



## WEBSITE CONTENT

**Date:** TBD  
**Topic:** Noise Study Website Content  
**Location:** [www./northsplit.com/noise](http://www.northsplit.com/noise)

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<https://northsplit.com/noise>

The I-65/I-70 North Split Project Team has completed its evaluation of potential noise impacts in the North Split project area based on guidelines outlined in the [Indiana Department of Transportation Traffic Noise Analysis Procedure \(INDOT Noise Policy\)](#).

## NOISE REDUCTION FEATURES

The Traffic Noise Model used in the North Split noise analysis predicts a reduction in noise at most locations even if no noise barriers are installed. This modeled reduction in noise levels is primarily the result of the elevation and realignment of proposed roadways and replacement of guardrail with concrete safety barriers. To reduce noise levels further, INDOT is incorporating additional design features that are not recognized in the Traffic Noise Model. These features include:

- “Next Generation” Pavement\* – This new paving technique is designed specifically to reduce tire noise through the use of longitudinal grooves. Although results vary based on tire manufacturer, existing pavement type and condition, and other factors, recent studies have shown that next generation pavement can reduce tire noise levels by 3 to 5 decibels or more.
- Continuous Reinforced Concrete Pavement – This paving technique eliminates the need for transverse joints, which are the cause of rhythmic sound patterns of tires passing over traditional concrete roadways.
- Jointless Concrete Bridges – This design eliminates the open joints at the end of bridges, which are the cause of the “banging” sounds typically heard at older bridges such as those currently existing in the project area.
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## NOISE BARRIERS RECOMMENDED FOR CONSTRUCTION

The following potential noise barriers are recommended for construction:

- NB3E: Westbound I-70, along the edge of the north shoulder from Valley Avenue to Commerce Avenue, near the Martindale-Brightwood neighborhood
- NB3W: Westbound I-70, along the edge of the north shoulder from Commerce Avenue to Lewis Street, near the Martindale-Brightwood neighborhood



Factors considered in recommending these noise barriers are as follows:

- Survey of Benefited Receptors – In accordance with the [INDOT Noise Policy](#), surveys were sent to obtain the views of benefited receptors (property owners and residents) and a public meeting was held in the adjacent neighborhood to describe the results of the noise analysis and encourage survey response. Social media posts and Listserv emails were sent, and door hangers were hung on doors of benefited receptors to encourage completion of the surveys and attendance at the public meetings. Forty-eight percent (48%) of NB3E benefited receptors responded, with 93% expressing support. Seventy-eight percent (78%) of NB3W benefited receptors responded, with 100% expressing support.
- Other Considerations – According to the [INDOT Noise Policy](#), a re-evaluation of the noise analysis will occur during final design. If it is determined that conditions have changed such that noise abatement is not feasible and reasonable, the abatement measures might not be provided.
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## NOISE BARRIERS NOT RECOMMENDED FOR CONSTRUCTION

The following potential noise barriers are not recommended for construction:

- NB4: Northbound I-65, along the edge of the north shoulder between College Avenue and Alabama Street, near the Old Northside neighborhood
- NB5: Southbound I-65, along the edge of the south shoulder between College Avenue and Alabama Street, near the Chatham Arch and Saint Joseph neighborhoods
- NB7: Southbound I-65/westbound I-70, along the edge of the west shoulder between 10th Street and Ohio Street near Massachusetts Avenue and the Lockerbie Square neighborhood

Factors considered in recommending these noise barriers not be constructed include:

- Survey of Benefited Receptors – In accordance with the [INDOT Noise Policy](#), surveys were sent to obtain the views of benefited receptors (property owners and residents) and public meetings were held in the adjacent neighborhood of each potential noise barrier to describe the results of the noise analysis and encourage survey response. Social media posts and Listserv emails were sent, and door hangers were hung on doors of benefited receptors to encourage completion of the surveys and attendance at the public meetings. Surveys were sent a second time for these three barriers because the percent response rates were under 50%. The responses for each barrier are shown below.
  - NB4: Surveys were sent in mid-October 2019. The response rate was below 50%, so a second survey was sent to non-responders early in November 2019. After the second survey, a majority (55%) of benefited receptors had responded, with 59% expressing opposition to this barrier.
  - NB5: Surveys were sent in mid-October 2019. The response rate was below 50%, so a second survey was sent to non-responders early in November 2019. After the second survey, along with four public meetings, social media posts, emails, and door hangers, fewer than half (38%) of benefited receptors had responded, with 74% expressing support for this barrier.
  - NB7: Surveys were sent in mid-October 2019. The response rate was below 50%, so a second survey was sent to non-responders early in November 2019. After the second survey, along with public meetings, social media posts, emails, and door hangers, fewer than one-quarter (23%) of benefited receptors had responded, with 63% expressing support for this barrier.

- Other Considerations – In accordance with the [INDOT Noise Policy](#), which states “the concerns of opinions of the property owner and the unit occupants will be balanced with other considerations in determining whether a barrier is appropriate for a given location,” INDOT considered other reasonableness factors related to changes between existing and future build conditions in evaluating these barriers. These considerations include:
  - Effects to Historic Properties – Six historic districts listed on the National Register of Historic Places (NRHP) are located immediately adjacent to or near the North Split Project area. INDOT, acting on behalf of FHWA, is required to comply with Section 106 of the National Historic Preservation Act of 1966 as amended (Section 106), and its implementing federal regulation, 36 CFR 800. Section 106 and 36 CFR 800 outline a process that requires FHWA and INDOT to evaluate the effects of undertakings on properties that are listed on or eligible for listing on the NRHP. The State Historic Preservation Office provided a letter to INDOT and FHWA, dated November 1, 2019, expressing deep concern about the visual effect of NB4, NB5, and NB7 on the setting of the historic districts near the North Split. The letter described the noise barriers as an additional and severe adverse effect to the character and setting of these resources, greatly amplifying the visual impact of the existing interstate highway intrusion within the historic districts. The letter stated the noise barriers would serve to further isolate historic districts and adjacent structures and strengthen the perceived and actual separation between neighborhoods on either side of the highway. A letter provided by the Administrator for the Indianapolis Historic Preservation Commission on November 8, 2019, stated NB4, NB5, and NB7 would create a severe visual adverse effect by diminishing the feeling, setting, and character of the historic properties and the historic resources within them. Several historic neighborhoods submitted written comments in opposition to NB4, NB5, and NB7:
    - Saint Joseph Historic Neighborhood Association
    - Chatham Arch Neighborhood Association
    - Holy Cross Neighborhood Association
    - Old Northside Neighborhood Association
    - Historic Urban Neighborhoods of Indianapolis
  - Mixed-Use Developments – The [INDOT Noise Policy](#) recognizes the potential for conflicts in mixed-use developments, as barriers to protect residences may block line of sight to adjacent businesses. NB5 and NB7 are between the interstate highways and the Indianapolis central business district, which includes a concentration of mixed-use development.

Different views by residential and business receptors were most notable with NB7. The overall survey response rate along NB7 was only 23%, but the survey response rate from businesses was near 50%. Of those businesses that responded, 90% were opposed to the installation of noise barriers.

\*American Concrete Pavement Association and International Grooving and Grinding Association, Development and Implementation of the Next Generation Concrete Surface, August 8, 2017, pp 36-37.

<https://northsplit.com/noise/preliminary-noise-recommendations/>

The North Split project team recently completed the **Traffic Noise Technical Report**, which evaluates the potential noise impacts of the proposed improvements within the project area. INDOT is seeking input from residents and property owners who would benefit from the construction of noise barriers for the I-65/I-70 North Split Project. This project includes replacing and repairing deteriorating bridges, upgrading pavement conditions, reducing congestion, and improving safety at the I-65 and I-70 interchange on the northeast side of downtown Indianapolis.

## **NOISE BARRIERS**

Based on the guidelines outlined in **INDOT's Traffic Noise Policy**, recent analyses determined that noise barriers were determined to be feasible and cost-effective at five locations:

1. Noise Barrier NB3E – Westbound I-70, along the edge of the north shoulder from Commerce Avenue to Valley Avenue, near the Martindale-Brightwood neighborhood **(See the elevation and section views)**
2. Noise Barrier NB3W – Westbound I-70, along the edge of the north shoulder from approximately 240 feet west of Lewis Street and Commerce Avenue, near the Martindale-Brightwood neighborhood
3. Noise Barrier NB4 – Northbound I-65, along the edge of the north shoulder between College Avenue and Alabama Street, near the Old Northside neighborhood **(See the elevation and section views)**
4. Noise Barrier NB5 – Southbound I-65, along the edge of the south shoulder between College Avenue and Alabama Street, near the Chatham Arch and Saint Joseph neighborhoods **(See the elevation and section views)**
5. Noise Barrier NB7 – Southbound I-65/Westbound I-70, along the edge of the west shoulder between 10th Street and Ohio Street near Massachusetts Avenue and the Lockerbie Square neighborhood **(See the elevation and section views)**

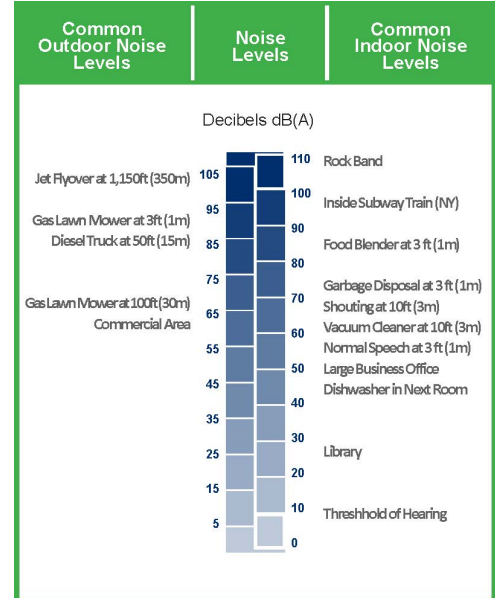
As part of the project development process, INDOT is asking residents and property owners who would benefit from the construction of a noise barrier whether they want the barrier to be constructed. FHWA and INDOT will consider the feedback received before making a decision whether or not to construct each noise barrier.

<https://northsplit.com/noise/preliminary-noise-recommendations/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 the house

Noise is measured in decibels (dB(A)).



Changes in Sound Level	Perception
3 dB(A)	Barely Perceptible
5 dB(A)	Clearly Perceptible
10 dB(A)	Twice as loud

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

1. Identifying where future predicted noise levels would approach or exceed a set of Noise Abatement Criteria (NAC) established in the FHWA regulations. For outdoor uses 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). Therefore, locations where future noise levels are predicted to be 66 dB(A) or higher are considered "impacted."

or

2. Identifying locations where noise levels are expected to increase by 15 dB(A) or more over existing levels. There were no increases of 15 db(A) or more for the North Split project.

<https://northsplit.com/noise/preliminary-noise-recommendations/noise-barriers/>

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.

Noise barriers 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 color and texture can vary, and INDOT seeks the input of adjacent property owners. Noise barriers reduce the sound from a highway by 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.

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

**Feasible:**

- Acoustic Feasibility – Achieves at least a 5 dB(A) reduction in traffic noise for a majority (>50%) impacted properties
- Engineering Feasibility – Considers environmental, drainage, safety, existing bridges, and other issues to identify best location for a barrier

**Reasonable:**

- Noise Reduction Goal – 7 dB(A) reduction for impacted first-row properties
- Cost-effectiveness
  - INDOT uses \$30/sq. ft. to estimate barrier cost
  - Cost per benefited receptor of \$25,000 or less is considered cost-effective. Cost per benefited receptor goes up to \$30,000 if the majority (>50%) of the homes were built prior to initial construction of the roadway
- Views of Residents and Property Owners
  - INDOT considers the views of all benefited residents and property owners to determine whether a barrier is appropriate for a given location