

Some Frequently Asked Questions About Highway Traffic Noise Analysis & Abatement

When is a traffic noise analysis required?

A traffic noise analysis is required for any state or federal highway construction or reconstruction projects that:

- Is on new alignment, or
- Involves the physical alteration of existing highway alignment which:
 - Significantly changes the horizontal or vertical alignment, or
 - Increases the number of through-traffic lanes

These projects are called *Type I Projects*, and generally include those projects that have the potential to increase traffic noise at adjacent receivers. For example: the addition of an interchange, ramp, HOV or auxiliary lane to an existing highway (CaTNAP 1.1 & 2.1).

Is a traffic noise analysis required even if a Type I Project does not change ambient noise levels?

Yes, the Federal noise standard, embodied in Title 23 CFR Part 772, requires an analysis of sufficient scope to determine if a traffic noise impact exists (CaTNAP 2.2 & 2.3).

When does a traffic noise impact occur?

A traffic noise impact will occur at a noise sensitive land-use if:

- Predicted noise levels with the project change substantially (increase by 12 decibels or more) over existing ambient noise levels, or
- Predicted noise levels with the project approach to within 1 decibel, or exceed the noise abatement criteria, as indicated in the table below (CaTNAP 2.4)

Noise Abatement Criteria

| Land-use Activity Category | Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$ | Description of Activities |
|-----------------------------------|--|---|
| A | 57 Exterior | Lands on which serenity and quiet are of extraordinary significance 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 Exterior | Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals. |
| C | 72 Exterior | Developed lands, properties, or activities not included in Categories A or B above. |
| D | -- | Undeveloped lands. |
| E | 52 Interior | Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums. |

Must a noise barrier be built if the project results in a traffic noise impact?

If a state or federal construction or reconstruction project (Type I) results in the occurrence of a traffic noise impact at a noise sensitive land-use, noise abatement measures must be considered. Only noise abatement measures that are feasible and reasonable are considered candidates for construction.

Feasible refers to the minimum noise reduction performance criterion (5 decibels or more) for the proposed noise abatement when built to engineered standards (safety, height, highway and local access considerations, topography, etc.). The feasibility of the abatement measures being considered is determined from technical acoustical and highway engineering studies (CaTNAP 2.7).

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The reasonableness of the noise abatement measures under consideration includes:

- Cost of the abatement (usually per benefited residential unit)
- Absolute noise levels
- Change in noise levels
- Date of the adjacent development
- Life-cycle of the abatement
- Secondary environmental impacts of the abatement
- Views (opinions) of the impacted residences
- Input from public and local agencies
- Other social, economic, environmental, legal and technological factors (CaTNAP 2.8.1)

Caltrans has broken the determination of “reasonableness” of the noise abatement measures under consideration into two phases: an objective, quantitative preliminary determination, and a final determination that includes the preliminary decision, plus other qualitative involvement from public and private sources (CaTNAP 2.8.2, 2.8.3 & 4.3).

Under certain conditions noise *mitigation* is required. When a traffic noise impact is due to a substantial noise increase, which results from project generated traffic, and because the context and intensity of the increase is determined to be a significant adverse environmental affect due to traffic noise, then noise mitigation measures sufficient to eliminate the significant adverse environmental affect are required for project approval (CaTNAP 3.3.1).

Must a noise barrier be built if the affected property owners do not want it (even if the property renters want the barrier)?

Noise abatement will not be built for affected property if a majority (greater than 50 percent), of the impacted “residents” do not want it. In the case of rental or leased residential property, the opinion of the legal property owner(s), as identified on the property’s assessment record, is superior to that of the renter or lessee (CaTNAP 4.3).

Is a noise barrier built to protect more than ground-level receivers?

Noise abatement is only considered when noise impacts are predicted for areas of frequent human-use where lowered noise levels would be of benefit. Primary consideration is given to exterior areas. Caltrans normally does not design noise abatement for second floor receivers. If however, noise abatement can be designed to provide five decibel noise reduction for the second floor level and is within the allowable cost per benefited residence, it may be considered reasonable, provided the noise barrier does not exceed the prescribed maximum height (CaTNAP 2.8.1).

Is traffic noise analysis required for industrial and commercial areas?

23 CFR 772 analysis requires identification of all land use activities for developed lands and for undeveloped lands for which development is “planned, designed and programmed”, i.e. where development approval has been granted. To determine if there are any traffic noises impacts for industrial and commercial locations, identify only those areas of frequent human use where lowered noise levels would be of benefit. Impacted sites are those locations where highway traffic noise would substantially impair the land use activity. The frequent human use of areas such as parking lots, bikeways and golf courses is generally transitory in nature and these areas not considered to be “impacted”.

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Can Caltrans provide noise abatement outside the right of way (R.O.W)?

Noise abatement facilities are normally constructed within the State highway right of way. However, under certain topographical and geometric configurations it may be more practical and effective to construct the noise barrier outside the right of way on private property. Certain conditions as outlined in section 5.5 of Traffic Noise Analysis Protocol (<http://www.dot.ca.gov/hq/env/noise/pub/protocol.pdf>) must be implemented before the Caltrans proceed with the construction of noise barriers.