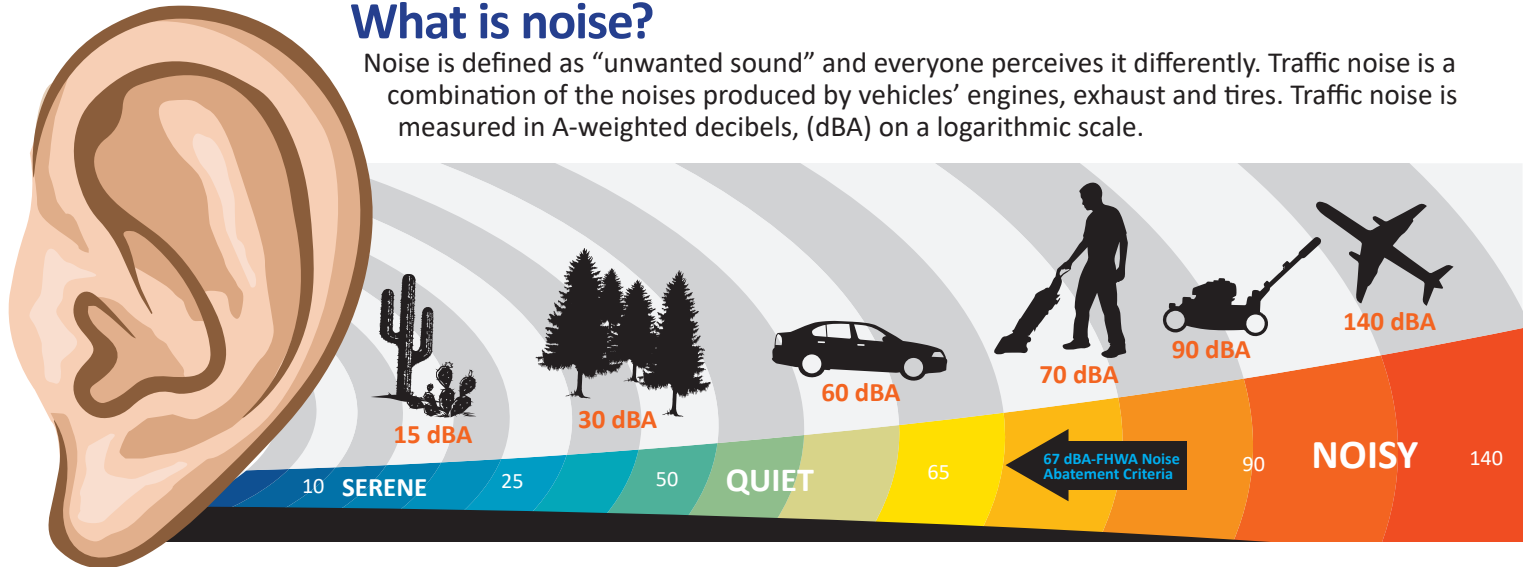


What is noise?

Noise is defined as “unwanted sound” and everyone perceives it differently. Traffic noise is a combination of the noises produced by vehicles’ engines, exhaust and tires. Traffic noise is measured in A-weighted decibels, (dBA) on a logarithmic scale.



When does ADOT provide mitigation for traffic noise?

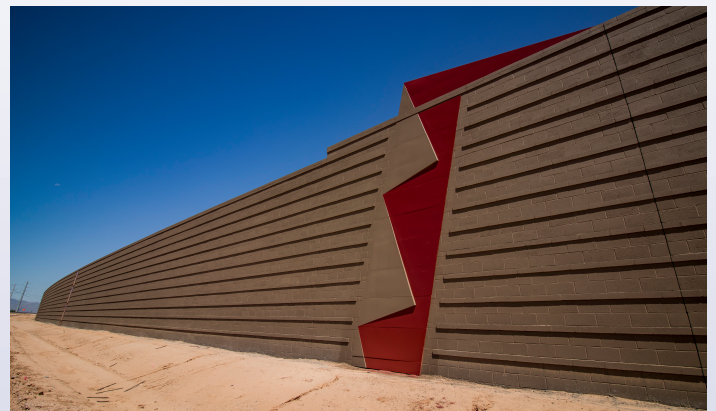
ADOT provides mitigation for traffic noise in accordance with federal requirements (23 Code of Federal Regulation CFR 772). This requirement also generally satisfies the requirements of the National Environmental Protection Act (NEPA). ADOT has developed Noise Abatement Requirements, in cooperation with Federal Highway Administration Arizona Division, that apply to all federally and ADOT-funded projects that involve

1. construction of a highway on new roadway alignment.
2. making a significant change in the horizontal or vertical alignment of an existing highway.
3. adding new through lanes to an existing highway.

If the project results in predicted noise levels at or above 66 dBA, ADOT considers it an impact. When an impact occurs, noise abatement measures must be considered; however, these measures must meet all acoustic and engineering feasibility as well as reasonableness criteria.

How ADOT reduces traffic noise

The transmission of sound is affected by both the distance, and obstructions, between the “source” (what is creating the noise) and the “receiver” (any area where people are affected by the noise). As distance increases, sound waves disperse. ADOT utilizes noise barriers, which obstruct the line of sight between the source and receiver, reducing noise by 5 dBA. Examples include walls, berms, combinations of the two.



Noise wall constructed along the Loop 202 South Mountain Freeway

Did you know?

- Human beings can detect sound level variations of 3dBA
- Doubling traffic volume would increase traffic noise by just 3 dBA
- Human beings perceive 10 dBA increases as twice as loud
- Vegetation must be at least 15 feet high, 100 feet deep, and very dense to reduce noise by 5 dBA
- One truck can produce noise levels of 10 to 13 automobiles combined depending on the speed

While it does not qualify as noise abatement, pavement surface treatments also reduce noise. Rubberized asphalt treatment can significantly reduce traffic noise, but gradually deteriorates and requires frequent maintenance and eventual replacement. Diamond grind pavement treatment reduces noise over longer periods of time, although not to the same extent. This treatment runs diamond embedded blades through the top layer of pavement to create small grooves in the direction of traffic. The grooves decrease the noise generated by the pavement-tire interaction, thereby resulting in notable noise reduction.