

Federal and State Procedures on Highway Noise Abatement

Federal: Excerpt from

http://www.fhwa.dot.gov/environment//noise/regulations_and_guidance/polguide/polguide03.cfm

Highway Traffic Noise Analysis and Abatement Policy and Guidance

Table 5: Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Level in Decibels (dBA)*

Activity Category	L _{eq} (h)	L ₁₀ (h)	Description of Activity Category
A	57 (Exterior)	60 (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)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

* Either L_{eq}(h) or L₁₀(h) (but not both) may be used on a project.

NOTE: These sound levels are only to be used to determine impact. These are the absolute levels where abatement must be considered. Noise abatement should be designed to achieve a substantial noise reduction - not the noise abatement criteria.

In developing the NAC contained in the noise regulations, the FHWA attempted to strike a balance between that which is most desirable and that which is feasible. Factors such as technical feasibility, the unique characteristics of highway-generated noise, cost, overall public interest, and other agency objectives were important elements in the process of setting a standard. Establishing values for the NAC was approached by attempting to balance the control of future increases in highway noise levels and the economic, physical, and aesthetic considerations related to noise abatement measures. Numerous approaches were considered in establishing the criteria, including (1) hearing impairment, (2) annoyance, sleep, and task interference or disturbance, and (3) interference with speech communication. The first deals in terms of very loud noises seldom encountered for a highway project beyond the roadway proper. The second approach was desirable in principle but was insufficiently researched to be useful in practice. However, the third approach - speech interference - was usefully applied to the problem of highway traffic noise. Thus, it should be remembered that the NAC are based upon noise levels associated with interference of speech communication and that the NAC are a compromise between noise levels that are desirable and those that are achievable. FHWA believes that our regulations provide a well-balanced approach to the problem of highway-traffic-generated noise.

The NAC are not magical numbers. Traffic noise impacts can occur below the NAC. The NAC should not be viewed as Federal standards or desirable noise levels; they should not be used as design goals for noise barrier construction. All of the regulations contained in 23 CFR 772 constitute the standards mandated by the Federal-Aid Highway Act of 1970. Noise abatement should be designed to achieve a substantial noise reduction, which SHAs have defined in practice to be in the range of 5-10 dBA. The NAC should only be used as absolute values which, when approached or exceeded, require the consideration of traffic noise abatement measures.

The 23 CFR 772 purposefully provides the SHAs with flexibility to establish their own definition of "substantial increase." A 10 dBA increase in noise levels is a doubling of the perceived loudness. A 15 dBA increase in noise levels represents more than a doubling of the loudness. Factors such as available resources, the public's attitudes toward highway traffic noise, and the absolute noise levels may influence a State's definition. The FHWA will accept a well-reasoned definition that is uniformly and consistently applied. Several SHA definitions have evolved and are shown in Table 6.

State: Noise How does WSDOT address transportation noise? From <http://www.wsdot.wa.gov/Environment/Air/Noise.htm>

We ensure compliance with local, state, and federal environmental regulations on noise from traffic and construction.

- **Type 1** projects build new roadways, add lanes or significantly re-align existing roadways, or change nearby topography to create a new line-of-sight to the highway from a noise sensitive location. We evaluate Type 1 projects for traffic noise impacts and determine whether areas qualify for traffic noise abatement; usually noise walls.
- **Type 2** projects, or "noise retrofit" walls, are constructed for neighborhoods built prior to May 14, 1976, before traffic noise was evaluated on projects. We manage the list of eligible projects and help prioritize them based on cost-effectiveness. Projects are selected and funded by the legislature.
- We obtain **noise variances** from local jurisdictions that allow night time construction work when traffic or safety issues prevent work from occurring during the day.
- Monitor **underwater noise** from [pile driving](#). The [BA Noise Assessment Guidance](#) and the [Underwater Noise Monitoring Plan template](#) (doc 319 kb) and [Cover Letter](#) (doc 22 kb) have additional information.
- Support research on **innovative noise reduction techniques** such as [quieter pavement](#), rumble strips designs, pile driving noise abatement and others.

For more background information on noise, check out our [noise FAQ](#).

Contact the Washington State Department of Transportation Acoustics Program at (206) 440-4000.