

How Do High-Speed Train Noise Levels Compare to Traditional Trains?

Four major factors make high-speed trains operate at generally quieter levels than conventional passenger and freight rail services.

DURATION OF NOISE DISTURBANCE*



HIGH-SPEED TRAIN

TRAIN LENGTH: 1,300 FT.
SPEED: 220 MPH



FREIGHT TRAIN

TRAIN LENGTH: 1-MILE
SPEED: 50 MPH

*based on typical train-length and speed capabilities.

1. TRAIN SPEED

The duration of noise is brief for high-speed trains when compared to traditional train systems which take longer to pass.

2. ELECTRIC TRAINS

High-speed trains are powered by an electric propulsion system which, when compared to the more common diesel train engines, generate significantly less noise.

3. AUDITORY WARNING SYSTEMS

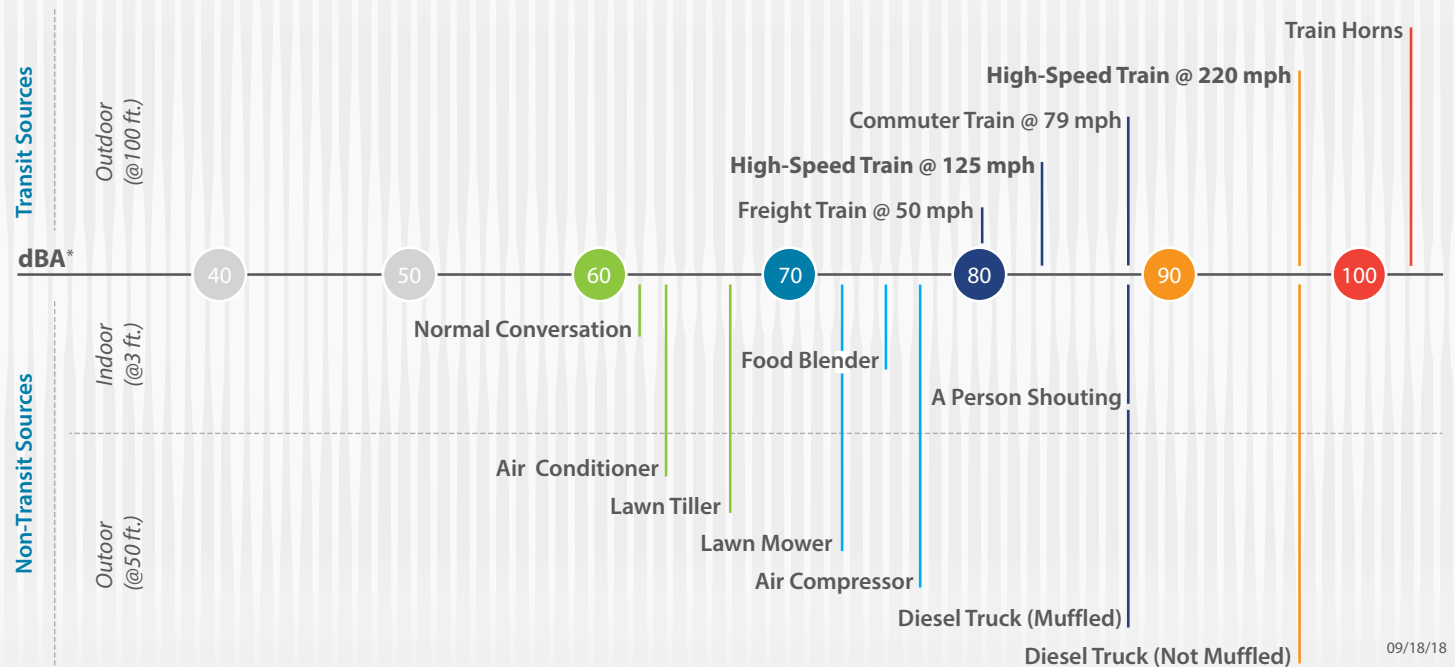
Portions of high-speed train systems that operate on grade-separated track will not require sounding bells and warning horns that are necessary for traditional railroad crossings.

4. HOURS OF OPERATION

Unlike some passenger train services and many major freight routes which operate through the night, there will not be any high-speed rail service scheduled between the hours of midnight and 5 a.m. when people are most sensitive to noise.

THE SOUND OF HIGH-SPEED TRAIN TRAVEL

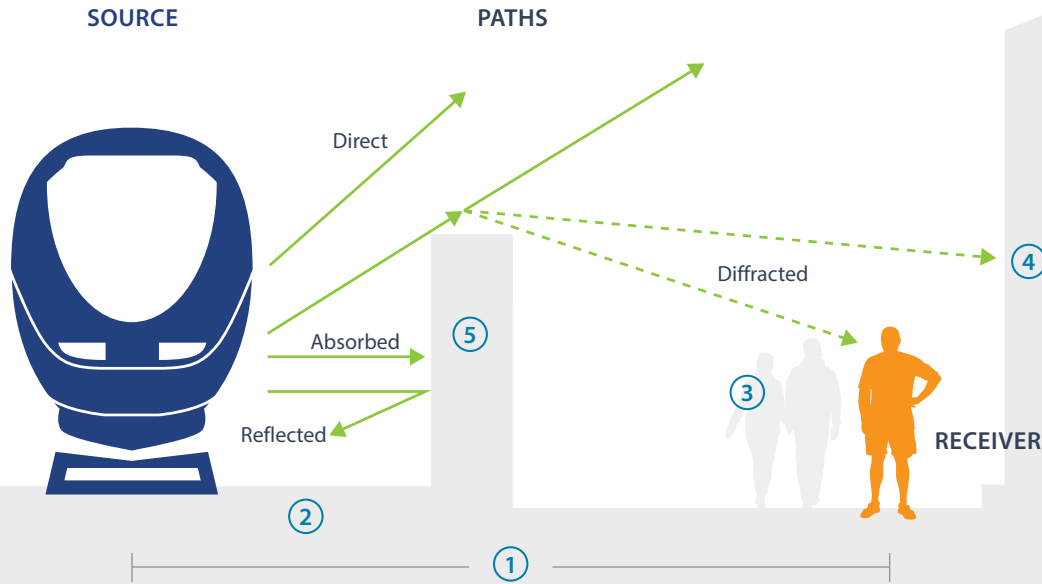
Typical Maximum Noise Levels Before Mitigation



*A-weighted decibels (dBA) are an expression of the relative loudness of sounds in air as perceived by the human ear

WHAT INFLUENCES NOISE LEVELS?

The **distance (1)** between the train tracks and the listener, the type of **ground surface (2)**, **ambient noise (3)**, and the presence of **buildings (4)** or **sound barriers (5)** will all influence the noise level that is heard by a listener at any given location.



HOW TO MINIMIZE THE EFFECTS OF NOISE IN SENSITIVE AREAS

Sound walls, sound barriers (solid and/or transparent), or earthen berms built between the train tracks and residential or other noise-sensitive areas can help reduce noise disturbance caused by the train service.

Additionally, at areas where the train will need to travel through at-grade crossings, the establishment of “quiet zones” where additional safety measures remove the need to sound train horns can help significantly reduce noise-disturbance.



*Images serve as examples of noise mitigation measures and are not an indication of a preferred method for use on the California High-Speed Rail project



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