



## What Creates Traffic Noise?

Traffic noise is created by vehicle exhaust systems, engines, and by contact of tires with the road during travel. Of these, tire contact with the road accounts for 75 to 90 percent of the overall traffic noise. It is also the only one that Caltrans can partly control or affect along the Interstate 805 (I-805) South corridor.

Other factors that may increase traffic noise are heavier truck volumes, higher speeds, and large trucks. In addition, steep grades or faulty vehicle equipment can cause strain on vehicle engines resulting in an increase in traffic noise.

## How Noisy is Traffic?

Traffic noise levels are dependent on a number of factors, including the number of traffic lanes, traffic volume and speed, and topography. People generally can perceive a noise level change that is three decibels (dB), the unit used to measure the intensity of a sound, or greater.

To help associate traffic noise with other sounds people experience, Figure 1 shows the typical A-weighted decibel levels (dBA), measuring the relative loudness of sound as perceived by the human ear, for traffic noise and other common outdoor and indoor activities.

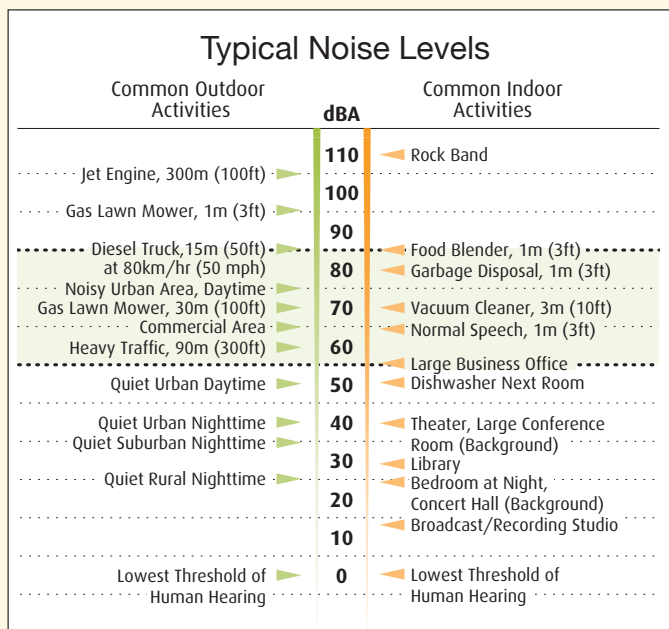


Figure 1

Source: Caltrans, District 11

## When is Traffic the Most Noisy?

Traffic noise is often loudest during free-flowing or non-stop traffic, just before or just after peak travel periods. During peak travel periods, noise levels are generally lower due to congestion, which lowers traffic speeds and reduces other contributing factors.

## Can Environmental Factors Change Traffic?

Yes, environmental conditions can have a profound effect on noise levels between the source (a highway) and a receiver (a residence or other building) that is within 200 feet of a highway. Wind is the single most important meteorological factor within 500 feet of a highway. Other factors such as air temperature, humidity, and turbulence also have significant effects on noise levels.

The distance between a highway and a residence can also affect noise levels. Doubling the distance between the highway and residence will result in a noise level reduction of three to 4.5 decibels, depending on the surface composition over which the noise is traveling. Figure 2 demonstrates how the distance between the highway and a residence can reduce noise, and by what intervals.

Topography or site geometry also plays an important role in determining a residence or other building's exposure to highway noise. Residences and buildings located farther from a highway may be exposed to higher noise levels, depending on how far above or below the highway the building is located. For this reason, it can be challenging to abate noise for residences up or down hill from a highway.

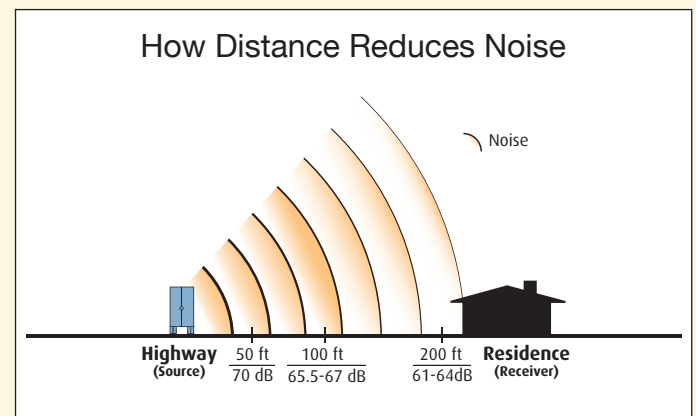


Figure 2

Source: Caltrans, District 11

## How Will Traffic Noise be Addressed Along the I-805 South Corridor?

Noise barriers, typically sound walls or earthen berms (barriers created by mounds or banks of earth) or a combination of both, have been analyzed and are being designed to address traffic noise along the I-805 South corridor. Noise barriers are effective in reducing traffic noise if they can effectively break the line of sight between the highway and residences or other buildings and block, absorb, or redirect noise, as Figure 3 demonstrates. However, the hills, mesas, and canyons along I-805 make the use and effectiveness of noise barriers a challenge.

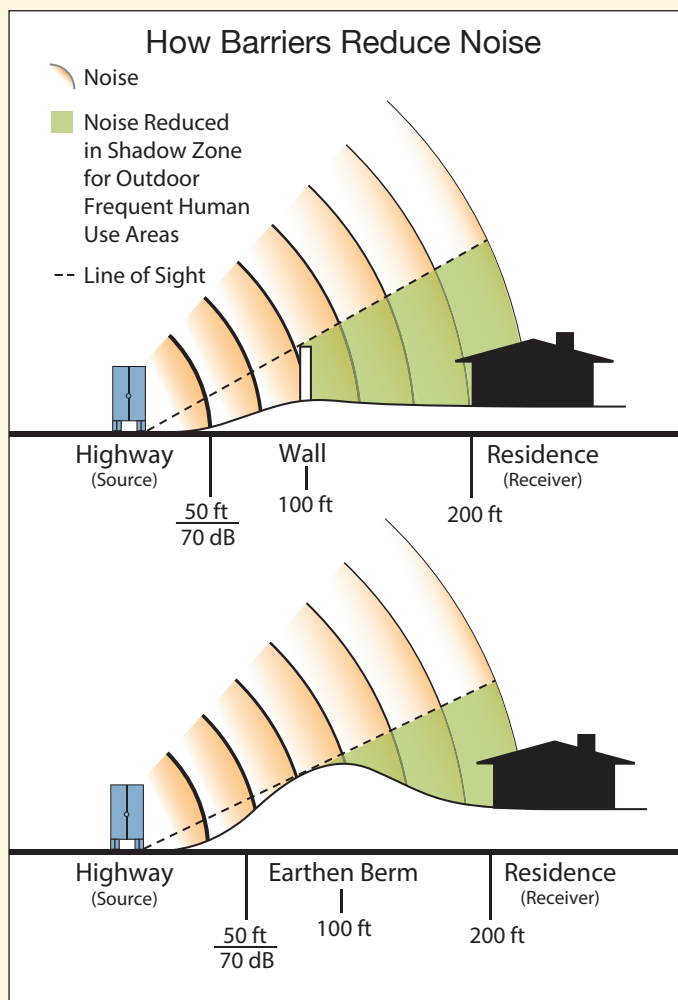


Figure 3 Source: Caltrans, District 11

## Can Trees Block Traffic Noise?

Generally, no. In order for trees to effectively reduce traffic noise, they would have to be planted closely together, to block any visual path between the highway and a residence or other building, and the group of planted trees would have to be at least 100 feet thick or wide. In addition, the trees' heights would have to extend at least 16 feet above the line of sight. A single row of trees would not be an effective noise abatement measure, as Figure 4 demonstrates. It is not practical to plant enough trees alongside a highway to use this approach as an abatement strategy.

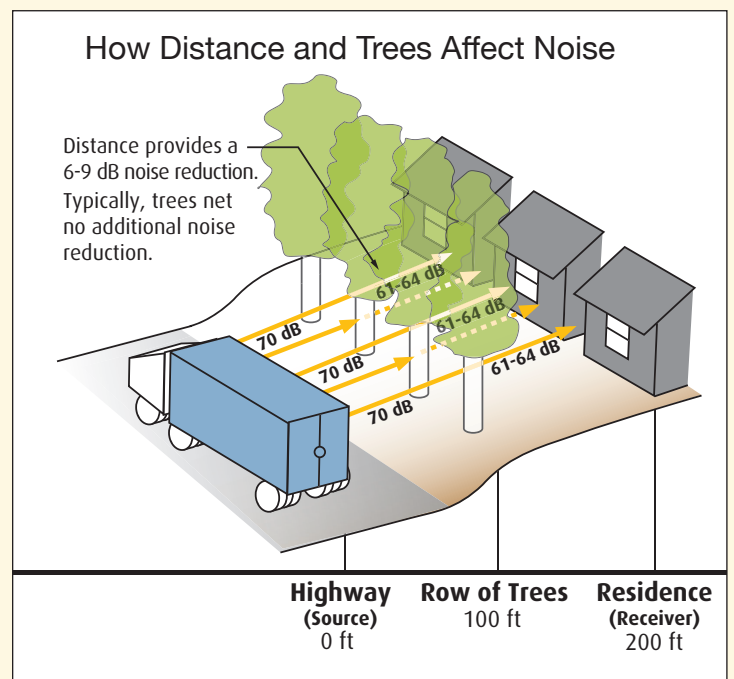


Figure 4 Source: Caltrans, District 11

Get updates on the I-805 South Project by visiting [KeepSanDiegoMoving.com](http://KeepSanDiegoMoving.com) or [511sd.com](http://511sd.com) or call the Construction Hotline at **(888) 941-5005** or email us at [I-805@KeepSanDiegoMoving.com](mailto:I-805@KeepSanDiegoMoving.com)