



Appendix J—Noise Technical Report

Part 6



Appendix I—DEIS Noise Technical Report

continued





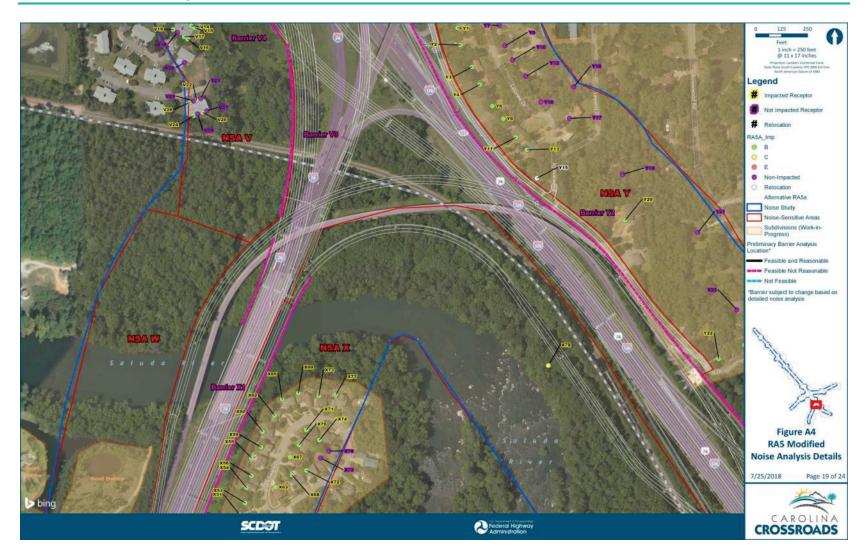
Appendix A—Figures

continued

















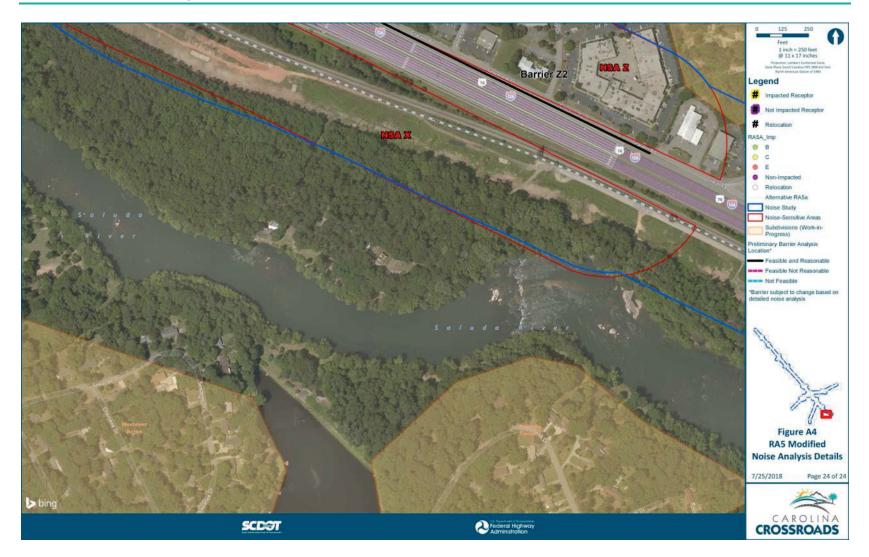














Appendix B—Alternative 1 Noise Barrier Worksheets



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SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure	arrier C		
Feasibility			
Number of Impacted Receivers	Number of Be	enefited Receivers	
Percentage of Impacted Receivers that would achieve a 5 d noise abatement measure	BA reduction from	n the proposed 100	
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.			
Would any of the following issues limit the ability	of the abatement	measure to achieve the noise reductio	n goal?
Topography	Yes	× No	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description	

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal				
Number of Benefited Receivers		Number of Benefited Receivers that achieve at least an 8 dBA reduction 1		
	NOTE: SCDOT Policy	that would achieve at least a 8 dBA reduction from ¹⁰⁰ indicates that 80% of the benefited receivers in the or it to be reasonable.		
Does the proposed noise abatement meas If "Yes" is marked, contin		tion design goal? Yes No ked, then abatement is determined NOT to be reasonable.		
#2: Cost Effectiveness				
Estimated cost per square foot for noise abatement measure	35	Estimated construction cost for noise abatement measure 80,150		
Estimated cost per Benefited Receiver	80,150			
NOTE: SCDOT Policy states that the prelimi	nary noise analysis is based	would the abatement measure be reasonable? Use Xes Xoo Yes Xoo Yes Xoo Yes Xoo Yes Xoo Yes Xoo Xoo Xoo Xoo Xoo Xoo Xoo Xoo Xoo Xo		
If "Yes" is marked, contin	nue to #3. If "No" is mar	ked, then abatement is determined NOT to be reasonable.		
	#3: Viewpoints of the property owners and residents of the benefitted receivers			
Number of Benefited Receivers (same as	s above)			
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure		
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure		
Number of Benefited Receivers that did respond to solicitation on noise abateme measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure		
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Yes No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.				
Barrier wall is 229 feet in width by 10 feet in height. Based on the above results from the preliminary analysis, this abatement features is feasible, but not reasonable.				
Additionally, this calculation was used as the sample mitigation model run for other similar conditions. These results apply to similar isolated receptor conditions for receptors B1, F, and N2.				



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure Noise Barrier E1			
Feasibility			
Number of Impacted Receivers 2	Number of Ben	efited Receivers	3
Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure			
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.			
Would any of the following issues limit the ability	of the abatement m	easure to achieve	the noise reduction goal?
Topography	Yes	× No	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

ailed Description	

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal			
Number of Benefited Receivers 3		Number of Benefited Receivers that achieve at least an 8 dBA reduction	
	NOTE: SCDOT Policy i	hat would achieve at least a 8 dBA reduction from ⁶⁷ ndicates that 80% of the benefited receivers in the r it to be reasonable.	
Does the proposed noise abatement measurement measurement measurement measurement measurement and the second secon		0.0	1
If "Yes" is marked, conti	nue to #2. If "No" is mark	ed, then abatement is determined NOT to be reasonable.	
#2: Cost Effectiveness			
Estimated cost per square foot for noise abatement measure		Estimated construction cost for noise abatement measure	
Estimated cost per Benefited Receiver			
NOTE: SCDOT Policy states that the prelim	nary noise analysis is based	ould the abatement measure be reasonable? Solution \$35.00 per square foot and a more project- during the detailed noise abatement evaluation.	3
If "Yes" is marked, conti	nue to #3. If "No" is mark	eed, then abatement is determined NOT to be reasonable.	
#3: Viewpoints of the property ow	ners and residents of	the benefitted receivers	
Number of Benefited Receivers (same a	s above)		
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure	
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure	
Number of Benefited Receivers that die respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Yes No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.			
Barrier wall is 1,312 feet in width by 15 feet in height.			
Based on the above results from preliminary	analysis, this abatement	feature is feasible but not reasonable.	



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure	rrier G1		
Feasibility			
Number of Impacted Receivers 171	Number of Ben	efited Receivers	166
Percentage of Impacted Receivers that would achieve a 5 dE noise abatement measure	A reduction from	the proposed	97
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.			
Would any of the following issues limit the ability of	of the abatement m	easure to achieve	the noise reduction goal
Topography	Yes	× No	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description	

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal				
Number of Benefited Receivers		Number of Benefited Receivers that achieve at least an 8 dBA reduction	155	
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable. Does the proposed noise abatement measure meet the noise reduction design goal? Yes No				
#2: Cost Effectiveness				
Estimated cost per square foot for noise abatement measure	35	Estimated construction cost for noise abatement measure	823,395	
Estimated cost per Benefited Receiver	10,984			
NOTE: SCDOT Policy states that the prelim	inary noise analysis is bas	would the abatement measure be reasonable? sed on \$35.00 per square foot and a more project- sis during the detailed noise abatement evaluation.	Yes No	
If "Yes" is marked, conti	nue to $#3$. If "No" is m	arked, then abatement is determined NOT to be rea	sonable.	
#3: Viewpoints of the property ov	vners and residents	of the benefitted receivers		
Number of Benefited Receivers (same a	is above)			
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measur	re	
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure		
Number of Benefited Receivers that di respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noi abatement measure		
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.				
Barrier wall is 2,604 feet in width by 20 feet in height.				
Based on the above results from the preliminary analysis, this abatement feature is feasible and reasonable.				
Barrier subject to change based on the detailed noise analysis.				



SCDOT Feasibility and Reasonableness Worksheet

Date: Jun 3, 2018

Project Name Carolin	a Crossroads			
Highway Traffic Noise 2	Abatement Measure Noise Bar	тier H1		
Feasibility				
Number of Impacted Rec	eivers 36	Number of Ben	efited Receivers	36
Percentage of Impacted R noise abatement measure	eceivers that would achieve a 5 dB	A reduction from	the proposed	100
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.				
Would any of the	following issues limit the ability of	f the abatement m	easure to achieve	the noise reduction goal?
	Topography	Yes	× No	
	Safety	Yes	🗵 No	
	Drainage	Yes	🛛 No	
	Utilities	Yes	🛛 No	
	Maintenance	Yes	🛛 No	
	Access	Yes	🛛 No	
	Exposed Height of Wall	Yes	🛛 No	

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description		

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal				
Number of Benefited Receivers 36	Number of Benefited Receivers that achieve at least an 8 dBA reduction 36			
Percentage of Benefited Receivers in the first two building ro the proposed noise abatement measure. NOTE: SCDOT Pol first two building rows must achieve at least a 8 dBA reduction	licy indicates that 80% of the benefited receivers in the 100			
Does the proposed noise abatement measure meet the noise re If "Yes" is marked, continue to #2. If "No" is	eduction design goal? \boxtimes Yes \square No \square marked, then abatement is determined NOT to be reasonable.			
#2: Cost Effectiveness				
Estimated cost per square foot for as a batement measure	Estimated construction cost for noise 2,859,500			
Estimated cost per Benefited Receiver 79,431				
NOTE: SCDOT Policy states that the preliminary noise analysis is b	Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on \$35.00 per square foot and a more project- specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.			
If "Yes" is marked, continue to $#3$. If "No" is	marked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property owners and resident	s of the benefitted receivers			
Number of Benefited Receivers (same as above)				
Number of Benefited Receivers in support of noise abatement measure	Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure	Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Yes No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.				
Barrier wall is 4,085 feet in width by 20 feet in height.				
Based on the above results from the preliminary analysis, this aba	atement feature is feasible but not reasonable.			



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroad	s			
Highway Traffic Noise Abatement M	easure Noise Ba	rrier H2		
<u>Feasibility</u>				
Number of Impacted Receivers		Number of Ber	nefited Receivers	0
Percentage of Impacted Receivers that noise abatement measure	would achieve a 5 dE	3A reduction from	the proposed	0
Is the proposed noise abatement measure NOTE:SCDOT Policy indicates that 759 achieve at least a 5 dBA reduction for it	% of the impacted rea	ceivers must	Ves	No No
Would any of the following iss	ues limit the ability c	of the abatement n	neasure to achieve	the noise reduction goal?
Topography		Yes	× No	
Safety		Yes	× No	
Drainage		Yes	× No	
Utilities		Yes	× No	
Maintenance		Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

Yes

Yes

× No

× _{No}

Detailed Description	

Access

Exposed Height of Wall

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



Number of Benefited Receivers Number of Benefited Receivers that achieve at least an 8 dBA reduction Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable. Does the proposed noise abatement measure meet the noise reduction design goal? Yes If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable. #2: Cost Effectiveness Estimated cost per square foot for noise abatement measure Estimated cost per Benefited Receiver				
the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable. Does the proposed noise abatement measure meet the noise reduction design goal? Yes No If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable. #2: Cost Effectiveness Estimated cost per square foot for noise abatement measure Estimated cost per square foot for noise abatement measure				
#2: Cost Effectiveness Estimated cost per square foot for noise abatement measure Estimated construction cost for noise				
Estimated cost per square foot for noise abatement measure Estimated construction cost for noise abatement measure				
noise abatement measure abatement measure				
Estimated cost per Benefited Receiver				
Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on \$35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.				
If "Yes" is marked, continue to $#3$. If "No" is marked, then abatement is determined NOT to be reasonable.				
#3: Viewpoints of the property owners and residents of the benefitted receivers				
Number of Benefited Receivers (same as above)				
Number of Benefited Receivers Percentage of Benefited Receivers in support of noise abatement measure in support of noise abatement measure				
Number of Benefited Receivers Percentage of Benefited Receivers opposed to noise abatement measure opposed to noise abatement measure				
Number of Benefited Receivers that did not Percentage of Benefited Receivers that respond to solicitation on noise abatement did not respond to solicitation on noise measure abatement measure				
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.				
Barrier wall is 845 feet in width by 25 feet in height.				
Based on the results above from the preliminary analysis, this abatement feature is not feasible or reasonable.				



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure	ise Barrier I1		
Feasibility			
Number of Impacted Receivers 3	Number of Be	nefited Receivers	3
Percentage of Impacted Receivers that would achieve noise abatement measure	e a 5 dBA reduction from	n the proposed	100
Is the proposed noise abatement measure acoustically NOTE:SCDOT Policy indicates that 75% of the impa achieve at least a 5 dBA reduction for it to be acoustic	cted receivers must	X Yes	□ No
Would any of the following issues limit the a	bility of the abatement r	neasure to achieve	the noise reduction goal
Topography	Yes	× No	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description	

<u>Reasonableness</u>

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 3		Number of Benefited Receivers that achieve at least an 8 dBA reduction			
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable. Does the proposed noise abatement measure meet the noise reduction design goal? Xes No					
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure	35	Estimated construction cost for noise abatement measure 1,403,465			
Estimated cost per Benefited Receiver	467,822				
NOTE: SCDOT Policy states that the prelim	inary noise analysis is bas	would the abatement measure be reasonable? Solution \$35.00 per square foot and a more project- sis during the detailed noise abatement evaluation. Yes	🗙 No		
If "Yes" is marked, conti	nue to #3. If "No" is ma	arked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property owners and residents of the benefitted receivers					
Number of Benefited Receivers (same a	is above)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that di respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 2,006 feet in width by 20 fee	t in height.				
Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 12, 2018

Project Name Carolina Crossroads	
Highway Traffic Noise Abatement Measure	Barrier I2
Feasibility	
Number of Impacted Receivers 36	Number of Benefited Receivers 36
Percentage of Impacted Receivers that would achieve a 5 onoise abatement measure	dBA reduction from the proposed 100
Is the proposed noise abatement measure acoustically feasi NOTE:SCDOT Policy indicates that 75% of the impacted achieve at least a 5 dBA reduction for it to be acoustically	receivers must 🛛 Yes 🗌 No
Would any of the following issues limit the ability	y of the abatement measure to achieve the noise reduction goal
Topography	Yes No
Safety	Yes No
Drainage	Yes X No
Utilities	Yes X No
Maintenance	Yes No
Access	Yes No
Exposed Height of Wall	Yes No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description		

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 36		Number of Benefited Receivers that achieve at least an 8 dBA reduction			
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the 61 first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.					
Does the proposed noise abatement meas If "Yes" is marked, conti		ion design goal? Yes No	ble.		
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure		Estimated construction cost for noise abatement measure			
Estimated cost per Benefited Receiver					
NOTE: SCDOT Policy states that the prelim	inary noise analysis is based	on \$35.00 per square foot and a more project- during the detailed noise abatement evaluation.	es 🗌 No		
If "Yes" is marked, conti	nue to #3. If "No" is mari	ked, then abatement is determined NOT to be reasonal	ble.		
#3: Viewpoints of the property owners and residents of the benefitted receivers					
Number of Benefited Receivers (same a	s above)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that did respond to solicitation on noise abatem measure	• • • • • • • • • • • • • • • • • • •	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 2,404 feet in width by 25 fee	in height.				
Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 12, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure Noise Ba	urrier I3		
Feasibility			
Number of Impacted Receivers 115	Number of Ben	efited Receivers	115
Percentage of Impacted Receivers that would achieve a 5 dl noise abatement measure	3A reduction from	the proposed	100
Is the proposed noise abatement measure acoustically feasib NOTE:SCDOT Policy indicates that 75% of the impacted re achieve at least a 5 dBA reduction for it to be acoustically fe	ceivers must	X Yes	No
Would any of the following issues limit the ability	of the abatement me	easure to achieve	the noise reduction goal
Topography	Yes	× No	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× _{No}	
Access	Yes	× _{No}	
Exposed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

ailed Description	

<u>Reasonableness</u>

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 115		Number of Benefited Receivers that achieve at least an 8 dBA reduction 81			
	NOTE: SCDOT Policy	that would achieve at least a 8 dBA reduction from indicates that 80% of the benefited receivers in the for it to be reasonable.			
Does the proposed noise abatement mea If "Yes" is marked, conti		ction design goal? 🛛 Yes 🔲 No rked, then abatement is determined NOT to be reasonable.			
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure	35	Estimated construction cost for noise abatement measure 2,801,015			
Estimated cost per Benefited Receiver	24,357				
Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on \$35.00 per square foot and a more project- specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.					
If "Yes" is marked, conti	nue to #3. If "No" is ma	rked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property owners and residents of the benefitted receivers					
Number of Benefited Receivers (same a	is above)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that di respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 4,003 feet in width by 20 fee	t in height.				
Based on the above results from the preliminary analysis, this abatement feature is feasible and reasonable.					
Barrier subject to change based on the detai	led noise analysis.				



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads					
Highway Traffic Noise Abatement Measure Noise Barrier J2					
<u>Feasibility</u>					
Number of Impacted Rea	ceivers 292	Number of Ben	efited Receivers	254	
Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure					
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.					
Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal					
	Topography	Yes	× No		
	Safety	Yes	× No		
	Drainage	Yes	× No		
	Utilities	Yes	× No		
	Maintenance	Yes	× No		
	Access	Yes	× No		
	Exposed Height of Wall	Yes	× No		

If "Yes" was marked for any of the questions above, please explain below.

ailed Description	

$\underline{Reasonableness}$

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 254	Number of Benefited Receivers that achieve at least an 8 dBA reduction 136				
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the 92 first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.					
Does the proposed noise abatement measure meet the noise If "Yes" is marked, continue to #2. If "No" is	reduction design goal? 🛛 Yes 📃 No is marked, then abatement is determined NOT to be reasonable.				
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure	Estimated construction cost for noise abatement measure 1,685,600				
Estimated cost per Benefited Receiver 6,636					
Based on the SCDOT policy of \$30,000 per Benefited Rece NOTE: SCDOT Policy states that the preliminary noise analysis i specific construction cost should be applied at a cost per square for	s based on \$35.00 per square foot and a more project- 🛛 Yes 🔲 No				
If "Yes" is marked, continue to #3. If "No" is	is marked, then abatement is determined NOT to be reasonable.				
#3: Viewpoints of the property owners and residents of the benefitted receivers					
Number of Benefited Receivers (same as above)					
Number of Benefited Receivers in support of noise abatement measure	Percentage of Benefited Receivers in support of noise abatement measure				
Number of Benefited Receivers opposed to noise abatement measure	Percentage of Benefited Receivers opposed to noise abatement measure				
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure				
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 3,210 feet in width by 15 feet in height.					
Based on the above results from the preliminary analysis, this abatement feature is feasible and reasonable.					
Barrier subject to change based on the detailed noise analysis.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads				
Highway Traffic Noise Abatement Measure Noise Barrier K1				
Feasibility				
Number of Impacted Receivers 238	Number of Benefited Receivers 296			
Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure				
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.				
Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal				
Topography	Yes No			
Safety	Yes No			
Drainage	Yes X No			
Utilities	Yes X No			
Maintenance	Yes X No			
Access	Yes No			
Exposed Height of Wall	Yes X No			

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description	

<u>Reasonableness</u>

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 296	Number of Benefited Receivers that achieve at least an 8 dBA reduction 231				
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.					
Does the proposed noise abatement measure meet the noi If "Yes" is marked, continue to #2. If "No	" is marked, then abatement is determined NOT to be reasonable.				
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure	Estimated construction cost for noise abatement measure 4,146,170				
Estimated cost per Benefited Receiver 14,007					
NOTE: SCDOT Policy states that the preliminary noise analysi	Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on \$35.00 per square foot and a more project- specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.				
If "Yes" is marked, continue to #3. If "No	" is marked, then abatement is determined NOT to be reasonable.				
#3: Viewpoints of the property owners and resid	#3: Viewpoints of the property owners and residents of the benefitted receivers				
Number of Benefited Receivers (same as above)					
Number of Benefited Receivers in support of noise abatement measure	Percentage of Benefited Receivers in support of noise abatement measure				
Number of Benefited Receivers opposed to noise abatement measure	Percentage of Benefited Receivers opposed to noise abatement measure				
Number of Benefited Receivers that did not respond to solicitation on noise abatement measurePercentage of Benefited Receivers that did not respond to solicitation on noise abatement measure					
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Yes No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 4,742 feet in width by 25 feet in height.					
Based on the above results from the preliminary analysis, this abatement feature is feasible and reasonable.					
Barrier subject to change based on the detailed noise analysis.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads				
Highway Traffic Noise Abatement Measure Noise Barrier K1				
Feasibility				
Number of Impacted Receive	ers 234	Number of Ben	efited Receivers	292
Percentage of Impacted Rece noise abatement measure	ivers that would achieve a 5 dB	A reduction from	the proposed	100
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.				
Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal				
То	pography	Yes	× No	
Sa	fety	Yes	× No	
Dr	ainage	Yes	× No	
Ut	ilities	Yes	× No	
Ma	aintenance	Yes	× No	
Ac	cess	Yes	× No	
Ex	posed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description	

<u>Reasonableness</u>

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 292		Number of Benefited Receivers that achieve at least an 8 dBA reduction 227			
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the 83 first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.					
Does the proposed noise abatement meas If "Yes" is marked, contin		tion design goal? 🛛 Yes 📃 No wheed, then abatement is determined NOT to be reasonable.			
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure	35	Estimated construction cost for noise abatement measure 4,146,170			
Estimated cost per Benefited Receiver	14,119				
NOTE: SCDOT Policy states that the prelimination	inary noise analysis is base	a on \$35.00 per square foot and a more project- s during the detailed noise abatement evaluation.			
If "Yes" is marked, contin	nue to #3. If "No" is man	ked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property ow	#3: Viewpoints of the property owners and residents of the benefitted receivers				
Number of Benefited Receivers (same a	s above)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that did not respond to solicitation on noise abatement measurePercentage of Benefited Receivers that did not respond to solicitation on noise abatement measure					
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Yes No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 4,742 feet in width by 25 feet in height.					
Based on the above results from the preliminary analysis, this abatement feature is feasible and reasonable.					
Barrier subject to change based on the detailed noise analysis.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina	a Crossroads				
Highway Traffic Noise Abatement Measure Barrier L1/L2					
Feasibility					
Number of Impacted Reco	eivers 5	Number of Ben	efited Receivers	4	
Percentage of Impacted R noise abatement measure	eceivers that would achieve a 5 dB.	A reduction from	the proposed	60	
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.					
Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?					
	Topography	Yes	× _{No}		
	Safety	Yes	× No		
	Drainage	Yes	× No		
	Utilities	Yes	× No		
	Maintenance	Yes	× No		
	Access	Yes	× No		

If "Yes" was marked for any of the questions above, please explain below.

Yes

× No

Detailed Description	

Exposed Height of Wall

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
]	Number of Benefited Receivers that			
Number of Benefited Receivers		achieve at least an 8 dBA reduction			
the proposed noise abatement measure.	Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.				
Does the proposed noise abatement measure		0.0			
<i>If "Yes" is marked, conti</i>	ue to #2. If "No" is mar	ked, then abatement is determined NOT to be reasonable.			
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure		Estimated construction cost for noise abatement measure			
Estimated cost per Benefited Receiver					
NOTE: SCDOT Policy states that the prelim	nary noise analysis is based	vould the abatement measure be reasonable? on \$35.00 per square foot and a more project- g during the detailed noise abatement evaluation.			
If "Yes" is marked, conti	nue to #3. If "No" is mar	ked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property owners and residents of the benefitted receivers					
Number of Benefited Receivers (same a	s above)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that die respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 2,054 feet in width by 25 feet in height.					
Based on the above results from the preliminary analysis, this abatement feature is not feasible.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolin	a Crossroads			
Highway Traffic Noise Abatement Measure Barrier Q1				
<u>Feasibility</u>				
Number of Impacted Rec	beivers 157	Number of Ben	efited Receivers	213
Percentage of Impacted I noise abatement measure	Receivers that would achieve a 5 dB	A reduction from	the proposed	100
NOTE:SCDOT Policy in	tement measure acoustically feasible dicates that 75% of the impacted rec eduction for it to be acoustically fea	eivers must	X Yes	No No
Would any of th	e following issues limit the ability o	f the abatement m	easure to achieve	the noise reduction goal?
	Topography	Yes	× No	
	Safety	Yes	× No	
	Drainage	Yes	× No	
	Utilities	Yes	× No	
	Maintenance	Yes	× No	
	Access	Yes	× No	
	Exposed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

etailed Description	

<u>Reasonableness</u>

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 213		Number of Benefited Receivers that achieve at least an 8 dBA reduction			
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the 80 first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.					
Does the proposed noise abatement measur If "Yes" is marked, continue		tion design goal? 🛛 Yes 📃 No ked, then abatement is determined NOT to be reasonable.			
#2: Cost Effectiveness					
Estimated cost per square foot for abatement measure		Estimated construction cost for noise abatement measure 3,731,665			
Estimated cost per Benefited Receiver 17	7,520				
NOTE: SCDOT Policy states that the prelimina	ry noise analysis is based	vould the abatement measure be reasonable? I on \$35.00 per square foot and a more project- s during the detailed noise abatement evaluation.			
<i>If "Yes" is marked, continue</i>	e to #3. If "No" is mar	ked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property own	ers and residents of	the benefitted receivers			
Number of Benefited Receivers (same as a	ibove)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that did n respond to solicitation on noise abatement measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 5,327 feet in width by 20 feet in height.					
Based on the above results from the preliminar	Based on the above results from the preliminary analysis, this abatement feature is feasible and reasonable.				
Barrier subject to change based on the detailed noise analysis.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure	Barrier T1		
Feasibility			
Number of Impacted Receivers 45	Number of Be	enefited Receivers	59
Percentage of Impacted Receivers that would achieve a st noise abatement measure	5 dBA reduction from	m the proposed	98
Is the proposed noise abatement measure acoustically fea NOTE:SCDOT Policy indicates that 75% of the impacted achieve at least a 5 dBA reduction for it to be acoustically	l receivers must	X Yes	No No
Would any of the following issues limit the abili	ty of the abatement	measure to achieve	e the noise reduction goal
Topography	Yes	× _{No}	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height of Wall	Yes	× No	
If "Yes" was marked for any	of the questions a	bove, please exp	lain below.

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1 Description]
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Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 59		Number of Benefited Receivers that achieve at least an 8 dBA reduction			
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.					
Does the proposed noise abatement meas If "Yes" is marked, conti		tion design goal? 🛛 Yes 🔲 No ked, then abatement is determined NOT to be reasonable.			
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure	35	Estimated construction cost for noise abatement measure 3,998,225			
Estimated cost per Benefited Receiver	67,767				
NOTE: SCDOT Policy states that the prelim	inary noise analysis is base	would the abatement measure be reasonable? Use Xes Xes N d on \$35.00 per square foot and a more project- s during the detailed noise abatement evaluation.	Ιο		
If "Yes" is marked, conti	nue to $#3$. If "No" is made	ked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property ov	vners and residents o	f the benefitted receivers			
Number of Benefited Receivers (same a	s above)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that di respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Yes No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 4,569 feet in width by 25 feet in height.					
Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads				
Highway Traffic Noise Abatement Measure Noise Barrier U1				
Feasibility				
Number of Impacted Receivers	Number of Ber	efited Receivers	15	
Percentage of Impacted Receivers that would ac noise abatement measure	hieve a 5 dBA reduction from	the proposed	71	
Is the proposed noise abatement measure acoustin NOTE:SCDOT Policy indicates that 75% of the achieve at least a 5 dBA reduction for it to be acc	impacted receivers must	Yes	🗵 No	
Would any of the following issues limit	the ability of the abatement m	easure to achieve	the noise reduction goal?	
Topography	Yes	× No		
Safety	Yes	× No		
Drainage	Yes	× No		
Utilities	Yes	× No		
Maintenance	Yes	× No		

If "Yes" was marked for any of the questions above, please explain below.

Yes

Yes

× _{No}

× No

Detailed Description	

Access

Exposed Height of Wall

<u>Reasonableness</u>

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal				
Number of Benefited Receivers		Number of Benefited Receivers that achieve at least an 8 dBA reduction		
	NOTE: SCDOT Policy i	hat would achieve at least a 8 dBA reduction from ndicates that 80% of the benefited receivers in the or it to be reasonable.		
Does the proposed noise abatement meas If "Yes" is marked, conti		ion design goal? Yes No		
#2: Cost Effectiveness				
Estimated cost per square foot for noise abatement measure		Estimated construction cost for noise abatement measure		
Estimated cost per Benefited Receiver				
NOTE: SCDOT Policy states that the prelim	nary noise analysis is based	on \$35.00 per square foot and a more project- during the detailed noise abatement evaluation.		
If "Yes" is marked, conti	nue to #3. If "No" is mark	ked, then abatement is determined NOT to be reasonable.		
#3: Viewpoints of the property ow	mers and residents of	the benefitted receivers		
Number of Benefited Receivers (same a	s above)			
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure		
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure		
Number of Benefited Receivers that die respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure		
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.				
Barrier wall is 2,833 feet in width by 25 feet in height.				
Based on the above results from the preliminary analysis, this abatement feature is not feasible.				



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure	Barrier V1-V2		
Feasibility			
Number of Impacted Receivers 32	Number of Benefi	ted Receivers	46
Percentage of Impacted Receivers that would achieve a noise abatement measure	5 dBA reduction from the	e proposed	100
Is the proposed noise abatement measure acoustically fer NOTE:SCDOT Policy indicates that 75% of the impacte achieve at least a 5 dBA reduction for it to be acoustically	d receivers must	X Yes	🔲 No
Would any of the following issues limit the abil	ity of the abatement mea	sure to achieve	e the noise reduction goal
Topography	Yes 2	× No	
Safety	Yes	× No	
Drainage	Yes 2	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height of Wall	Yes 2	× No	
If "Yes" was marked for any	of the questions above	e, please exp	lain below.

Detailed Description		
1		

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal					
Number of Benefited Receivers 46		Number of Benefited Receivers that achieve at least an 8 dBA reduction 30			
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.					
Does the proposed noise abatement meas If "Yes" is marked, conti		tion design goal? Yes No No ked, then abatement is determined NOT to be reasonable.			
#2: Cost Effectiveness					
Estimated cost per square foot for noise abatement measure		Estimated construction cost for noise abatement measure			
Estimated cost per Benefited Receiver					
NOTE: SCDOT Policy states that the prelim	inary noise analysis is based	vould the abatement measure be reasonable? Use S during the detailed noise abatement evaluation. Yes No			
If "Yes" is marked, conti	nue to #3. If "No" is mar	ked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property ov	vners and residents of	the benefitted receivers			
Number of Benefited Receivers (same a	s above)				
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure			
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure			
Number of Benefited Receivers that did respond to solicitation on noise abatem measure		Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure			
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.					
Barrier wall is 2,916 feet in width by 25 fee	Barrier wall is 2,916 feet in width by 25 feet in height.				
Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.					



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure	Barrier X2		
Feasibility			
Number of Impacted Receivers 62	Number of E	Benefited Receivers 7	l
Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure			00
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.			
Would any of the following issues limit the ability	y of the abatement	t measure to achieve th	e noise reduction goal
Topography	Yes	× No	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height of Wall	Yes	× No	

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description	

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal			
Number of Benefited Receivers 63		Number of Benefited Receivers that achieve at least an 8 dBA reduction	63
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.			
Does the proposed noise abatement mea If "Yes" is marked, conti		tion design goal? 🛛 Yes 🔲 No ked, then abatement is determined NOT to be re	easonable.
#2: Cost Effectiveness			
Estimated cost per square foot for noise abatement measure	35	Estimated construction cost for noise abatement measure	4,795,280
Estimated cost per Benefited Receiver	67,539		
Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on \$35.00 per square foot and a more project- specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.			
If "Yes" is marked, conti	nue to #3. If "No" is mar	ked, then abatement is determined NOT to be re	easonable.
#3: Viewpoints of the property ov	vners and residents of	the benefitted receivers	
Number of Benefited Receivers (same a	is above)		
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement meas	aure
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure	e
Number of Benefited Receivers that di respond to solicitation on noise abatem measure		Percentage of Benefited Receivers t did not respond to solicitation on n abatement measure	
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.			
Barrier wall is 6,851 feet in width and by 20 feet in height.			
Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.			



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure	rrier Y1		
Feasibility			
Number of Impacted Receivers 12	Number of Benefited	Receivers 22	
Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure			
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must indicates that 75% of the impacted receivers must is a 5 dBA reduction for it to be acoustically feasible.			
Would any of the following issues limit the ability of	f the abatement measur	e to achieve the noise reduction goal?	
Topography	Yes X	No	
Safety	Yes X	No	
Drainage	Yes X	No	
Utilities	Yes X	No	
Maintenance	Yes X	No	
Access	Yes X	No	
Exposed Height of Wall	Yes X	No	

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description	

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal			
Number of Benefited Receivers 22		Number of Benefited Receivers that achieve at least an 8 dBA reduction	5
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.			
Does the proposed noise abatement meas If "Yes" is marked, conti		ion design goal? Yes No ked, then abatement is determined NOT to be reason	able.
#2: Cost Effectiveness			
Estimated cost per square foot for noise abatement measure		Estimated construction cost for noise abatement measure	
Estimated cost per Benefited Receiver			
NOTE: SCDOT Policy states that the prelim	inary noise analysis is based	on \$35.00 per square foot and a more project- during the detailed noise abatement evaluation.	Yes 🗌 No
If "Yes" is marked, conti	nue to #3. If "No" is mari	ked, then abatement is determined NOT to be reason	able.
#3: Viewpoints of the property owners and residents of the benefitted receivers			
Number of Benefited Receivers (same a	s above)		
Number of Benefited Receivers in support of noise abatement measure		Percentage of Benefited Receivers in support of noise abatement measure	
Number of Benefited Receivers opposed to noise abatement measure		Percentage of Benefited Receivers opposed to noise abatement measure	
Number of Benefited Receivers that did respond to solicitation on noise abatem measure	• • • • • • • • • • • • • • • • • • •	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Ves No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.			
Barrier wall is 3,508 feet in width by 25 feet in height.			
Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.			



SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads			
Highway Traffic Noise Abatement Measure Noise Barrier Z1			
Feasibility			
Number of Impacted Receivers 147	Number of B	enefited Receivers	158
Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure			
Is the proposed noise abatement measure acoustically feasible? NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.			
Would any of the following issues	limit the ability of the abatement	measure to achieve	the noise reduction goal?
Topography	Yes	× No	
Safety	Yes	× No	
Drainage	Yes	× No	
Utilities	Yes	× No	
Maintenance	Yes	× No	
Access	Yes	× No	
Exposed Height	of Wall Ves	× No	

If "Yes" was marked for any of the questions above, please explain below.

tailed Description	

<u>Reasonableness</u>

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.



#1: Noise Reduction Design Goal			
Number of Benefited Receivers 158	Number of Benefited Receivers that achieve at least an 8 dBA reduction		
Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the 99 first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.			
Does the proposed noise abatement measure meet the noise red If "Yes" is marked, continue to #2. If "No" is n	duction design goal? 🛛 Yes 🔲 No marked, then abatement is determined NOT to be reasonable.		
#2: Cost Effectiveness			
Estimated cost per square foot for abatement measure	Estimated construction cost for noise abatement measure 2,474,395		
Estimated cost per Benefited Receiver 15,661			
Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on \$35.00 per square foot and a more project- specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.			
If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.			
#3: Viewpoints of the property owners and residents of the benefitted receivers			
Number of Benefited Receivers (same as above)			
Number of Benefited Receivers in support of noise abatement measure	Percentage of Benefited Receivers in support of noise abatement measure		
Number of Benefited Receivers opposed to noise abatement measure	Percentage of Benefited Receivers opposed to noise abatement measure		
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure		
Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be Yes No constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.			
Barrier wall is 3,535 feet in width by 20 feet in height.			
Based on the above results from the preliminary analysis, this abatement feature is feasible and reasonable.			
Barrier subject to change based on the detailed noise analysis.			