

Appendix I—Noise Technical Report

Part 3

Appendix B—Alternative 1 Noise Barrier Worksheets

(continued)

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier II

Feasibility

Number of Impacted Receivers 3 Number of Benefited Receivers 3

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="3"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="3"/>
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.		<input type="text" value="100"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="1,403,465"/>
Estimated cost per Benefited Receiver	<input type="text" value="467,822"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No

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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 2,006 feet in width by 20 feet in height.

Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 12, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier I2

Feasibility

Number of Impacted Receivers 36 Number of Benefited Receivers 36

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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. ☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="36"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="17"/>
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.		<input type="text" value="61"/>	

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	<input type="text"/>	Estimated construction cost for noise abatement measure	<input type="text"/>
Estimated cost per Benefited Receiver	<input type="text"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 2,404 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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 12, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier I3

Feasibility

Number of Impacted Receivers 115 Number of Benefited Receivers 115

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="115"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="81"/>
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.		<input type="text" value="88"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="2,801,015"/>
Estimated cost per Benefited Receiver	<input type="text" value="24,357"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 4,003 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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier J2

Feasibility

Number of Impacted Receivers 292 Number of Benefited Receivers 254

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 86

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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="254"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="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 first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.		<input type="text" value="92"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="1,685,600"/>
Estimated cost per Benefited Receiver	<input type="text" value="6,636"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.



Date: Jul 3, 2018

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="296"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="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.		<input type="text" value="86"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="4,146,170"/>
Estimated cost per Benefited Receiver	<input type="text" value="14,007"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

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 234 Number of Benefited Receivers 292

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="292"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="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 first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.		<input type="text" value="83"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="4,146,170"/>
Estimated cost per Benefited Receiver	<input type="text" value="14,119"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Barrier L1/L2

Feasibility

Number of Impacted Receivers 5 Number of Benefited Receivers 4

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers		Number of Benefited Receivers that achieve at least an 8 dBA reduction	
<p>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.</p>			

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 construction cost for noise abatement measure	
Estimated cost per Benefited Receiver			

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Barrier Q1

Feasibility

Number of Impacted Receivers 157 Number of Benefited Receivers 213

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes

☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="213"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="158"/>
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.		<input type="text" value="80"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="3,731,665"/>
Estimated cost per Benefited Receiver	<input type="text" value="17,520"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 5,327 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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier T1

Feasibility

Number of Impacted Receivers 45 Number of Benefited Receivers 59

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 98

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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="59"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="39"/>
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.		<input type="text" value="95"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="3,998,225"/>
Estimated cost per Benefited Receiver	<input type="text" value="67,767"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

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 14 Number of Benefited Receivers 15

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 71

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.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers		Number of Benefited Receivers that achieve at least an 8 dBA reduction	
<p>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.</p>			

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 construction cost for noise abatement measure	
Estimated cost per Benefited Receiver			

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier V1-V2

Feasibility

Number of Impacted Receivers 32 Number of Benefited Receivers 46

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="46"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="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.		<input type="text" value="65"/>	

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	<input type="text"/>	Estimated construction cost for noise abatement measure	<input type="text"/>
Estimated cost per Benefited Receiver	<input type="text"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier X2

Feasibility

Number of Impacted Receivers 62 Number of Benefited Receivers 71

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes

☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="63"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="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.		<input type="text" value="100"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="4,795,280"/>
Estimated cost per Benefited Receiver	<input type="text" value="67,539"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No

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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier 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 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="22"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="15"/>
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.		<input type="text" value="71"/>	

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	<input type="text"/>	Estimated construction cost for noise abatement measure	<input type="text"/>
Estimated cost per Benefited Receiver	<input type="text"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

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.

Noise Technical Report

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 Benefited Receivers 158

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers

158

Number of Benefited Receivers that
achieve at least an 8 dBA reduction

151

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.

99

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

35

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.

☒ Yes ☐ No

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

Number 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
in **support** of noise abatement measure

Percentage of Benefited Receivers
opposed to 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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.

☐ Yes ☐ No

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.

Appendix C—Alternative 5 Modified Noise Barrier Worksheets

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: June 28, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier A

Feasibility

Number of Impacted Receivers 2 Number of Benefited Receivers 2

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes

☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="2"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="2"/>
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.		<input type="text" value="100"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="1,575,035"/>
Estimated cost per Benefited Receiver	<input type="text" value="787,518"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 1,800 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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: June 28, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier B1

Feasibility

Number of Impacted Receivers 1 Number of Benefited Receivers 1

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers

1

Number of Benefited Receivers that
achieve at least an 8 dBA reduction

1

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.

100

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

35

Estimated construction cost for noise
abatement measure

875,049

Estimated cost per Benefited Receiver

875,049

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.

☐ Yes ☒ No

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement.

☐ Yes ☐ No

Barrier wall is 1,000 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.

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 B2, C, E3, F, G2 and N2.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: June 28, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier E2

Feasibility

Number of Impacted Receivers 9 Number of Benefited Receivers 9

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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. ☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="16"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="9"/>
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.		<input type="text" value="56"/>	

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	<input type="text"/>	Estimated construction cost for noise abatement measure	<input type="text"/>
Estimated cost per Benefited Receiver	<input type="text"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 1,820 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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: June 28, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier G1

Feasibility

Number of Impacted Receivers 169 Number of Benefited Receivers 166

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 98

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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="166"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="162"/>
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.		<input type="text" value="98"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="1,945,650"/>
Estimated cost per Benefited Receiver	<input type="text" value="11,721"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 2,780 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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: June 28, 2018

Project Name

Highway Traffic Noise Abatement Measure

Feasibility

Number of Impacted Receivers Number of Benefited Receivers

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.

☒ Yes

☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="36"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="36"/>
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.		<input type="text" value="100"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="2,444,575"/>
Estimated cost per Benefited Receiver	<input type="text" value="67,905"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 3,492 feet in width by 20 feet in height.

Based on the above results from the preliminary analysis, this abatement feature is feasible but is not reasonable.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 13, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier H2

Feasibility

Number of Impacted Receivers 2 Number of Benefited Receivers 0

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 0

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.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers		Number of Benefited Receivers that achieve at least an 8 dBA reduction	
<p>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.</p>			

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 construction cost for noise abatement measure	
Estimated cost per Benefited Receiver			

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 844 feet in width by 25 feet in height.

Based on the above results from the preliminary analysis, this abatement feature is not feasible.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier II

Feasibility

Number of Impacted Receivers

3

Number of Benefited Receivers

3

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure

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.

☒ Yes

☐ No

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.

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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="3"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="3"/>
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.		<input type="text" value="100"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="1,399,930"/>
Estimated cost per Benefited Receiver	<input type="text" value="466,643"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 2,000 feet in width by 20 feet in height.

Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: Jul 3, 2018

Project Name

Highway Traffic Noise Abatement Measure

Feasibility

Number of Impacted Receivers Number of Benefited Receivers

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.

☒ Yes

☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	115	Number of Benefited Receivers that achieve at least an 8 dBA reduction	85
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.		92	

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	35	Estimated construction cost for noise abatement measure	2,939,755
Estimated cost per Benefited Receiver	25,563		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
 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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 4,200 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.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: June 28, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier J1

Feasibility

Number of Impacted Receivers 3 Number of Benefited Receivers 3

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	<input type="text" value="3"/>	Number of Benefited Receivers that achieve at least an 8 dBA reduction	<input type="text" value="3"/>
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.		<input type="text" value="100"/>	

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	<input type="text" value="35"/>	Estimated construction cost for noise abatement measure	<input type="text" value="1,365,245"/>
Estimated cost per Benefited Receiver	<input type="text" value="455,082"/>		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No
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)	<input type="text"/>		
Number of Benefited Receivers in support of noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers in support of noise abatement measure	<input type="text"/>
Number of Benefited Receivers opposed to noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers opposed to noise abatement measure	<input type="text"/>
Number of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>	Percentage of Benefited Receivers that did not respond to solicitation on noise abatement measure	<input type="text"/>

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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 2,600 feet in width by 15 feet in height.

Based on the above results from the preliminary analysis, this abatement feature is feasible but not reasonable.

Noise Technical Report

SCDOT Feasibility and Reasonableness Worksheet

Date: June 28, 2018

Project Name Carolina Crossroads

Highway Traffic Noise Abatement Measure Noise Barrier J2

Feasibility

Number of Impacted Receivers 295 Number of Benefited Receivers 295

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure 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.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Safety	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Drainage	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Maintenance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Height of Wall	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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.

Noise Technical Report

#1: Noise Reduction Design Goal

Number of Benefited Receivers	189	Number of Benefited Receivers that achieve at least an 8 dBA reduction	187
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.		99	

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	35	Estimated construction cost for noise abatement measure	1,785,000
Estimated cost per Benefited Receiver	6,051		

Based on the SCDOT policy of \$30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
 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 constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Barrier wall is 3,400 feet by 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.