 103.30			Avarage	
36.0     1     104       36.0     1     104       3     106       4     107       6     108       7     110       36.0     1     111       4     114       4     114       5     115       6     116       7     110       8     111       9     111       14     114       15     115       16     116		-3,567.0	-176.0 102.80			Average	
36.0     1     104       2     105       3     106       4     107       5     108       6     109       7     110       36.0     1       111     111       2     112       3     113       4     114       5     115       6     116		-2,400.0				Average Average	
2 105   106   3 106   4 107   107   108   109	-						
3 106 4 107 5 108 6 109 7 110 36.0 1 111 2 112 2 112 4 114 6 116		1.642.0				Average	
4     107       5     108       6     109       7     110       36.0     1     111       2     112       3     113       4     114       5     115       6     116		-1.542.0				Average	
5     108       6     109       7     110       36.0     1     111       2     112       3     113       4     114       5     115       6     116		-1,403.0	-			Average	
6   109 -1   36.0   1   111   111		-1,322.0				Average	
36.0     1     111       36.0     1     111       3     113       4     114       5     115       6     116		-1,242.0				Average	
36.0 1 111 2 112 3 113 4 114 5 115	7	-370.0	41.0 98.60			200	
112 113 114 2 115 3		-370.0	41.0 98.60			Average	
113		0.86	145.0 95.20			Average	
115		192.0	177.0 95.20			Average	
115		289.0	215.0 95.40			Average	
116		342.0	242.0 95.50			Average	
		440.0	300.0 95.90			Average	
117		522.0				Average	
600	-	600.0	420.0 99.20			Average	

Part of

Mark Cons

		6	119	808.0	635.0	100.30		Average
		10	120	1,576.0	1,417.0	104.70		Average
		<del>-</del>	121	2,156.0	2,003.0	114.50		Average
	$\rightarrow$	12	122	2,817.0	2,727.0	107.50		,
WB 199+76.02 to 157+40	36.0		124	2,811.0	2,738.0	107.50		Average
		2	125	2,156.0	2,128.0	114.50		Average
		3	126	1,576.0	1,495.0	104.70		Average
	,	4	127	808.0	730.0	100.30		Average
		5	128	0.009	527.0	99.20		Average
		9	129	522.0	450.0	96.30		Average
		7	130	440.0	376.0	95.90		Average
		8	131	342.0	309.0	95.50		Average
		6	132	289.0	282.0	95.40		Average
		우	133	192.0	250.0	95.20		Average
		11.	134	98.0	223.0	95.20		Average
		12	135	-370.0	100.0	98.60		,
WB 157+40 to 137+00	36.0		136	-370.0	100.0	98.60		Average
		2	137	-1,242.0	-82.0	100.70	,	Average
		3	138	-1,322.0	-97.0	100.30		Average
	7	4	139	-1,403.0	-105.0	100.00		Average
7,000		22	140	-1,542.0	-118.0	99.60		Average
	9		141	-1,642.0	-127.0	99.60		Average
			142	-2,400.0	-125.0	102.90		9
WB 137+00 to 103+94	36.0		143	-2,400.0	-125.0	102.90		Average
	2		144	-3,567.0	-118.0	102.80		Average
		_	145	-3,767.0	-125.0	103.30		Average
	4	_	146	-3,964.0	-137.0	104.60		Average
	2		147	-4,064.0	-150.0	105.00		Average
	9		148	-4,361.0	-187.0	102.50		Average
	7		149	-4,597.0	-227.0	100.00		Average
		_	150	-5,670.0	-454.0	94.10		,
WB 103+94 to 99+00	36.0		151	-5,670.0	-454.0	94.10		Average
							-	

INPUT: TRAFFIC FOR LAeq1h Volumes

State Road 52 SEIR

2 SEIR\TNM 2.5\Barrier 1
5
S
MILLER SR5
Z
တ္တ
ALS.
Ξ
292
Ž
ด
8
Ş
Z
ঈ
Ġ

INPUT: TRAFFIC FOR LAeg1h Volumes						Ů	P000	62 CEID				
	9	116	672	20	7	20	50 15 15	50 50	co	50	C	C
	7	117	672	22	1	20	15		က	20	0	0
	8	118	672	22	11	20	15	20	3	20	0	0
	6	119	672	20	11	20	15	20	က	20	0	0
	10	120	672	20	Ŧ	20	15	20	က	20	0	0
	11	121	672	20	#	20	15	20	ဇ	20	0	0
30.00	12	122										
WB 199+76.02 to 157+40	+	124	885	20	14	20	19	20	က	20	0	0
	2	125	882	20	14	20	19	20	က	20	0	0
	3	126	882	20	4	20	13	20	က	20	0	0
The state of the s	4	127	885	20	4	20	19	20	က	20	0	0
The second secon	5	128	885	20	14	20	10	20	က	20	0	0
	9	129	882	20	14	20	19	20	က	20	0	0
	7	130	882	20	14	20	19	20	ဇ	20	0	0
	8	131	885	20	14	22	19	20	က	20	0	0
	6	132	885	20	14	20	19	20	8	20	0	0
	10	133	885	20	14	20	19	20	8	20	0	0
	11	134	885	20	14	20	19	20	ဇ	20	0	0
	12	135										
WB 157+40 to 137+00	-	136	1668	20	27	20	36	20	9	22	0	0
	2	137	1668	20	27	20	98	20	9	20	0	0
	3	138	1668	20	27	20	98	20	9	20	0	0
	4	139	1668	22	27	20	36	20	9	20	0	0
	5	140	1668	20	27	20	36	20	9	20	0	0
	9	141	1668	20	27	20	36	20	9	20	0	0
-	7	142										
WB 137+00 to 103+94	1	143	2278	20	37	20	49	20	6	20	0	0
	2	44	2278	22	37	20	49	20	6	20	0	0
	3	145	2278	20	37	20	49	22	6	20	0	0
	4	146	2278	20	37	20	49	20	6	20	0	0
	5	147	2278	20	37	20	49	20	6	20	0	0
	9	<del>2</del>	2278	20	37	20	49	20	6	20	0	0
	7	149	2278	50	37	20	49	20	6	20	0	0
	8	55			-							

ş	i
È	
Ē	2
.5	
÷	
ζ	
2	í
_	Ì
α	
7	

	50	3
e Road 52 SEIR	49 50 9	3
Stat	50 37 50	
	151 2278	152
q1h Volumes	-	2
INPUT: TRAFFIC FOR LAG	WE 103+94 to 99+00	

J	
ī	
1	
1	
1	
1	
T	
l	
İ	
†	
ĺ	
ł	ļ
Ļ	
l	- 1
1	- 1
l	
l	-
Γ	

PROJECT/CONTRACT:	State	State Road 52 SEIR	SEIR				
RUN:	Barrier 1	# #		- ;			
Receiver							11
Name	No.	#DOS C	#DUs Coordinates (ground)	(puno		Helght	I C
		×	Å	2		above	l ma i
						Ground	7
		Œ	H H	Ħ		ft	
	-	-	2,180.0	2,252.0	111.90	5.00	l I
2	2	-	2,020.0	2,202.0	112.70	5.00	1 .
							1
					•		
							•
				-			
	·						
			•				
G:\204XXX\204292 - WILSON MILLER SR52 SEIR\TNM 2.5\Barrier 1	MILLER SR52 SR	EIR\TNM ?	2.5\Barrier 1				

Active in Calc.

NR Goal

Existing Impact Criteria LAeq1h LAeq1h Sub'l

Input Sound Levels and Criteria

State Road 52 SEIR

10 June 2005 TNM 2.5

INPUT: RECEIVERS

INPUT: RECEIVERS

ESA

10.0

15.0

8 8

0.00

용

фB

dBA

dBA

2.5/Barrier 1
R52 SEIR/TNM
LSON MILLERS
K204292 - WI
G:\204XX

ESA MSM	·				10 June TNM 2.5	ıne 2005 2.5												
INPUT: BARRIERS PROJECT/CONTRACT: RUN:	State Ro Barrier 1	Road 5	State Road 52 SEIR Barrier 1	:									·				•	
Barrier									Points									
Name	Type	Type Height	ıţ.	<u>*</u>	If Wall If Berr	F		Add'tni	Name	Š	Coordinates (hottom)	(pottom)		Heicht	Command			
		Σ	Max			<u>Тор</u>	Run:Rise	Se S Der			×	>	1			·ا :		]
				Cuit	Chrit	Width		# <u></u>			<	-		Point	Seg Ht Perturbs On Incre. #In #On Str		Seg Ht Perturbs On Import	Important
				Are	Area Vol.			Length							, to the	}	5	
		#	쁘	\$	ft \$/cu	d ft	ftcft	₩.			-	#	-	4=	# # #	+	+	nons:
Barrier 1	≥	0.00	99.99	1	0.00			00.00	) point	<del>-</del>	2,485.0	2.467.0	109.00	14 00	50	-	- 6	
	-			-					point7	7	2,470.7		1	ľ		F	2 0	
1974			+	-	_	-			point8	8	2,456.4		L	ĺ	į		) m	
			+	_	-	_	-		point9	6	2,442.0	2,428.4	l		1		3	
			$\downarrow$	+	-	-	_		point10	9	2,427.7		109.48	14.00	2.00	4	8	
			-	+	+	+	_		point3	8	2,413.4	2,402.6			1	4	8	
			1	+	1	+			point:11	=	2,401.5	2,391.9	109.70	14.00	2.00	4	8	
			_	+	1	+	-	1	point12	12	2,389.5		109.80	14.00	2.00	4	8	
		_	1	+	+	1			point13	13	2,377.6	2,370.4	109.90		2.00	4	6	
	$\int$		$\downarrow$	+	+	1			point14	4	2,365.7		110.00	14.00	2.00	4	8	
			$\downarrow$	+	+	-	_	_	point15	5	2,353.7	2,348.9	110.10	14.00	2.00	4	8	
			1	+	+	_			point4	4	2,341.8	2,338.2	110.20	14.00	2.00		m	
			$\downarrow$	+					point5	2	2,270.2	2,273.8	110.80	14.00	2.00	4	6	
			+	+	+		-		point6	9	2,198.6	2,209.4	111.40	14.00	2.00		100	
				$\dashv$	-	_	-	_	point2	2	2,127.0	2,145.0	112.00	14.00			-	
																-	_	

INPUT: BARRIERS

ESA									10 June 2005	005						
MSM							*		TNM 2.5 Calculate	TNM 2.5 Calculated with TNM 2.5	12.5					
RESULTS: SOUND LEVELS														•		
PROJECT/CONTRACT:		State Road 52		SEIR					٠							
RUN:		Barrier 1									-					
BARRIER DESIGN:		INPUT HEIGH	HEIGHTS							Average	Average pavement type shall be used unless	e shail be us	sed un	ess		
							٠			a State h	a State highway agency substantiates the use	y substantia	ites the	esn :		
ATMOSPHERICS:		68 deg	68 deg F, 50% RH	I						of a diffe	of a different type with approval of FHWA.	approval of	FHWA			
Receiver		÷														
Name	No.	#DUs	Existing	No Barrier	trier						With Barrier					
			LAeq1h	LAeq1h	두	•	일	Increase over existing	existing	Type	Calculated	Noise Reduction	uction			
		-		Calcu	Calculated	Crit'n	S	Calculated	Critin	Impact	LAeq1h	Calculated Goal	89		Calculated	5
									Sub'l Inc						minus	
	•					•									Goal	
			dBA	dBA		dBA	쁑		8		dBA	dВ	В		qp	
	-	_	0	0.0	67.9		99	67.9		15 Snd Lvl	58.4		9.5	9		-0.5
2	2	-	0	0.0	63.8		99	63.8		15	61.9		6:	10	•	8.1
Dwelling Units		# DUs	Noise Reduction	eductio	=											
			Z.	Avg		Max			٠							
			<del>a</del> B	ЯP		ЯÞ										
All Selected		2		1.9	5.7		9.5									
All Impacted		1	6	9.5	9.5		9.5									
All that meet NR Goal		0		0.0	0.0		0.0									

RESULTS: SOUND LEVELS

.