State Route 76 East

Traffic Noise Abatement Process

Caltrans is committed to following a consistent process to analyze traffic noise impacts and engaging property owners and communities to reduce noise impacts according to the Traffic Noise Analysis Protocol described in this fact sheet.

What Is Noise Abatement?

Noise abatement is any measure taken to reduce highway traffic noise impacts on nearby residences, schools, and other land uses.

How Is It Determined that Noise Abatement Is Necessary?

The Federal Highway Administration (FHWA) requires Caltrans to prepare policies and procedures for applying 23 Code of Federal Regulations (CFR) 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise." (See Figure 1.) These procedures ensure a fair and consistent process to abate noise across highway corridors, regions and states.

When Are Noise Studies Conducted?

Noise studies are coordinated with the environmental analysis of a project. If these studies identify traffic noise impacts, then a Noise Abatement Decision Report is incorporated into the Draft Environmental Document and is approved when the Final Environmental Document is certified.

Where Is Noise Measured in Noise Studies?

Highway traffic noise is measured at locations that have "frequent" human use. For residential areas, noise is typically measured in the backyard. For commercial areas, noise is typically measured in an exterior use area where people are for an extended period of time. For schools, noise is typically measured from the interior.

Activity Categories and Noise Abatement Criteria
(23 CFR 772)

Activity Category	Noise Level (dB)	Description of Activities
A	57 Decibels Exterior	Lands on which serenity and quiet are extraordinarily significant and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Decibels Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Decibels Exterior	Developed lands, properties, or activities not included in categories A and B above.
D	.....	Undeveloped lands.
E	52 Decibels Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Figure 1 Source: Federal Highway Administration 23 CFR 772

What Are the Steps Within the Noise Abatement Process?

There are six steps to the noise abatement process:

1. Identify Sensitive Receptors
2. Measure Existing Noise Levels
3. Predict Future Traffic Noise Levels
4. Identify Traffic Noise Impacts
5. Consider Noise Abatement
6. Determine Reasonableness
   a. Preliminary Noise Abatement Decision Report (NADR)
   b. Final NADR, after Draft Environmental Document and with public input considered

Each of these steps is described in detail inside this fact sheet.

What Are the Steps Within the Noise Abatement Process?

1 Identify Sensitive Receptors

The first step in the Traffic Noise Abatement Process is to identify sensitive receptors that currently have an exterior decibel level of 67 or higher. Some examples of sensitive receptors are recreation areas, schools, churches, libraries, motels, hospitals, and residential/commercial properties.

2 Measure Existing Noise Levels

A traffic noise study is conducted to compare existing traffic noise against forecasted future "worst hour" traffic noise. This comparision is done to determine if a traffic noise "impact" is predicted to occur. Factors taken into account when forecasting future traffic noise are the surrounding topography and future traffic volumes. Noise level measurements are taken in "frequent" human use areas. Some examples of these areas are:

- Residential: Typically in the backyard
- Commercial Areas: Typically an exterior use area where people are for an extended period of time, 1 hour or more
- Schools: Interior noise levels

3 Predict Future Traffic Noise Levels

To predict future traffic noise levels, Caltrans uses specialized software programs that model future peak noisiest-hour traffic and topographic features.

4 Identify Traffic Noise Impacts

A traffic noise impact is predicted to occur when the forecasted traffic noise exceeds the existing noise by 12 decibels or more. Additionally a noise impact is predicted to occur when the forecasted traffic noise is within 1 decibel of or exceeds the Federal Noise Abatement Criteria (See Figure 1).

Figure 2: Noise Abatement Process

5 Consider Noise Abatement

The FHWA requires consideration of noise abatement measures when traffic noise impacts have been identified.

A noise abatement strategy may be recommended if it:

- Can reduce noise by a minimum of 5 decibels
- Has a reasonable cost to construct

6 Determine Reasonableness

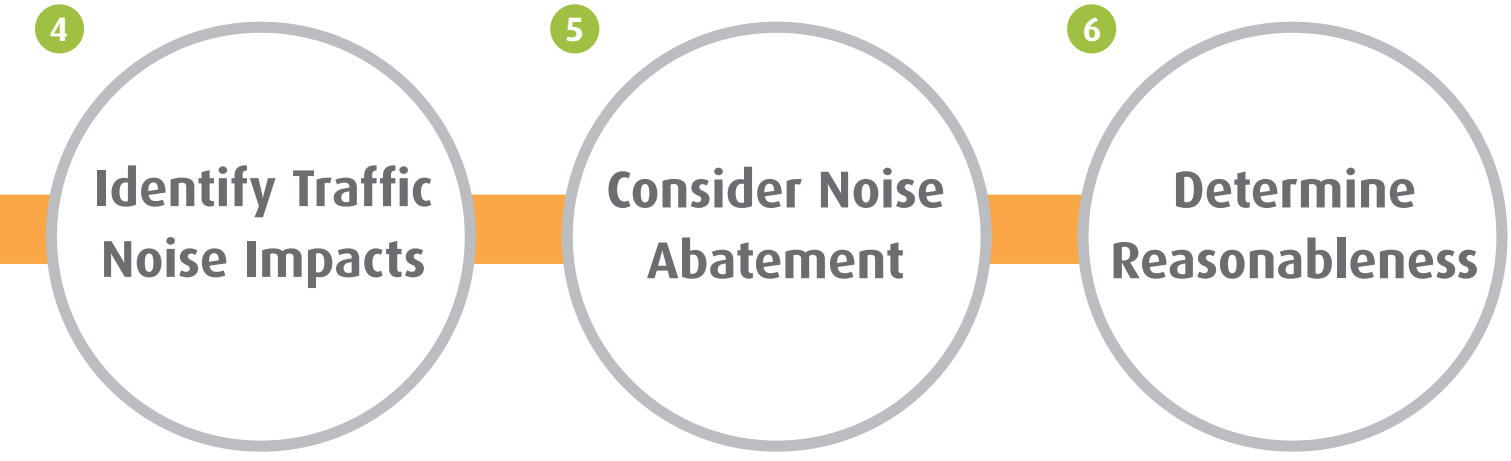
The determination of "reasonableness" of the noise abatement measures under consideration is made in two phases:

a. An objective, quantitative preliminary determination, and
b. A final determination that includes the preliminary decision, plus input from the public

In the first phase, a Preliminary Noise Abatement Decision Report (NADR) is developed that makes recommendations that are incorporated into the draft environmental document for public review. The NADR documents:

A. Noise abatement reasonableness allowances
B. Acoustic feasibility of noise abatement
C. Locations and dimensions of evaluated noise barriers
D. Engineering estimates of acoustically feasible noise abatement
E. Effects of abatement on other environmental resources – i.e. scenic views, biological, etc.

In the second phase, a final decision is made by the decision maker who considers the recommendations found in the NADR and input from the public.



How Does Caltrans Decide When to Build a Noise Barrier?

By following the Noise Abatement Steps and Criteria established by 23 CFR 772 and FHWA, noise impacts and potential noise abatement strategies are defined. (See Figure 1). These studies identify the locations of noise barriers if they are needed.

What Is a Noise Barrier?

Noise barriers, such as sound walls or earthen berms (see Figure 3), are constructed to lessen traffic noise impacts to adjacent receivers.

How Are Noise Barriers Designed?

Noise barrier height recommendations are determined in the traffic noise study. Barrier type and materials are determined with public involvement. To be sensitive to the context, Caltrans makes an effort to design noise barriers that incorporate the character and aesthetics of their locations, while also reducing sound tranmission.

Will a Noise Barrier Affect My Views?

Preserving the views of the impacted residents is a major consideration for Caltrans in reaching a decision on the reasonableness of building a noise barrier at a site.

When Will a Noise Barrier Be Constructed?

If a noise barrier is planned as part of a highway project, Caltrans may construct the noise barrier before beginning highway construction to decrease construction noise.

Are Noise Barriers Built on Private Property or on Caltrans Right of Way?

Noise barriers can be built on public or private property. If it is determined that a noise barrier should be considered and construction in the public right-of-way is not feasible, the noise barrier may be constructed on private land. In these cases, agreement of the private property owner is required.

Can Trees Block Traffic Noise?

Generally, no. To reduce traffic noise by 5 decibels, a row of trees must extend at least 16 ft. above the line of sight between source and receiver, must be at least 100 ft. wide, and must be dense enough to completely obstruct a visual path to the source. It is not practical to plant enough trees along a highway to use this approach as an abatement strategy (See Figure 4).

For more information, log-on to:
http://www.keepsandiegomoving.com

For questions, call: Caltrans Public Affairs: 619-688-6670

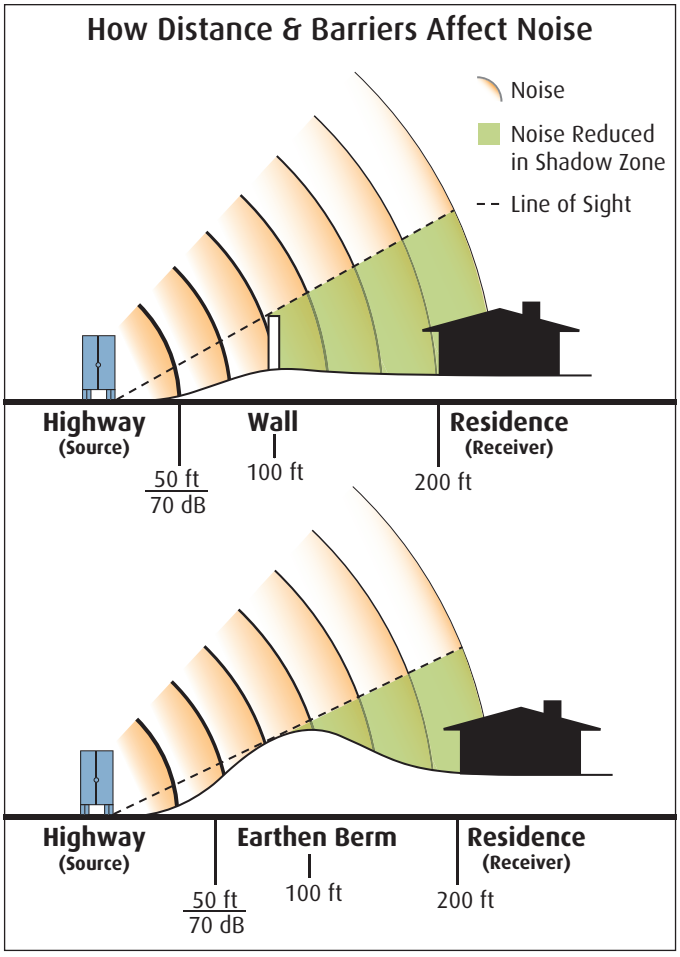


Figure 3 Source: Caltrans, District 11

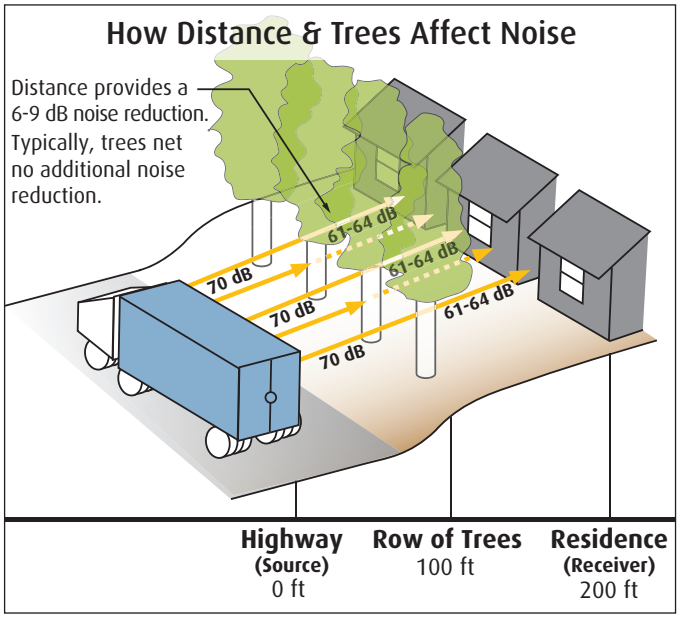


Figure 4 Source: Caltrans, District 11