

# Transportation: Sound Solutions to Keep Down the Noise

## Did you know?

State transportation agencies are working to lessen noise impacts along America's highways with more than 2,630 linear miles of sound barriers constructed at a cost of over \$1.4 billion.

Transportation agencies across the country are working to lessen the impacts of highway noise—spending millions of dollars to help roadways fit more quietly into their surrounding communities while at the same time insulating and beautifying neighborhoods. Communities are benefiting from sound solutions along the nation's roadways—including buffer zones, construction of barriers, planting vegetation, installing noise insulation in buildings, and managing traffic.

Transportation officials are encouraging careful land-use planning—locating new roads away from noise-sensitive areas, such as schools or hospitals, and closer to businesses or industrial plants that can benefit from proximity to busy roadways. Land-use controls also are encouraged along existing highways, requiring reasonable distances between buildings and roads as well as soundproofing or other measures to lessen noise disturbances.

One of the most common and effective transportation solutions is construction of a sound barrier. These barriers reduce highway noise entering communities—improving the quality of life of nearby residents, while ensuring their mobility. In many cases, these barriers have been creatively designed to preserve or enhance the roadway setting, and often bring a focal point and sense of pride into the surrounding community. Some even serve as a palette for public display of local artwork.

Residents adjacent to barriers say that conversations in their households are easier, sleeping conditions are better, and the environment is more relaxing. Windows are opened more often, and yards are used more in the summer. Residents also perceive increased privacy, cleaner air, improved views, a rural sense, and healthier lawns and shrubs.<sup>51</sup>



Opposite – Transportation agencies spend millions of dollars constructing sound barriers to help highways fit quietly into their surrounding communities.

Above – Sound barriers have been creatively designed to preserve or enhance the roadway setting, and often bring a focal point and sense of pride into the surrounding community. Some even serve as a palette for public display of local artwork.

## Facts About Sound Barriers

- ▶ State transportation agencies are required to determine if there will be traffic noise impacts from a federally funded highway constructed on a new location or where reconstruction of an existing highway significantly changes the alignment or increases traffic lanes. Noise barriers may be required if the state transportation department identifies potential impacts.
- ▶ Noise barriers are not required along existing highways where no other highway improvements are planned: these barriers are at the discretion of the state transportation agency.<sup>52</sup> Twenty-two states have constructed at least one barrier along an existing highway at a total cost of more than \$580 million.<sup>53</sup>
- ▶ Effective noise barriers can reduce noise levels by 10 to 15 decibels, cutting the loudness of traffic noise in half.
- ▶ Barriers can be formed from earth mounds along the road (usually called earth berms) or from high, vertical walls. Earth berms have a natural appearance and are usually attractive. Noise walls can be built of wood, stucco, concrete, masonry, metal, and other materials.
- ▶ Many noise barriers often are visually pleasing and blend in with their surroundings.
- ▶ Most barriers have been made from concrete or masonry block, range from 3–5 meters in height, and average \$175–\$200 per square meter in cost.

Source: Federal Highway Administration

## Examples of Exemplary Noise Controls

### *Lafayette Bypass, Colorado*

Colorado's Lafayette Bypass was a winner of the 1999 Federal Highway Administration Environmental Excellence Award for noise abatement. Noise mitigation was considered early in the planning process of a designated new alignment along US 287, the Lafayette Bypass. Through proactive public involvement and early coordination, Colorado Department of Transportation was able to incorporate features such as effective wall heights and an aesthetic design that preserved the community character while mitigating noise levels. Colorado Department of Transportation engineers and contractors satisfied the local community with a noise-abatement feature whose concept and design reflects the city of Lafayette and the surrounding residential community.<sup>54</sup>

***Santa Ana, California***

Caltrans installed its first plastic sound wall made from recycled plastic materials on I-5 at the Grand Avenue off-ramp in Santa Ana.<sup>55</sup>

***Cumberland County, Pennsylvania***

In a successful example of integrating noise abatement features into a project while enhancing the natural environment, designers were able to incorporate the best features of noise control while retaining architectural enhancements that help promote a sense of community. Engineers interacted with the community and incorporated public concerns and comments into the project.<sup>56</sup>



State transportation agencies have worked to make sure that many noise barriers are visually pleasing, and that they blend in with their surroundings.