I-65 ADDED TRAVEL LANES PROJECT,
CLARK AND SCOTT COUNTIES

GENERAL TRAFFIC NOISE INFORMATION

What influences traffic noise?

The level of highway traffic noise depends on four factors:

- Volume of traffic
- Speed of traffic
- Number of large trucks
- Location of highway relative to house

As any of these factors change, noise levels change.

Who regulates traffic noise?

The Federal Highway Administration (FHWA) has developed regulations regarding noise analysis on federally funded highway projects, and the Indiana Department of Transportation (INDOT) has outlined its implementation guidance in its Traffic Noise Analysis Procedure (2017) (Traffic Noise Policy) at www. tinyurl.com/2z5w9yne.

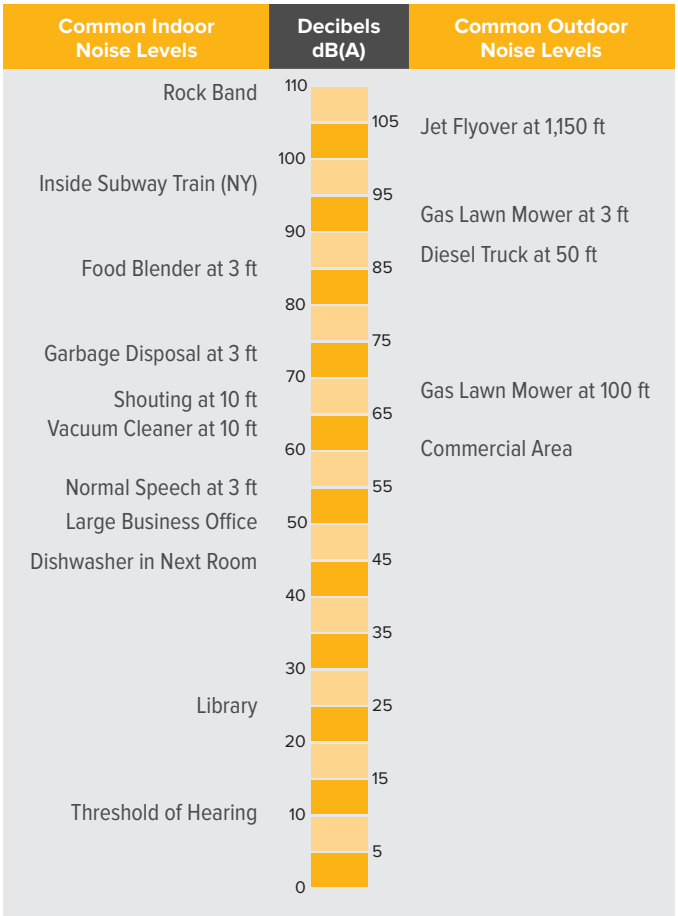
What is the noise impact level?

The INDOT Traffic Noise Policy establishes two criteria for identifying an impact resulting from a project:

- Identifying where future predicted noise levels would approach or exceed a set of noise abatement criteria (NAC) established in the FHWA regulations. For exterior areas where frequent human use occurs in residential areas, the NAC is 67 decibels (dB(A)); INDOT defines "approaching the NAC" as within 1 dB (66 dB(A)) for residential areas). Locations where future noise levels are predicted to be 66 dB(A) or higher are considered "impacted."
- Identifying locations where noise levels are expected to increase by 15 dB(A) or more over existing levels.

How are noise levels predicted?

The FHWA Traffic Noise Model (TNM) Version 2.5 accounts for traffic noise factors to generate a 3-D model that can predict noise levels during the noisiest hour of the day. Based on noise levels predicted with a project, the model identifies where noise impacts occur and where mitigation should be considered.



How can noise be reduced?

Traffic noise can be potentially reduced by modifying either the source of the noise (speed, volume, or type of vehicles), the location of the receiver (the person who hears the noise), or the path by which the noise reaches the receiver. Because it is impractical to reduce the speed, volume, or type of vehicles on a highway, or to relocate residences solely due to noise impacts, the most common approach to mitigating noise is the construction of noise barriers.

What is a noise barrier?

Noise barriers are solid obstructions built between the highway and businesses or residences along a highway. Effective noise barriers typically reduce noise levels by 5 to 10 dB(A), which reduces the loudness of traffic noise by as much as one-half.

The most common noise barriers constructed typically consist of concrete/wood composite panels placed between steel supports. The height and location of a barrier is determined by the TNM analysis. The design-build contractor team will complete the final design of the noise barriers. This team will gather the input of adjacent property owners during the design phase to determine the final color and texture.

How humans perceive changes in sound level:

Changes in Sound	Perception
±3 db(A)	Barely perceptible
±5 db(A)	Clearly perceptible
±10 db(A)	Twice/half as loud

How does a noise barrier work?

Noise barriers reduce the sound from a highway by either absorbing the sound, reflecting it back across the highway, or forcing it to take a longer path to receivers. A noise barrier must be tall enough and long enough to block traffic noise from the area that is to be protected.

How is it determined whether to construct a noise barrier?

INDOT considers noise abatement when a noise impact occurs and a barrier is considered to be feasible and reasonable.

What is a feasible noise barrier?

INDOT requires noise abatement measures to be based on sound engineering practices and standards and requires that any measure be evaluated at the best location. Noise barriers require long, uninterrupted segments to be effective. If there are existing roadway access points and/or driveways, it may not be feasible to construct effective noise barriers. Engineering feasibility also takes into account topography, drainage, safety, barrier height, utilities, existing bridges and maintenance needs.

INDOT requires that noise barriers achieve a minimum 5 dB(A) reduction at a majority (greater than 50%) of the impacted noise receptors. If a barrier cannot achieve this acoustic goal, it is not considered to be acoustically feasible.

What is a benefited receptor?

Benefited receptors are those properties that receive a minimum 5 dB(A) reduction in future noise levels.

What is a reasonable noise barrier?

The cost of constructing a noise barrier is a significant factor in determining whether a barrier is reasonable. To determine cost-effectiveness, the estimated cost of construction (including installation and additional necessary construction, such as foundations or guardrails) is divided by the number of benefited receptors. The INDOT Traffic Noise Policy considers a material and design cost of $25,000 or less per benefited receptor to be cost-effective. Development in which more than 50% of the receptors were in place prior to the initial construction of the roadway in its current state will receive additional consideration for noise abatement. The criteria for cost-effectiveness in these cases is 20% greater ($30,000 per benefited receptor).

INDOT's noise reduction design goal is 7dB(A) for a majority of the benefited first row receptors.

In addition to meeting INDOT's cost-benefit analysis, the noise barrier must also be desired by landowners.

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PROJECT-SPECIFIC NOISE INFORMATION

What is the I-65 Added Travel Lanes project?

INDOT is proposing the construction of additional travel lanes along I-65 from approximately 0.5 mile north of the Blue Lick Road interchange to approximately 2.2 miles south of the SR 56 interchange within the roadway median in Clark and Scott counties.

Where can I get a copy of the *I-65 Added Travel Lanes Traffic Noise Technical Report*?

The traffic noise technical report is accessible on INDOT Seymour District's website at www.in.gov/indot/2706.htm.

Where is INDOT suggesting a noise barrier be constructed?

Recent analysis determined that a noise barrier may be feasible and reasonable on the east side of northbound I-65, approximately 0.5 mile south of SR 160.

The project team analyzed possible noise barriers at 21 other locations. Of those locations, 20 were determined to be feasible but not reasonable, and one was determined to be neither feasible nor reasonable.

What is a noise survey?

A noise survey helps determine whether a noise barrier is reasonable, which requires INDOT to gather input from benefited receptors (residents and property owners), in close proximity to a proposed barrier. A noise survey is a postcard that is mailed to benefited residents and property owners to solicit their opinions about noise barriers. If the property owner is different from the current resident, both the owner and resident are surveyed.

If a barrier is proposed directly adjacent to the property line of a business, the business will also be mailed a survey to determine whether they have any concerns about line of sight.

How many residents are affected by traffic noise for this project?

A total of 216 receptors were identified in the noise analysis area. Of those, 109 are approaching/exceeding the noise abatement criteria in design year 2043. No receptors were identified as having predicted levels substantially exceeding the existing ambient levels.

How do benefited receptors obtain a noise survey?

Noise surveys are mailed directly to benefited receptors.

What if the benefited receptors don't complete the noise survey?

If a majority (greater than 50%) of benefited receptors and property owners do not respond to the survey, a second survey may be mailed. FHWA and INDOT will discuss the results of the surveys received and determine the next course of action if a majority of benefited receptors do not respond.

What if residents don't want a noise barrier?

INDOT surveys benefited property owners individually to determine whether or not they support a noise barrier. Once the public involvement efforts about the noise barriers are complete, FHWA and INDOT review the surveys to determine the public opinion.

When and how will INDOT determine where to install noise barriers?

The final decision of any abatement measures will be made upon final design and the conclusion of the public involvement process. It is essential that benefited receptors participate in the noise survey so INDOT can consider their opinions.

How much do noise barriers cost?

INDOT uses $30/square foot to estimate noise barrier construction cost. The noise barrier design analyzed for the I-65 Added Travel Lanes project is estimated at $614,786.