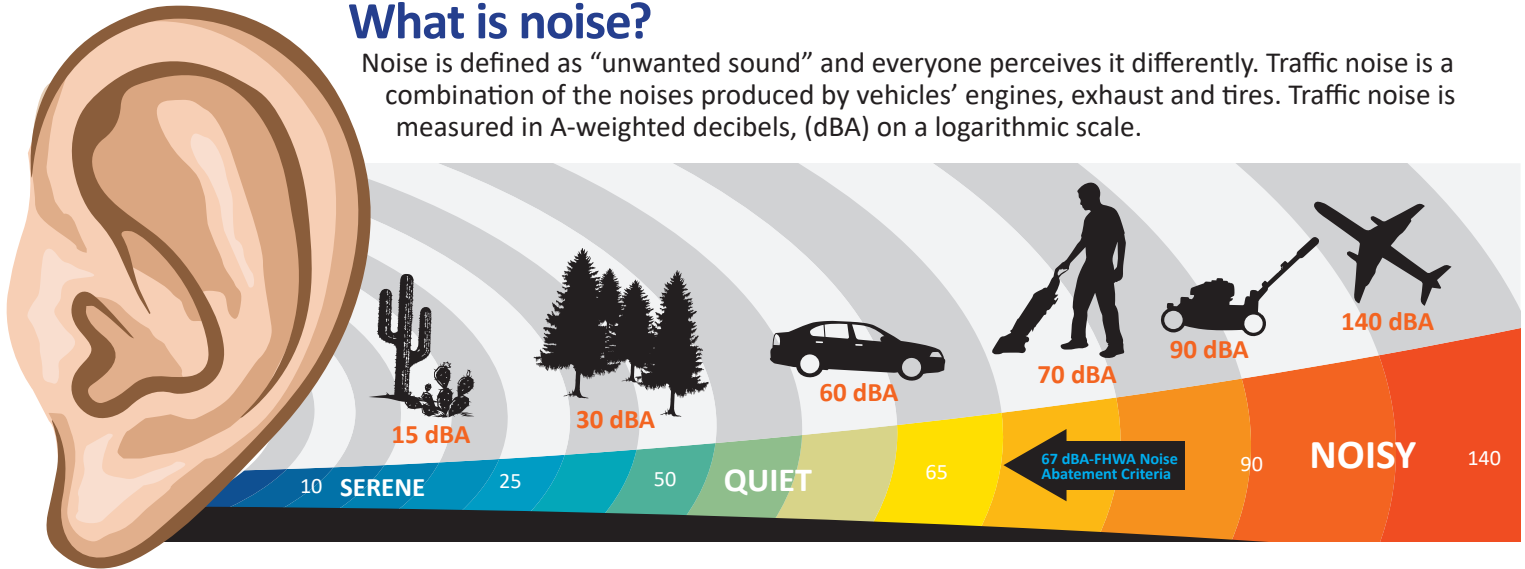


What is noise?

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 between the “source” (what is creating the noise) and the “receiver” (any location where people are affected by the noise), and obstruction on the path between the two. As distance increases, the sound waves are dispersed. For a line source, such as a roadway, the noise level decreases by 3 dBA each time the distance between the source and receiver is doubled.



ADOT utilizes noise barriers, which are effective because they break the line of sight between the source and the receiver, which reduces noise by 5 dBA. Examples of noise barriers include a vertical wall, an earthen berm or a combination of a wall and a berm. For every two feet of height added to a barrier, the noise is reduced by 1 dBA. Although it does not qualify as noise abatement, pavement surface treatments have proven to reduce noise. However, while diamond grind treatment retains noise reduction over a long period of time, rubberized asphalt treatment gradually deteriorates, requiring frequent maintenance and eventual replacement.

Did you know?

- Increasing traffic by 20 percent will increase traffic noise by just 1 dBA. Doubling the traffic will increase traffic noise by 3 dBA.
- A human being can detect a variation of sound level in 3 dBA.
- A human being perceives an increase of 10 dBA as twice as loud.
- Vegetation must be at least 15 feet high, 100 feet deep and highly dense to reduce noise by 5 dBA.
- One truck can produce noise levels of 10 to 13 automobiles combined, depending on the speed.