



Typical Noise Levels

COMMON OUTDOOR ACTIVITIES	NOISE LEVEL dBA	COMMON INDOOR ACTIVITIES
Jet Fly-over at 1000 ft	---110---	Rock Band
Gas Lawn Mower at 3 ft	---100---	
Diesel Truck at 50 ft, at 50 mph	---90---	Food Blender at 3 ft
Noisy Urban Area, Daytime	---80---	Garbage Disposal at 3 ft
Gas Lawn Mower, 100 ft	---70---	Vacuum Cleaner at 10 ft
Commercial Area	---60---	Normal Speech at 3 ft
Heavy Traffic at 300 ft	---50---	Large Business Office
Quiet Urban Daytime	---40---	Dishwasher Next Room
Quiet Urban Nighttime	---30---	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	---20---	Library
Quiet Rural Nighttime	---10---	Bedroom at Night, Concert Hall (Background)
	---	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	---0---	Lowest Threshold of Human Hearing

Colorado Department of Transportation (CDOT) Noise Abatement Criteria for Land Use Categories One-Hour Leq		
Category A	56 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.
Category B	66 Exterior	Residential
Category C	66 Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
Category D	51 Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
Category E	71 Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in Categories A-D or F.
Category F	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing.
Category G	NA	Undeveloped lands that are not permitted for development.

CDOT Criteria for Noise Abatement

When a highway project analysis indicates that an area will be impacted by traffic noise, noise mitigation measures are evaluated. The evaluation looks at the feasibility and reasonableness of mitigation measures. However, noise impacts do not guarantee that mitigation will always be implemented. The CDOT evaluation guidelines for traffic noise mitigation look at the following topics.

A. Feasibility

- Can a substantial [5 dBA] noise reduction be achieved by constructing a noise barrier or berm?
- Are there any "fatal flaw" safety or maintenance issues?
- Can a noise barrier or berm less than 20 feet tall be constructed?

B. Reasonableness

- Can the Design Goal of 7 dBA noise reduction be met for at least one receptor?
- Is the Cost Benefit Index below \$6800 per receptor per dBA?
- Do at least 50% of the benefiting resident/owners favor the noise abatement?

Sound Barriers

For an object to be an effective sound barrier requires a couple of characteristics. The barrier must cut the line of sight between the sound source and the person listening. The barrier must be solid enough (e.g., concrete) that sound is not transmitted directly through the barrier. A barrier whose top grazes the line of sight between source and receiver will give about 5 dBA of noise reduction. A receiver must be close to the barrier to receive any benefit. In reality, getting 15 dBA of traffic noise reduction from a barrier can be difficult because of other noise sources and the size of the barrier needed.

