**SC 41 Bridge Replacement over the Wando River**

As stated in 23 CFR, Part 772; *Procedures for Noise Abatement of Highway Traffic Noise and Construction Noise* and *SCDOT Noise Abatement Policy (pre-2011 guidance)*, traffic noise analysis is required for proposed federal-aid highway projects on new location or physically alter an existing highway, that will significantly change the horizontal or vertical alignment of the road, or will increase the number of through-traffic lanes. The project consists of constructing a bridge approximately 110 feet upstream of the existing roadway; therefore, a noise study was conducted (2010) for the EA and has been revisited to determine potential future noise impacts.

Ambient noise readings (Leq) were taken on December 15, 2009, at two locations in the project corridor to determine existing noise levels. Measurements and traffic counts were taken for 15 minutes approximately 50 feet from the edge of pavement adjacent to the existing alignment. The ambient noise measurements south of the bridge were 66 dBA Leq and 63.2 dBA Leq north of the bridge and are used as the existing standards of measurement.

TNM was used to predict traffic noise levels as a result of the proposed project. Traffic was modeled as 90 percent automobiles, five percent medium trucks, and five percent heavy trucks all traveling at the existing and future posted speed limit of 35 miles per hour. Projected peak hour traffic volumes for 2011 and 2031 were used as this represented the worst case scenario for traffic and potential noise impacts.

Traffic Volumes (peak hour)

|  |  |  |
| --- | --- | --- |
| **SC-41** | **Year 2011** | **Year 2031** |
| Northbound/Southbound Combined | 1,180 | 1,320 |
| Source: SCDOT’s Office of Planning (2013). | | |

Ten commercial and seven residential receptors were modeled to determine existing and future noise impacts. None of the residential or commercial receptors along the project corridor are receiving or would receive future noise impacts approaching or exceeding their NAC thresholds as a result of the proposed bridge replacement project. One receptor (R7) would “approach” their NAC under future no build conditions (2031).

Receptor Noise Levels (dBA)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Representative**  **Receptor** | **Dwelling**  **Units** | **Approximate Distance to Receptor (ft)** | **Existing Conditions**  **2011**  **(dBA)** | **No Build 2031 (dBA)** | **Build 2031 (dBA)** | **Noise Impact**  **(Y/N)** |
| C1 | 1 | 362 | 54.7 | 55.2 | 56.8 | N |
| C2 | 1 | 284 | 59.2 | 59.7 | 59.7 | N |
| C31 | 1 | 30 | 62.1 | 62.6 | 67 | N |
| C41 | 1 | 190 | 60.5 | 61 | 67.5 | N |
| R1 | 1 | 169 | 64.8 | 65.3 | 60.4 | N |
| C5 | 1 | 238 | 66.2 | 66.7 | 60.7 | N |
| R2 | 1 | 176 | 60.7 | 61.2 | 57.6 | N |
| C6 | 1 | 184 | 63.5 | 64 | 58.7 | N |
| C7 | 1 | 288 | 61.3 | 61.8 | 58.6 | N |
| R3 | 1 | 166 | 53.9 | 61.8 | 54.2 | N |
| R4 | 1 | 103 | 58.1 | 58.6 | 58.9 | N |
| C8 | 1 | 101 | 62.9 | 63.4 | 63.5 | N |
| C9 | 1 | 86 | 63.2 | 63.7 | 63.8 | N |
| C10 | 1 | 127 | 64.5 | 65 | 64.6 | N |
| R5 | 1 | 88 | 60.7 | 61.2 | 61.1 | N |
| R6 | 1 | 40 | 64.1 | 64.6 | 65.6 | N |
| R7 | 1 | 71 | 65.6 | **66.1** | 64.4 | **Y** |

1Receptors could be relocations

Source: CECS, Inc., 2013.

**Receptor Locations**

