



# INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue  
Room N642  
Indianapolis, Indiana 46204

PHONE: (317) 234-5168

**Eric Holcomb, Governor**  
**Joe McGuinness, Commissioner**

March 11, 2020

This letter was sent to the listed parties.

RE: Dual Review Project: I-65/I-70 North Split Interchange Reconstruction Project  
(Designation (Des.) Numbers (Nos.) 1592385 & 1600808)  
IDNR DHPA No. 21534  
Section 106 Update Memo #10

Dear Consulting Party,

The Indiana Department of Transportation (INDOT) with funding from the Federal Highway Administration (FHWA) proposes to proceed with the I-65/I-70 North Split Interchange Reconstruction Project (North Split Project) in the City of Indianapolis, Marion County (Des. Nos. 1592385 & 1600808). HNTB Corporation is under contract with INDOT to advance the environmental documentation for the referenced project.

## **Project Location**

The proposed undertaking includes the I-65/I-70 North Split interchange; south along I-65/I-70 to the Washington Street interchange; the portion of I-65 west of the North Split interchange to approximately Alabama Street (to Illinois Street along 11<sup>th</sup> and 12<sup>th</sup> Streets); and, the portion of I-70 east of the North Split interchange to approximately the bridge over Valley Avenue (west of the Keystone Avenue/Rural Street interchange) in downtown Indianapolis, Marion County, Indiana. It is within Center Township, Beech Grove United States Geological Survey (USGS) Topographic Quadrangle, in Section 36, Township 16N, Range 3E; Sections 1 and 12, Township 15N, Range 3E; and Section 31, Township 16N, Range 4E.

## **Archaeology**

In their response letter to Section 106 Update Memo #9, the State Historic Preservation Officer (SHPO), asked “In regard to archaeological resources within the additional portions of the proposed project area, as described in the present submission, please provide clarification about whether or not additional archaeological investigations will be conducted in these areas of “existing right-of-way.”” All project modifications described in Section 106 Update Memo #9 will take place in existing right-of-way, previously disturbed by transportation infrastructure construction. Noise Barrier 3W (NB3W) is proposed along the north side of westbound I-70, from Commerce Avenue to Lewis Street. NB3W is anticipated to be constructed on the existing road slope. However, to provide the design-builder flexibility, additional archaeological investigations will occur at the toe of slope where previously undisturbed soils may be present within the existing right-of-way. The results of these investigations will be forwarded to the SHPO for review. Stipulations for archaeological investigations are included in the Draft Memorandum of Agreement (MOA).

## **North Split Aesthetic Design Guidelines**

INDOT has created a special set of design guidelines for the development of the North Split Project. The North Split Aesthetic Design Guidelines provide special design guidance on key community-related enhancements

that improve overall connectivity, create enhanced pedestrian improvements within the interchange, and provide architectural design elements that help fit the infrastructure into the adjoining neighborhoods. Because of the North Split's urban setting, significant attention has been placed upon how the design of the interchange integrates into its setting. Throughout the design and planning process, INDOT worked with the adjacent neighborhoods, local stakeholders, Section 106 consulting parties, and other community groups to help identify the most appropriate aesthetics for the new design. The North Split Aesthetic Design Guidelines are available at <https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf>.

Connectivity and pedestrian improvements include new specialty paving with enhanced pedestrian lighting in the underpasses to help create a greater sense of safety. Architectural detailing on bridge piers, columns, abutments, and walls are designed with a more pedestrian scale in mind, with detailing that highlights the engineering of the bridges and opportunities identified for the future inclusion of public art. Interchange bridge columns, located in the center of the interchange, will have down lighting to further highlight the infrastructure from the roadway. Development of a new link called the Monon Loop Trail and widening of the Monon Greenway through the interchange will provide improved pedestrian connections throughout the area.

The aesthetic design guidelines identify landscape treatments that provide naturalistic planting schemes throughout the interchange. Six different landscape typologies address the different types of settings in the project area. Each typology includes prescribed natural ground-level planting treatments as well as a mix of native shrub and tree species appropriate to the typology. Planting schemes include native plant species with seed mixes that provide the natural aesthetic quality requested by the community, while limiting required maintenance. In many areas, significant existing trees are preserved.

The overall result of the landscape treatments is the creation and enhancement of a significant urban green space to provide an appropriate backdrop to the neighborhoods, screen many of the views to the interchange, visually expand the open space next to the interchange, and create a significant new urban forest condition in the heart of the city.

### **Mitigation Comments Update**

INDOT and FHWA have reviewed the comments from Section 106 consulting parties on the preliminary mitigation ideas sent in Section 106 Update Memo #8. Responses to all comments are included in Attachment A. Specific comments are addressed below.

### **Additional Mitigation Items**

As a result of consulting party comments, the following mitigation stipulations were added to the Draft MOA in addition to the preliminary ideas included in Update Memo #8.

#### **A. Tree Preservation and Plantings**

- i. FHWA and INDOT shall ensure project elements, including tree and vegetation plantings, are designed in accordance with the North Split Project Aesthetic Design Guidelines. Minor modifications may be made if approved by FHWA and INDOT as long as they are within the spirit of the Aesthetic Design Guidelines.
- ii. FHWA and INDOT and/or its consultants shall provide a draft landscape and side slope plan (including scaled cross sections for each adjacent historic district) for consulting party review and comment at two points during the design process.
  - a. Consulting parties are identified in Attachment B of the Draft MOA.
  - b. Comment periods will be 30 days.
  - c. The first comment period will be for an initial review and comment.

- d. The second comment period will be to show how comments were addressed, allow comments on revisions, and solicit input regarding any remaining questions.
- e. FHWA and INDOT shall make a good faith effort to address comments and shall provide responses regarding how or why comments were addressed or not addressed.
- f. FHWA and INDOT shall have one consulting party meeting within each consulting party comment period to provide information and solicit feedback from consulting parties.
- g. FHWA and INDOT shall have at least one neighborhood meeting within each comment period to solicit feedback from adversely affected historic districts. Residents of the Old Northside, Saint Joseph, and Chatham-Arch neighborhoods shall be the focus of the neighborhood meetings; however, the meetings will be open to the general public.
- h. FHWA shall have the authority for final approval of actions regarding the implementation of aesthetic and landscaping measures.
- iii. INDOT shall develop a landscape maintenance plan for three years after tree and shrub planting.
- iv. INDOT shall engage Keep Indianapolis Beautiful, Inc. as a landscape advisor to provide recommendations and/or services for tree and shrub planting, monitoring, and maintenance for three years after planting.
- v. INDOT shall replace trees and shrubs that do not survive during the first three years after planting. (*Note: the typical replacement period is 1 year*)
- vi. If trees within the “Do Not Disturb” areas do not survive within one (1) year of the conclusion of construction activity within fifteen (15) feet of the area, INDOT shall plant replacement trees at a ratio of three to one (three replacement trees for each tree that does not survive). The replacement trees shall be planted in the “Do Not Disturb” areas if space allows.

#### **B. Connectivity Improvements**

- i. FHWA and INDOT shall ensure project elements, including underpass treatments, are designed in accordance with the North Split Project Aesthetic Design Guidelines. Minor modifications may be made if approved by FHWA and INDOT as long as they are within the spirit of the Aesthetic Design Guidelines.
- ii. FHWA shall have the authority for final approval of actions regarding the implementation of connectivity improvements.
- iii. INDOT and its design-builder shall avoid the limestone curbs and street trees along 12<sup>th</sup> Street, north of I-65 northbound, during all construction activities. If damage occurs to the limestone curbs as a result of the North Split Project construction, INDOT shall repair the limestone curbs.

#### **Mitigation Items Removed from Consideration**

The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated that the oral history initiative would not be effective mitigation.

### **Additional Input Requested Regarding Retention of Earthen Berms**

As a result of consulting party comments, INDOT and FHWA are requesting additional consulting party input regarding whether portions of the earthen berms in the northwestern and southwestern portions of the interchange should be retained.

INDOT and FHWA offer the following clarification regarding potential earthen berm mitigation. The two berms proposed to remain in place are located in the northwest quadrant of the interchange, extending from approximately 14<sup>th</sup> Street to College Avenue, and in the southwest quadrant of the interchange, extending from College Avenue to 10<sup>th</sup> Street. The berms would be sculpted into a more natural shape and planted with trees such that they do not appear as abandoned “roadbeds” (see Attachment B). The final shape of the berms would be included in the draft landscape and side slope plan provided to consulting parties for comment. The intent of retaining the berms is to provide visual shielding from the interchange ramps for the Old Northside and Chatham-Arch neighborhoods. They would also provide some noise reduction for nearby properties. All other remnants of previous “roadbed” use would be removed from areas that will no longer serve such a use, including those adjacent to the O’Bannon Soccer Park. Retaining these berms would not preclude land use changes in this area in the future.

The traffic noise analysis and results in the previously published Draft Traffic Noise Technical Report (<https://northsplit.com/wp-content/uploads/2019/10/FINAL-North-Split-Draft-Noise-Report.pdf>) included the earthen berm across the northern portion of the interchange (including the northeastern area near O’Bannon Soccer Park). This berm did provide some noise reduction. A traffic noise model was created that removed the earthen berm to determine what, if any, impacts would occur as a result of the removal of the berm. The model did not predict any additional noise impacts (over 66 decibels (dB(A)) per the INDOT Traffic Noise Analysis Procedure) for receptors near the earthen berm if it is removed. Noise levels without the berm ranged from 1.9 dB(A) lower to 0.2 dB(A) higher than the existing level. These changes are not likely to be perceptible. However, the reduction of noise is greater if the berm is left in place. With the berm in place, predicted noise values range from 57.6 to 65.1 dB(A). Without the berm in place, predicted noise values range from 60.1 to 65.8 dB(A). Predicted noise levels with the berm range from 0.7 to 4.3 dB(A) less than without the berm (see Attachment C). A difference of 4.3 dB(A) is likely perceptible. The berm in the southwest quadrant of the interchange was not originally included in the traffic noise analysis.

We are requesting input from consulting parties, particularly the Old Northside and Chatham-Arch Historic Districts, regarding whether or not they would prefer to keep the planted earthen berms as visual shielding from the interchange ramps or if they would prefer to have them removed. Trees will be planted in the interchange area with or without the berms.

### **Specific Mitigation Request Responses**

INDOT and FHWA acknowledge the following Section 106 mitigation requests regarding expansion of the Vibration Monitoring and Control Plan area; noise reduction, vibration concerns, and financial assistance for the Indiana Landmarks Center and Morris Butler House; and, terracing of interstate side slopes. These requests were considered as Section 106 mitigation, but they are not included in the Draft MOA for the reasons described below.

***Vibration Comment from Rethink 65/70 Coalition, Historic Urban Neighborhoods of Indianapolis, Indianapolis Historic Preservation Commission, Indiana Landmarks, Lockerbie Square Historic District, Massachusetts Avenue Merchants Association, and National Trust for Historic Preservation:***

***Vibration Monitoring and Control Plan***

*The proposal states that the “design-build contractor shall develop a Vibration Monitoring and Control Plan. The plan should at least include all buildings within historic properties or districts within 140 feet of project construction activities” 140 feet should be increased to at least 400 feet. Vibration from construction has been known to negatively impact structures further away than 140 feet (roughly the depth of one lot), in some cases more than a block. 400 feet, roughly one block and two local streets deep, would better capture those buildings likely to be affected. From a liability perspective, it seems it would also be in INDOT’s best interest for this area to be expanded. An even larger area may also be considered for this plan.*

**Response:**

The design-builder for the project will be required to prepare a construction Vibration Monitoring and Control Plan. The design-builder will also be required to keep vibration levels under maximum damage risk thresholds in the vicinity of historic properties. There will be real-time monitoring of vibration levels near historic properties. And if vibration levels exceed the threshold, the construction activities that are producing the vibration will stop immediately. The design-builder must immediately submit a report to INDOT that explains the conditions of the violation and the steps to be taken to reduce the vibrations to below the vibration limit. Vibration-producing activities will not resume until INDOT provides written permission.

The Vibration Monitoring and Control Plan will be reviewed and approved by INDOT prior to construction. Consulting parties will be provided the Vibration Monitoring and Control Plan for a 30-day review period. The design-builder will be required to respond to consulting party comments. This plan will include pre-construction surveys of historic buildings (including the Morris-Butler House and Indiana Landmarks Center), monitoring vibration during construction, post-construction surveys, and measures to ensure that the public is informed of construction activities known to be a source of vibration.

The design-builder will be required to monitor and keep vibration thresholds below the maximum thresholds provided in Table 1 to avoid impacts to historic properties.

Table 1. Construction Vibration Thresholds (PPV).

Type of Structure	Ground-borne Vibration Impact Level (PPV)
Fragile (non-engineered timber and masonry buildings)	0.20 in/sec
Extremely Fragile (buildings, ruins, ancient monuments)	0.12 in/sec

Source: Table 7-5 Construction Vibration Damage Criteria Building/Structural Categories III and IV, from FTA Manual.

In a previous letter dated September 11, 2019, the National Trust for Historic Preservation concurred with the thresholds in Table 1, stating, “The Effects Report does apply the appropriate vibration limits for purposes of

the vibration monitoring protocol: 0.2 inches/second PPV for Fragile structures (non-engineered timber and masonry buildings), and 0.12 inches/second PPV for Extremely Fragile structures (buildings, ruins, ancient monuments).”

In that same letter, the National Trust for Historic Preservation expressed concern “that a vibration monitoring protocol will magically ensure that no adverse effects will occur. Effects Report, p.B-7. This seems unrealistic. Things can go wrong. Therefore, it will be important to ensure that these specific limitations are spelled out in the Section 106 agreement for the project, and that *all* historic properties within 140 feet are properly monitored and documented, with an enforceable commitment to repair any damage caused by construction vibration.”

In response to the National Trust’s concern, the vibration thresholds are included in the Draft MOA. The design-builder shall also be responsible for the cost and repair of all damages to structures and other property as a result of construction. Repairs to historic buildings shall be in accordance with the Secretary of Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. This will be contingent on property owners allowing pre- and post-construction surveys of their buildings.

As documented in Appendix B of the Assessment of Effects Report (August 9, 2019), which was sent to consulting parties for review and comment August 9, 2019, the 140-foot distance was determined using Equation 7-2 of the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual)<sup>1</sup>, the peak particle velocity (PPV) for Pile Driver (impact) from Table 7-4 (1.518 in/sec), and the criteria for Buildings extremely susceptible to vibration damage in Table 7-5 (0.12 in/sec). Based on Equation 7.2, the PPV will be less than 0.12 in/sec for each piece of equipment at 140 feet for buildings extremely susceptible to vibration damage using the upper range of vibration for a pile driver (the highest rate of vibration for the anticipated construction equipment). Please see Equation 7.2 below or in the FTA Manual in Attachment D.

**Equation 7.2 (FTA Manual)**

$$PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$$

Where:

PPV<sub>equip</sub> = the peak particle velocity of the equipment adjusted for the distance, in/sec

PPV<sub>ref</sub> = the source reference vibration level at 25 ft, in/sec

D = distance from the equipment to the receiver, ft

$$< 0.12 \text{ in/sec} = 1.518 \text{ in/sec} \times (25 \text{ ft}/140 \text{ ft})^{1.5}$$

Vibration decreases as the distance from the source increases. The design-builder is required to complete pre- and post-construction surveys to identify the pre- and post-construction conditions of historic buildings within 140 feet or a distance at which vibrations of 0.1 inch per second or greater will occur from construction activities. The maximum vibration thresholds in Table 1 must not be exceeded to avoid impacts to buildings within 140 feet of construction. If these thresholds are maintained, there is no reason to believe there will be impacts from vibration beyond 140 feet.

If consulting parties can provide a scientific or empirical rationale for a distance of 400 feet for the Vibration Monitoring and Control Plan, FHWA and INDOT will revisit this distance.

<sup>1</sup> [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf)



***Interior Noise Reduction/Vibration Concerns, and Financial Assistance for the Indiana Landmarks Center and Morris Butler House Comment from Indiana Landmarks and National Trust for Historic Preservation:***

*Our primary concerns remain regarding the impacts on the Morris-Butler House and the Indiana Landmarks Center. We anticipate that the project will have detrimental effects on these properties due to vibration during the reconstruction project (both are load-bearing brick structures with high-lime content mortar), increased noise during and after the reconstruction, and revenue loss during the reconstruction project. Please refer to my letter of September 11, 2019.*

*As for noise reduction at the Indiana Landmarks Center and the Morris-Butler House, please see the attached which provides a treatment and initial cost estimates. We expect costs related to noise reduction at these properties to be included in the mitigation process.*

*Second, we are especially concerned that the discussion of mitigation measures in the December 19 Update Memo #8 fails to address the foreseeable adverse effects on the historic Indiana Landmarks Center. As we have previously commented, the expanded highway will be 22 feet closer to the Indiana Landmarks Center than the current highway, and the elevation will be six to seven feet higher than the existing road, with a four-foot Jersey barrier on top. In addition, the new retaining wall will be 10-12 feet tall. The Indiana Landmarks Center is a 19th-century brick building, and the close proximity of the construction activities will have the potential to damage the building physically. In addition, the construction will have a significant financial impact on Indiana Landmarks by interfering with the revenue from rentals of the property for events. (See [Draft North Split Des 1592385 & 1600808 Update Memo 10 20200225.doc.](#)) This needs to be specifically addressed by exploring ways that this adverse economic impact can be both minimized and mitigated. For example, we have previously suggested that mitigation could include providing an alternative venue for Indiana Landmarks to use for events during the construction period.*

**Response:**

Please see response above regarding vibration.

We appreciate the cost estimate for interior noise reduction at the Indiana Landmarks Center and Morris Butler House. INDOT and FHWA have carefully considered the proposal and determined that funding for interior noise reduction at these locations will not be provided as Section 106 mitigation. Traffic noise is anticipated to decrease near or at these properties as a result of the project in the build year (2041) compared to the existing condition (2017). In the vicinity of the Morris-Butler House, according to the Traffic Noise Model (TNM) exterior noise from the interstate is expected to decrease from an existing dB(A) of 70.4 to a Representative Build dB(A) of 66.7 (see Section 106 Update Memorandum #6). Interior noise level at the Morris Butler House is anticipated to have a Representative Build dB(A) of 41.7. Within the Indiana Landmarks Center, according to the Traffic Noise Model (TNM) noise from the interstate is expected to decrease from an existing dB(A) of 49.0 to a Representative Build dB(A) of 45.9 (see Traffic Noise Technical Report).

In addition, the Traffic Noise Model does not account for the additional measures INDOT is taking to further reduce noise within the project area:

- a. “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.<sup>2</sup>

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<sup>2</sup> 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.

- b. 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.
- c. 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.

In accordance with INDOT Noise Policy, noise levels were modeled for conditions when the project is complete, but noise levels during construction will involve different dynamics. For instance, interstate travel will continue next to the Indiana Landmarks Center and Morris Butler House during most of the construction period, but the number of vehicles will be smaller as traffic diverts to other routes and only two lanes are open each way. Most traffic will be going slower due to congestion. Construction noise will occur, but it will be intermittent since the west leg is a relatively small part of the overall project area. Most of the time, the work will be occurring somewhere else within the project area. Construction noise will be temporary.

The adverse effects to the Indiana Landmarks Center and Morris Butler House are based on effects that have the potential to diminish their historic integrity. When construction impacts have the potential to diminish a resource’s historic integrity, they may be considered an adverse effect, but when effects are *only* temporary (i.e. if the duration of the effects is less than the time needed to construct the project and the temporary effects do not result in permanent effects) they do not have the potential to affect historic integrity. Since the project is anticipated to reduce noise levels at the Indiana Landmarks Center and Morris Butler House, noise impacts are not part of the adverse effects.

36 CFR 800.6(a)(4) requires INDOT and FHWA to “tak[e] into account...the **nature** of [the project’s] effects upon historic properties” in the resolution of adverse effects. Since noise is not a component of the nature of the adverse effect, FHWA and INDOT do not believe it is appropriate to provide mitigation that addresses interior noise reduction at the Indiana Landmarks Center and the Morris Butler House. Instead, FHWA and INDOT have sought to develop mitigation measures that address the nature of the adverse effects of the project.

Regarding proposed compensation for business revenue loss, there are no established, reliable methods for estimating revenue changes for nearby businesses during highway construction projects. That being the case, INDOT emphasizes proactive planning, coordination, collaboration with businesses, and communications to help businesses, nonprofit organizations, and other community institutions maintain revenue and customers rather than provide direct reimbursement. INDOT prioritizes maintaining access to business properties during construction projects. The agency coordinates closely with impacted property owners to develop maintenance of traffic plans and mitigation tactics that will preserve revenue for businesses and allow customers access. Beyond that, the agency engages in robust public information efforts to keep motorists, customers, and businesses informed on traffic patterns, changes, and construction progress. INDOT will work with impacted businesses to deploy signage to raise awareness of detour routes when needed, and to alert motorists and customers that nearby businesses remain open during construction.

***Side Slope Terrace Comment from Rethink 65/70 Coalition, Historic Urban Neighborhoods of Indianapolis, Indianapolis Historic Preservation Commission, Indiana Landmarks, Lockerbie Square Historic District, Massachusetts Avenue Merchants Association, National Trust for Historic Preservation, and Saint Joseph Historic Neighborhood Association:***

***Planting Terraces:*** *If terraces are proposed to minimize tree impacts, Rethink recommends they optimize planting areas. Vegetative buffering needs to be equal or better in density and size to existing conditions and should include a variety of mature evergreen and deciduous shade trees to ensure screening on a year-round*



*basis. Planting design on terraces should consider minimizing mowing and weeding requirements after establishment to minimize future maintenance operations.*

**Response:**

Terraced side slopes were considered during the project development. Ultimately terraced side slopes were removed from consideration because of the increased cost (an increase of \$1.4M for a 3-level terrace for each stretch between bridges along I-65/I-70 south of the interchange and an increase of \$650,000 for a 3-level terrace south of I-65 from Alabama to Central) and concerns with maintenance. The terrace wall for each level would be approximately 10 feet tall. Maintenance of the second level would be extremely difficult to access as well as water from either the above interstate or street level. This would result in a less desirable aesthetic condition. In addition, constructing terraced side slopes would require removal of all trees within the existing right-of-way in the area of the terraces.

**Draft Memorandum of Agreement (MOA)**

A Draft Section 106 MOA has been prepared for the project. The Draft MOA includes proposed mitigation stipulations for adverse effects to historic properties. The Draft MOA is available for review in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE). You are invited to review this document and respond with comments on any historic resource impacts incurred as a result of this project so that an environmental report can be completed. If you prefer a hard copy of this material, please respond to this email with your request within seven (7) days.

**Consulting Parties Meeting/WebEx**

We would like to invite you to participate in a Consulting Parties Meeting on March 23, 2020 at the Ivy Tech Community College Culinary and Conference Center, 2820 N. Meridian St., Indianapolis, Indiana 46208, from 4:30 to 6:30 p.m. Indianapolis time. Parking is free in the Ivy Tech Community College parking lot adjacent to the building. You may participate in person or by WebEx and conference call using the information below. At this meeting, we will discuss mitigation for historic properties and the draft MOA.

**When it's time, join your Webex meeting here.**

Meeting number (access code): 746 109 397

[Join meeting](#)

**Join by phone**

Tap to call in from a mobile device (attendees only)

[+1-415-655-0002](#) US Toll

[+1-855-797-9485](#) US Toll free

**Next Steps**

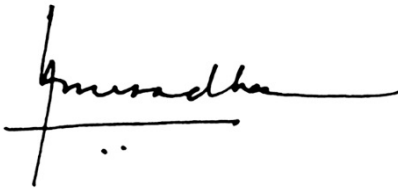
INDOT will review consulting party comments on the Draft MOA as well as comments regarding the retention of planted berms for visual screening. INDOT may modify the Draft MOA based on consulting party comments. It is anticipated the Final MOA will be sent to consulting parties for signatures in April 2020.

Please review the information and comment within 30 calendar days of receipt. For questions concerning specific project details, you may contact Kia Gillette of HNTB Corporation at 317-636-4682 or [kgillette@hntb.com](mailto:kgillette@hntb.com). All future responses regarding the proposed project should be forwarded to HNTB Corporation at the following address:

Kia Gillette  
Environmental Project Manager  
HNTB Corporation  
111 Monument Circle  
Indianapolis, Indiana 46204  
[kgillette@hntb.com](mailto:kgillette@hntb.com)

Tribal contacts may contact Shaun Miller at [smiller@indot.in.gov](mailto:smiller@indot.in.gov) or 317-233-6795 or Michelle Allen at FHWA at [michelle.allen@dot.gov](mailto:michelle.allen@dot.gov) or 317-226-7344.

Sincerely,

A handwritten signature in black ink, appearing to read 'Anuradha', with a horizontal line underneath and a small flourish at the end.

Anuradha V. Kumar, Manager  
Cultural Resources Office  
Environmental Services

Enclosures:

Attachment A - Consulting Party Comments & Responses  
Attachment B – Earthen Berm Figures  
Attachment C – Earthen Berm Noise Map  
Attachment D – FTA Manual Excerpt

Distribution List:

Chad Slider, IDNR-Division of Historic Preservation and Archaeology  
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Charles Hyde, Benjamin Harrison Presidential Site  
Mark Godley, St. Joseph Historic Neighborhood Association  
Shawn Miller, Chatham Arch Neighborhood Association  
Jeffrey Christoffersen, Lockerbie Square People's Club  
Jen Eamon, Windsor Park Neighborhood Association  
Jen Higginbotham, Holy Cross Neighborhood Association  
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David Hittle, NESCO Land Use  
Jon Berg, John Boner Neighborhood Centers  
Patricia and Charles Perrin, Property Owners  
Desiree Calderella, Fountain Square Neighborhood Association  
Jordan Ryan, North Square Neighborhood Association  
Joe Jarzen, Keep Indianapolis Beautiful, Inc.  
Luke Leising, Property Owner  
Mark Beebe, American Institute of Architects  
Glenn Blackwood, Fletcher Place Neighborhood Association  
Jim Lingenfelter, Southeast Neighborhood Land Use Committee  
Amina Pierson, Martindale Brightwood Community Development Corporation  
Paul Knapp, Interstate Business Group  
Betsy Merritt, National Trust for Historic Preservation  
Sarah Stokely, Advisory Council on Historic Preservation  
Mandy Ranslow, Advisory Council on Historic Preservation  
Sandy Cummings, Property Owner  
Denise Halliburton, Old Near Westside/Ransom Place  
Chelsea Humble, Riley Area Development Corporation  
Diane Hunter, Miami Tribe of Oklahoma

**Section 106 Update Memo #10**

# **Attachment A**

**Consulting Party Comments & Responses**



# INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue  
Room N642  
Indianapolis, Indiana 46204

PHONE: (317) 234-5168

**Eric Holcomb, Governor**  
**Joe McGuinness, Commissioner**

**Table B.1: I-65/I-70 North Split Project (Des. Nos. 1592385 & 1600808) – Consulting Party & Public Comments & Responses from December 19, 2019 to March 2, 2020 to Section 106 Update Memo #8, Section 106 800.11(e) Documentation, Mitigation Ideas, and Section 106 Update Memo #9**

*Note: Comments in italics were responded to previously via email.*

Comment	Response
<b>Indianapolis Historic Preservation Commission – Meg Purnsley – December 27, 2019</b>	
<i>Just so I understand, with regards to the noise barriers, is INDOT planning to move forward with an MOA without knowing if the noise barriers are going to happen?</i>	<i>We anticipate having a decision on the noise barriers before the final MOA is sent for signatures. We will be meeting with INDOT this month to discuss them and hope to have a decision soon.</i>
<b>Indianapolis Historic Preservation Commission – Meg Purnsley – January 17, 2020</b>	
<p><i>Thank you for your efforts so far on the 65/70 split project, and it was great to hear that HNTB will not be recommending the three noise barriers around I-65.</i></p> <p><i>Regarding the other mitigation efforts, it would greatly appreciated if an additional week could be given for everyone to be updated, presentations given and responses received so that we can all respond back to you.</i></p> <p><i>I respectfully request that the January 24th deadline be pushed out 7 more days.</i></p>	<i>The comment period deadline was extended by one week to January 31. Consulting parties were notified of the change on January 20.</i>
<b>Indianapolis Historic Preservation Commission – Meg Purnsley – January 29, 2020</b>	
<p>I have reviewed the most recent mitigation efforts described in INDOT’s letter sent December 19, 2019. I appreciate the opportunity to comment on any impact to historic resources incurred as a result of this project.</p> <p>The following are my responses to the mitigation efforts proposed:</p> <p><b>Tree Preservation and Plantings</b> Please see comments by the Rethink Coalition and HUNI.</p>	See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.
<p><b>Connectivity Improvements</b> Please see comments by the Rethink Coalition and HUNI.</p>	See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.
<p><b>Education/Interpretation/Community Outreach</b> It is unclear how this mitigates any impact on historic resources. Rather, it would be more beneficial to put any money spent on this towards financial assistance (see below.)</p>	The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated the oral history initiative would not be effective mitigation.
<p><b>Vibration Monitoring and Control Plan</b> The proposal states that the “design-build contractor shall develop a Vibration Monitoring and Control Plan. The</p>	Please refer to response to this comment in the main body of Section 106 Update Memo #10.

<p>plan should at least include all buildings within historic properties or districts within 140 feet of project construction activities” 140 feet should be increased to at least 400 feet. Vibration from construction has been known to negatively impact structures further away than 140 feet (roughly the depth of one lot), in some cases more than a block. 400 feet, roughly one block and two local streets deep, would better capture those buildings likely to be affected. From a liability perspective, it seems it would also be in INDOT’s best interest for this area to be expanded. An even larger area may also be considered for this plan.</p>	
<p><b>The following mitigation effort was not included, and my comments are as follows:</b></p> <p><b>Financial Assistance</b></p> <ol style="list-style-type: none"> <li>1. Funding for maintenance</li> <li>2. Funding for revenue loss during construction</li> </ol> <p>It is unclear how some of the above mitigation efforts will be funded long-term, and it is also unclear how INDOT will mitigate any repairs to buildings negatively impacted by the construction of this project, as well as any local businesses loss of revenue during construction. It is essential for the long-term preservation of the surrounding area for INDOT to include financial assistance for these reasons.</p>	<p>Regarding funding for maintenance, please see response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.</p> <p>Please refer to responses to the vibration and revenue loss during construction comments in the main body of Section 106 Update Memo #10.</p>
<p><b>The following is my response to the newly proposed mitigation effort not originally included in the Dec.19, 2019 letter from INDOT:</b></p> <p>Removal of noise barriers NB4, NB5 and NB7: The IHPC is very much in support of the recent decision for HNTB to not recommend these three noise barriers. The IHPC strongly recommends they remain excluded from the project.</p>	<p>NB4, NB5, and NB7 are not recommended for construction and are not included in the project.</p>
<p><b>North Square Neighborhood Association – Jordan Ryan – January 16, 2020</b></p>	
<p><i>I am unexpectedly without transportation and will most likely be calling in to the meeting today. Is it possible to get a copy of the slides you will be presenting tonight so I can follow along?</i></p>	<p><i>The presentation was provided prior to the consulting party meeting.</i></p>
<p><b>Old Northside Neighborhood Association – Hilary Barnes – January 17, 2020</b></p>	
<p><i>So you may have covered this later on, but on the issue of retaining more trees, will the overall height of the ground + wall be higher? Or is it just that more of the height will be made up of wall as opposed to ground? Also, on the issue of penalties, if the only penalty is that the contractor will have to plant new trees for the ones it disturbs or kills, then it doesn't seem like they will have much of an incentive to be careful and not damage/kill any of the trees in the do not disturb area. Are there additional monetary penalties being proposed?</i></p>	<p><i>The road elevation will not be taller than what was presented earlier in the Section 106 process. It will be about 4 feet taller near Central, 7 feet taller near the Morris Butler House, and 14 feet taller at College (however, the existing bridge over College closest to the Old Northside will be removed and not replaced). If we include the preservation areas, the height will be made up of more wall (less slope) in some areas because it will tie into the existing ground slope.</i></p> <p><i>I'll discuss the penalties concern with the project team and see if we can come up with something to address this.</i></p>

	<p>“Do Not Disturb” areas are designed to retain and protect larger, older trees that provide existing screening benefit or will do so in the near future.</p> <p>If trees within the “Do Not Disturb” areas do not survive within one (1) year of the conclusion of construction activity within fifteen (15) feet of the area, INDOT shall plant replacement trees, at 2-inch dbh or greater in size, at a ratio of three to one (three replacement trees for each tree that does not survive). The replacement trees shall be planted in the “Do Not Disturb” areas if space allows.</p>
State Historic Preservation Officer – Chad Slider – January 17, 2020	
<p>Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108); implementing regulations at 36 C.F.R. Part 800, and the "Programmatic Agreement (PA) Among the Federal Highway Administration, the Indiana Department of Transportation, the Advisory Council on Historic Preservation and the Indiana State Historic Preservation Officer Regarding the Implementation of the Federal Aid Highway Program In the State of Indiana" ("Indiana Minor Projects PA"); and also pursuant to Indiana Code 14-21-1-18 and 312 Indiana Administrative Code ("IAC") 20-4, the staff of the Indiana State Historic Preservation Officer and of the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, has reviewed FHWA's documentation of findings and determinations, which we received on December 20, 2019 under INDOT's cover letter dated December 19, 2019.</p>	<p>Thank you for your review.</p>
<p>In regard to archaeological resources, as previously indicated, we have not identified any currently known archaeological resources listed in or eligible for inclusion in the National Register of Historic Places ("NRHP") within the portions of the proposed project area described as Area 1, Area 2, Area 3, Area 4, Area 5, Area 6, and Area 7 in the addendum Phase Ia archaeological records check and field reconnaissance survey report (Schwarz, 12/13/2019). No further archaeological investigations appear necessary. However, this identification is subject to the ground-disturbing project-related activities remaining within areas disturbed by previous construction of a recent and non-historical nature. If archaeological deposits are encountered from the post-contact period, they will be evaluated regarding their eligibility for the NRHP in consultation with the staff of the Indiana SHPO. Please contact our office if such deposits are encountered. The archaeological recording must be done in accordance with the Secretary of the Interior's "Standards and Guidelines for Archaeology and Historic Preservation" (48 F.R. 44716) and a report of the archaeological documentation must be submitted to our office for review and comment.</p>	<p>Thank you for your review and concurrence. The portions of site 12-Ma-1062 that lie outside the proposed project area will be clearly marked so that they are avoided by all ground-disturbing project activities. If avoidance is not feasible, a plan for subsurface archaeological investigations must be submitted to the DHPA for review and comment.</p> <p>If archaeological artifacts are uncovered during project activities, the IDNR-DHPA will be notified in accordance with all state laws. All applicable state and federal regulations will be followed.</p>



<p>Furthermore, based on the submitted information and the documentation available to the staff of the Indiana SHPO, there is insufficient information regarding archaeological site 12-Ma-1062 (an abandoned rail bed containing, in situ, rail ties, rails, baseplates, and spikes; and portions of which lie within the Old Northside Historic District [NR-0716]) to determine whether it is eligible for inclusion in the NRHP. However, we concur with the opinion of the archaeologist, as expressed in the archaeological report (Schwarz, 12/13/2019), that the portions of archaeological site 12-Ma-1062 that lie within Area 8 of the proposed project area do not appear to warrant additional archaeological investigations. However, the portions of archaeological site 12-Ma-1062 that lie outside the proposed project area should be clearly marked so that they are avoided by all ground-disturbing project activities. If avoidance is not feasible, then a plan for subsurface archaeological investigations must be submitted to the DHPA for review and comment. Any further archaeological investigations must be done in accordance with the "Secretary of the Interior's Standards and guidelines for Archeology and Historic Preservation" (48 F.R. 44716).</p> <p>If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and Indiana Code 14-21-1-29) requires that the discovery be reported to DNR-DHPA within two (2) business days. In that event, please call (317) 232-1646. Be advised that adherence to Indiana Code 14-21-1-27 and Indiana Code 14-21-1-29 does not obviate the need to adhere to applicable federal statutes and regulations, including but not limited to 36 C.F.R. Part 800.</p>	
<p>We agree with FHWA's determinations and findings that the following 51 properties are the only above-ground properties within the area of potential effects that are either listed in or eligible for inclusion in the National Register of Historic Places; and we concur that the project's effects upon them are as indicated.</p> <p>We concur that the undertaking will have No Effect upon the Indianapolis Public Library Branch No. 6, Prosser House, Bals-Wocher House, Pennsylvania Apartments, The Myrtle Fem, Cathcart Apartments, Lodge Apartments, Plaza Apartments, Central Library of Indianapolis-Marion County Public Library, The Burton, The Vera and The Olga, Independent Turnverein, John W. Schmidt House (The Propylaeum), School #27- Charity Dye Elementary School, James Whitcomb Riley House, Marion County Bridge No. 2520L, James E. Roberts School No. 97, Knights of Pythias, Fame Laundry, Stutz Motor Car Company, Martin Luther King, Jr. Park, and St.</p>	<p>Thank you for your review and concurrence.</p>

<p>Rita's Catholic Church Parish Complex.</p> <p>We also concur that the undertaking will have No Adverse Effect upon Herron-Morton Place Historic District, Fletcher Place Historic District, Cottage Home Historic District, Arsenal Technical High School Historic District, Indianapolis Park and Boulevard System Historic District, Wyndham, Pierson-Griffiths House, Calvin I. Fletcher House, The Ambassador, The Shelton, Cole Motor Car Company, Gaseteria, Inc., Manchester Apartments, Sheffield Inn, Delaware Court, The Spink (Renaissance Tower Historic Inn), William Buschman Block, Pearson Terrace, Holy Cross/ Westminster Historic District, Benjamin Harrison Home/ Presidential Site, John Hope School No. 26, Saints Peter and Paul Cathedral Parish Historic District, and Windsor Park Neighborhood Historic District.</p> <p>Furthermore, we concur that the undertaking will result in an Adverse Effect upon the Old Northside Historic District, St. Joseph Neighborhood Historic District, Chatham-Arch Historic District, Massachusetts Avenue Commercial Historic District, Lockerbie Square Historic District, and the Morris-Butler House.</p> <p>Accordingly, we concur with FHWA's December 19, 2019, Section 106 finding of Adverse Effect for this federal undertaking as a whole.</p>	
<p>Regarding the noise barriers, we were pleased to learn during the January 16, 2020 consulting parties meeting that NB4, NB5 and NB7 are no longer recommended for construction, as these would have represented the most significant visual impact to historic resources. For potential mitigation proposals, we found the discussion during the meeting to be helpful to our understanding of these ideas, most of which appeared to have broad support among the consulting parties present. We appreciate the consideration given to developing meaningful and project specific proposals to mitigate the adverse effect of the undertaking.</p>	<p>Comment noted regarding the benefit of recommending against construction of NB4, NB5, and NB7, and the appreciation of the consideration of potential mitigation actions.</p>
<p>In terms of the issue of side slope treatment, we believe that the 'Do Not Disturb' areas that were designated make sense where there are larger, older trees worth preserving. We understand that there are other sections where there is currently poorer quality or smaller vegetation that could be sacrificed to provide work area during construction. We think it would be desirable to replant these areas with better quality vegetation as part of the mitigation. Where there is larger, more established vegetation, it may also make sense to retain the existing slope and provide for a slightly taller retaining wall. While minimization of the overall height of retaining walls continues to be a priority, this needs to be balanced against the desirability of</p>	<p>"Do Not Disturb" areas are designed to retain and protect larger, older trees that provide existing screening benefit or will do so in the near future.</p> <p>Construction work areas are allowable at locations with poorer quality or smaller vegetation, with replanting of better quality vegetation.</p> <p>The retention of larger, more established vegetation and/or avoiding overly steep slopes will be facilitated at some locations by slight increases in retaining wall height. Vegetation will be planted in front of the walls to soften their appearance when retaining wall construction is complete.</p>

<p>retaining existing larger trees (where present) and keeping a maintainable slope that is not overly steep. Where taller retaining walls are deemed appropriate, we liked the idea of planting vegetation that would grow in front of or onto the wall to soften its appearance. Terracing may also be an appropriate solution within the Old Northside Historic District, St. Joseph Neighborhood Historic District, and Chatham-Arch Historic District, in any areas where the height difference is substantial and the horizontal space is severely limited, resulting in either a tall wall or an unusually steep grass slope. Retaining walls of traditional red clay brick or cut stone facing could complement the district's historic materials, with the inclusion of trees and other native vegetation to provide an aesthetically pleasing transition, softening the visual impact within districts and adjacent to individually listed or significant resources in close proximity to the highway.</p>	<p>Constructing terraced side slopes would require removal of any trees within the existing right-of-way. Terraced side slopes were considered during the project development. Ultimately terraced side slopes were removed from consideration because of the increased cost (an increase of \$1.4M for a 3-level terrace for each stretch between bridges along I-65/I-70 south of the interchange and an increase of \$650,000 for a 3-level terrace south of I-65 from Alabama to Central) and concerns with maintenance. The terrace wall for each level would be approximately 10 feet tall. Maintenance of the second level would be extremely difficult to access as well as water from either the above interstate or street level. This would result in a less desirable aesthetic condition.</p> <p>Current retaining wall plans were developed as part of the Context Sensitive Solutions process and call for texturing to complement the adjacent area, with the inclusion of trees and other native vegetation to soften the visual impact.</p>
<p>While we believe that retention of some portions of the earthen berm might provide a level of visual screening of the highway from adjacent neighborhoods, we also appreciate the views of other consulting parties which may desire a flatter, more open landscape between districts and the highway. Either way, we think that the inclusion of tree planting, with or without retention of earthen berms, would be a desirable and appropriate measure to improve the appearance of the project area from adjacent neighborhoods.</p>	<p>INDOT has developed renderings of the interchange with and without the earthen berms (see Attachment B). The berms could be sculpted and trees planted to make them appear more natural. Additional information regarding the possible berms is included in Section 106 Update Memo #10 and additional input from consulting parties is being requested before a final decision is made about the berms.</p>
<p>Additionally, we believe that the proposed connectivity improvements, education/interpretation oral history project, and vibration monitoring are important and desirable aspects of the mitigation proposal.</p> <p>We look forward to receiving a draft memorandum of agreement for review that reflects these commitments and the additional ideas and input of consulting parties.</p>	<p>Thank you for the feedback. Additional mitigation items have been added based on consulting party feedback and are included in the Draft MOA for your review. The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated the oral history initiative would not be effective mitigation.</p>
<p><b>Hendricks Commercial Properties – Gavin Thomas – January 20, 2020</b></p>	
<p>In response to Kia Gillette's email regarding an email bounce back from a former consulting party representing Hendricks Commercial Properties:</p> <p><i>Yes...I'm Isaac's replacement here at Hendricks. He left about 7 months ago. Please add me to your distribution and meeting list.</i></p>	<p>Mr. Thomas was added to the North Split consulting party list on January 20, 2020.</p>
<p><b>Indiana Landmarks – Marsh Davis – January 30, 2020</b></p>	
<p>Indiana Landmarks fully concurs with comments recently submitted by the Rethink 65/70 Coalition and by the City of Indianapolis Historic Preservation Commission. To avoid redundancy, we will not repeat those comments but please understand that we fully support the positions presented in the respective letters.</p>	<p>See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.</p>
<p>We also wish to reiterate the positions conveyed in our</p>	<p>Thank you for the clarifications. They are noted.</p>

<p>letter to you dated September 11, 2019, with the exception of the reference to "transparent sound barriers" which are no longer considered a mitigating option. And reference to "sound proofing" should be restated as "noise reduction."</p>	
<p>Our primary concerns remain regarding the impacts on the Morris-Butler House and the Indiana Landmarks Center. We anticipate that the project will have detrimental effects on these properties due to vibration during the reconstruction project (both are load-bearing brick structures with high-lime content mortar), increased noise during and after the reconstruction, and revenue loss during the reconstruction project. Please refer to my letter of September 11, 2019 (attached).</p> <p>As for noise reduction at the Indiana Landmarks Center and the Morris-Butler House, please see the attached which provides a treatment and initial cost estimates. We expect costs related to noise reduction at these properties to be included in the mitigation process.</p>	<p>Please refer to response to this comment in the main body of Section 106 Update Memo #10.</p>
<p>One point that may not have been raised is the impact of the reconstruction project on 12th Street. Care must be taken to preserve the limestone curbs during the reconstruction project. Any damage to the existing curbs will be closely monitored with the expectation that they will be repaired as part of the project.</p>	<p>Thank you for raising this point. A stipulation protecting the limestone curbs along 12<sup>th</sup> Street has been added to the Draft MOA.</p>
<p>On behalf of Indiana Landmarks, I offer the following brief comments on Section 106 Effects Report as presented on August 29, 2019.</p> <p><b>1. Indiana Landmarks properties.</b></p> <p>As owner of the <b>Morris-Butler House</b>, we concur with the determination of adverse effect due to increased height and width of the interstate immediately to the south of the structure. Of particular concern are increased noise, which already renders the grounds of the property largely unusable for events and programs, and the vibration and potential resulting damage to the load-bearing brick structure. We have great concern about the potential damage that could occur during construction, and we will insist that mitigation include any repairs needed as a result of the project.</p> <p>Of much greater concern is the impact on the <b>Indiana Landmarks Center</b> (former Central Avenue Methodist Episcopal Church) which serves as Indiana Landmarks' state headquarters and as an event and wedding venue. This property, while not individually listed in the National Register of Historic Places (NRHP), is a contributing resource in the Old Northside Historic District, and it is individually eligible for NRHP listing. <b>Of all properties assessed for potential adverse effect in the North Split project, the Indiana Landmarks Center should have appeared at the top of the list.</b></p>	<p>Please see response to previous comment in Section 106 Update Memo #6 Attachment B.</p>

<p>We understand that the interstate will be 22 feet closer to the building than it is at present and that the roadbed will be higher. Both will have an adverse visual and aural effect on the property. As with the Morris-Butler House, the Indiana Landmarks Center is a loadbearing brick structure susceptible to damage from vibration that will occur during reconstruction of the North Split and later, due to the proximity of the roadbed when the project is completed.</p>	
<p>We will seek the following mitigation measures:</p> <ul style="list-style-type: none"> <li>• Repair any damage to the building as a result of construction and widened roadbed.</li> <li>• Add sound-proofing to the Indiana Landmarks Center to allow its continued function as an events center.</li> <li>• Install transparent sound barriers along edge of interstate adjacent to the Indiana Landmarks Center and the Morris-Butler House.</li> </ul> <p>Further, during the period of highway reconstruction, Indiana Landmarks anticipates significant revenue loss as the operation of the Indiana Landmarks Center will be impaired by construction. Based on an annual average of net revenues from 2015 to 2019, potential revenue loss could approximate \$200,000 on an annual basis. We will seek mitigation funding to offset revenue loss during period of construction.</p>	<p>Please refer to response to this comment in the main body of Section 106 Update Memo #10.</p>
<p>Key to determining adverse effect on these properties and others near the construction site is the “Vibration Plan” to be submitted by the selected contractor. When will this plan be written? By whom? And who approves it? The vibration plan must take into account impact on the Indiana Landmarks Center in addition to those properties identified as adversely affected.</p>	<p>Please refer to response to this comment in the main body of Section 106 Update Memo #10.</p>
<p><b>2. St. Joseph Historic District.</b> The St. Joseph Historic District will be adversely affected due to the widening of the interstate (noise, visual detriment) and should be listed among resources in the Adverse Effect category. Properties along 11th Street west of Central Avenue in particular will be affected.</p>	<p>Please see response to previous comment in Section 106 Update Memo #6 Attachment B.</p>
<p><b>3. Assessment of impact boundaries.</b> Indiana Landmarks believes the adverse effect determination should include resources within the <b>locally designated historic districts</b> under the aegis of the Indianapolis Historic Preservation Commission in cases when those boundaries differ from the NRHP district boundaries. The local district boundaries reflect the continuity and unifying physical and social characteristics of the neighborhoods that have been determined through intensely local processes. While that may be beyond the letter of the 106 review requirements, such consideration will indicate a respect for the neighborhoods as they have</p>	<p>Please see response to previous comment in Section 106 Update Memo #6 Attachment B.</p>

evolved subsequent to their respective NRHP designations.	
<b>4. Mitigation Ideas for Adverse Effects.</b> The ideas presented in the Assessment of Effects Report are innocuous. We will seek more substantive and physical mitigation due to the impacts the North Split will have on Indiana Landmarks' properties and the affected neighborhoods. Results of noise and vibration studies are critical in determining appropriate mitigation measures. Concluding the assessment of adverse effect without that data is premature and promises to create future conflicts as the tangible effects of the North Split are realized. We urge HNTB, INDOT and FHWA to make the comment process fluid and not to impose deadlines on comment before studies are complete and fully vetted. Transparency on the undertaking and approval of these studies is imperative.	Please see response to previous comment in Section 106 Update Memo #6 Attachment B.  Final effect findings for historic properties were included in the Section 106 800.11(e) Documentation sent to consulting parties on December 19, 2019. These effect findings take into account the results of the traffic noise analysis as well as mitigation commitments regarding vibration.
<b>Saint Joseph Historic Neighborhood Association – Mark Godley – January 31, 2020</b>	
The St. Joseph Historic Neighborhood Association appreciates the opportunity to provide comments regarding the January 16, 2020 presentation for the Consulting Parties Meeting.  We agree that the North Split project will result in an Adverse Effect upon the named historic districts, including the St. Joseph Neighborhood District.	Thank you for your concurrence.
<b>Traffic Noise Barrier Update</b> We are pleased that noise barrier walls NB4, NB5, and NB7 will not be recommended for implementation because they represent the most significant impact to the historic districts.	NB4, NB5, and NB7 are not recommended for construction and are not included in the project.
<b>Tree Preservation and Plantings &amp; Side Slope Treatments</b> The St Joseph Neighborhood would like to see the side slope treatments and vegetative buffering be maintained at their current level of effectiveness or, better yet, increased to provide enhanced buffering (see previously submitted comments By Rethink Coalition regarding “urban forest”).	Existing trees near the Saint Joseph Neighborhood Historic District are included in “Do Not Disturb” areas. Side slopes behind the existing trees will get enhanced side slope plantings as outlined in the North Split Aesthetic Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
<b>Tree Preservation:</b> We find some trees could be retained in the “200 block section” (between Delaware and Alabama Streets) along the ramp at the ROW area at the bottom of the slope. There are no trees in the sloped “300 block section” within the ROW. The Tree Preservation and Do Not Disturb areas need to be considered in the context of INDOT’s Side Slope Treatments. Per the National Historic Preservation Act an increased level of detail is required to “enable informed consideration of avoidance, minimization, or mitigation measures.”	“Do Not Disturb” areas are identified for existing trees at the following locations south of I-65 near the Saint Joseph Neighborhood Historic District: <ul style="list-style-type: none"> <li>- Between Delaware Street and the parking lot east of Alabama Street</li> <li>- Between New Jersey Street and Central Avenue</li> </ul> Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .

	<a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
<p><b>Planting Terraces:</b></p> <p>The St Joseph Neighborhood proposes terraces to minimize tree impacts with additional vegetation added to existing conditions to include a variety of mature evergreen and deciduous shade trees to ensure screening on a year-round basis. Planting design on terraces should consider minimizing mowing and weeding requirements after establishment to minimize future maintenance operations.</p>	<p>Please refer to response to this comment in the main body of Section 106 Update Memo #10.</p> <p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<b>Keep Indianapolis Beautiful – Joe Jarzen – January 30, 2019</b>	
<p>KIB is pleased that an option was presented to preserve as many of the trees planted along the interstate over the past decade or more. We understand that the preservation of trees may require a larger wall by approximately 4'. We would encourage this as these trees have over 10 years of growth, and have a sizeable impact on the environment and aesthetic impacts. KIB still supports planting additional trees, but we would not be able to plant trees the size of existing trees between Michigan and New York along Davidson St.</p> <p>In the memo, specific areas are called out as do not disturb zones. One such area is the west side of the interstate along Davidson St between Michigan and New York Sts. Our mapping indicates that we have substantial plantings throughout the project scope area. During summer 2019, we completed an assessment study of all of the trees planted, and found that out of the 651 originally planted between 2007 and 2011, 433 are still alive. This is a much lower survivability rate than most of our plantings, however, several trees were removed on the east side of the interstate at a later date. Still, the attached map shows surviving trees within the project area. KIB would encourage additional “do not disturb” areas to be added to the ones already identified.</p>	<p>The “Do Not Disturb” areas were identified based on the quality and maturity of the existing trees and the feasibility of avoiding them while applying reasonable construction techniques to implement the project.</p> <p>Thank you for providing the map of trees planted. We have reviewed the map and considered adding additional “Do Not Disturb” areas. In order to allow the design-builder room for access, staging of equipment, and construction activities, no additional “Do Not Disturb” areas will be added. Areas disturbed by construction will be planted in accordance with the North Split Aesthetics Design Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>If trees within these zones are disturbed during construction, we would believe mitigation should also cover replacement with maintenance costs. We recommend maintenance include watering each tree, 15 gallons of water, every week after the first new blooms until the first frost (generally May-November), for three years after the initial installation.</p>	<p>If trees are disturbed they will be planted in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p> <p>INDOT shall develop a landscape maintenance plan for three years after tree and shrub planting and shall replace trees and shrubs that do not survive during the first three years after planting. <i>(Note: the typical replacement period is 1 year).</i></p>



	<p>INDOT shall engage Keep Indianapolis Beautiful, Inc. as a landscape advisor to provide recommendations and/or services for tree and shrub establishment.</p>
<p>When replacement does occur, KIB recommends number of trees replaced is based on total basal area. Basal area is the average amount of an area occupied by tree stems. It is defined as the total cross-sectional area of all stems in a stand measured at breast height, and expressed as per unit of land area (typically square feet per acre).</p>	<p>If trees are disturbed in areas that are not within “Do Not Disturb” areas, they will be planted in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p> <p>Based on the Guidelines, it is anticipated the new plantings on side slopes will provide more trees than are currently there. However, the tree plantings will be based on spacing requirements and the slope and will not be determined based on the existing basal area of the trees.</p> <p>If trees within the “Do Not Disturb” areas do not survive within one (1) year of the conclusion of construction activity within fifteen (15) feet of the area, INDOT shall plant replacement trees, at 2-inch dbh or greater in size, at a ratio of three to one (three replacement trees for each tree that does not survive). The replacement trees shall be planted in the “Do Not Disturb” areas if space allows.</p>
<p>While KIB would support a higher retaining wall to preserve maturing trees, KIB would also recommend that serious consideration be given to providing an additional wall be included in the mitigation funding that would allow for vertical plantings beside the interstate. This added plant investment would again provide both environmental and aesthetic benefits for the community. A variety of species could be planted along this to provide at least a three season impact. There are many examples of this treatment that could be used as a model for this.</p>	<p>Thank you for your feedback on the retaining wall height. Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>With regard to connectivity concerns brought up by the public, KIB wanted to address two: the addition of public art on the underpasses and treatment of the land after the North Split is consolidated alongside the existing O’Bannon Park.</p> <p>KIB appreciates the planning for future additions of murals in the underpasses of the North Split. KIB worked with INDOT, the Arts Council and Downtown Indy during its Vibrant Corridors project several years ago. This took considerable investment. Planning for space on flat walls of the underpass is helpful, but additional funding to assist with the installation of these murals would help further the mitigation and connectivity goals of this project. INDOT could once again work with the community to have the project carried out, but allocating</p>	<p>INDOT has made provisions in the design of the underpasses and would participate in community efforts to make the best use of the available space, but INDOT is not currently obligating project funds for the installation of art. The North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted, identifies areas for the potential inclusion of public art.</p>

<p>funding would make it a more feasible and attainable goal. This would fit the recommendations of the Context Sensitive Solutions committee, and provide further example of doing more to address community concerns.</p>	
<p>Regarding the land adjacent to O'Bannon Park, there could be a number of treatments planned for this space that can be considered with proper City, neighborhood and community partner involvement. KIB would be glad to support that brainstorm process, but would also recommend responding to past neighborhood input of increased tree and native plant plantings. Just as trees, shrubs and plants help provide a buffer to the neighborhoods in other sections of this project, the same could happen in this location. Additional trees and opportunities for native plantings throughout the project area should be considered and implemented.</p>	<p>Increased tree and native plantings are identified for this area through the North Split Aesthetic Design Guidelines. These guidelines were not yet available at the time this comment was submitted. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>Lockerbie Square People's Club – Marjorie Kienle – January 31, 2020</b></p>	
<p><b>General Response:</b> We believe that there is an Adverse Effect upon Lockerbie Square by reconstructing the North Split of 1-65 and 1-70 and appreciate the opportunity to respond to mitigation.</p>	<p>The Adverse Effect finding for the Lockerbie Square Historic District was based on the potential construction of Noise Barrier NB7. INDOT's preliminary recommendation is to not construct NB7 and it is no longer included in the North Split Project.</p> <p>The potential effects to Lockerbie Square as a result of the North Split Project were examined in the Assessment of Effects Report and summarized in the 800.11 document. As stated on page 48 of the 800.11 document, if NB7 is not constructed, "project activities, including the distance between bridges and the historic district and the minimal height increases of the interstate east of the district, will make the [existing] intrusion only slightly more visible from within the district. As a result, these project activities will not have an impact on the characteristics that qualify the Lockerbie Square Historic District for the NRHP in a manner that would diminish" the district's integrity.</p> <p>FHWA and INDOT welcome all comments from consulting parties regarding mitigation.</p>
<p><b>Traffic Noise Barrier:</b> We are pleased that noise barrier walls NB7, along the east side of our neighborhood will not be constructed. We are, of course, concerned about the noise of the interstates in our neighborhood, but believe that reduction of sound can be achieved in more appropriate ways. Traffic Noise Barrier: We are pleased that noise barrier walls NB7, along the east side of our neighborhood will not be constructed. We are, of course, concerned about the noise of the interstates in our neighborhood, but believe that reduction of sound can be achieved in more appropriate ways.</p>	<p>NB7 is not recommended for construction and is not included in the project.</p> <p>In addition to considering noise barriers, INDOT is taking the following actions to further reduce noise within the project area:</p> <p><u>a. "Next Generation" Pavement.</u> 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</p>

	<p>other factors, recent studies have shown next generation pavement can reduce tire noise by 3 to 5 decibels or more.<sup>1</sup></p> <p><u>b. Continuous Reinforced Concrete Pavement.</u> This paving technique eliminates the need for transverse joints, which are the cause of rhythmic sound patterns of tires passing over traditional concrete roadways.</p> <p><u>c. Jointless Concrete Bridges.</u> 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.</p>
<p><b>Tree Preservation and Plantings &amp; Side Slopes:</b> Lockerbie Square neighbors are grateful for the recommendation of tree preservation between Michigan Street and New York Street along Davidson. We have invested in these trees in both time and money and cherish their maturity. We understand that Do Not Disturb areas need to be considered in the context to INDOT's Side Slope Treatments and are OK with that. We do recommend that after completion of construction that all trees that did not survive be replaced, that additional evergreens be added and that an ivy type of plant be added to the walls to reduce opportunity for graffiti. Per the National Historic Preservation Act an increased level of detail is required to "enable informed consideration of avoidance, minimization, or mitigation measures." Please provide scaled drawings at a minimum of locations that show the range of existing and proposed conditions and INDOT's proposed plan to minimize side slope impacts on the visual and landscape quality of the affected historic districts.</p>	<p>If trees within the “Do Not Disturb” areas do not survive within one (1) year of the conclusion of construction activity within fifteen (15) feet of the area, INDOT shall plant replacement trees, at 2-inch dbh or greater in size, at a ratio of three to one (three replacement trees for each tree that does not survive). The replacement trees shall be planted in the “Do Not Disturb” areas if space allows.</p> <p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>Planting Terraces:</b> Those areas north of Michigan and South of New York along Davidson are recommended to be terraced with optimized planting areas. Vegetative buffering needs to be equal or better in density and size to existing conditions and should include a variety of mature evergreen and deciduous shade trees to ensure screening on a year-round basis. Planting design on terraces should consider minimizing mowing and weeding requirements after establishment to minimize future maintenance operations.</p>	<p>Constructing terraced side slopes would require removal of any trees within the existing right-of-way. Terraced side slopes were considered during the project development. Ultimately terraced side slopes were removed from consideration because of the increased cost (an increase of \$1.4M for a 3-level terrace for each stretch between bridges along the south leg) and concerns with maintenance. The terrace wall for each level would be approximately 10 feet tall. Maintenance of the second level would be extremely difficult to access as well as water from either the above interstate or street level. This would result in a less desirable aesthetic condition.</p> <p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>

<sup>1</sup> 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.

	<a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
<p><b>I-65 / I-70 Interchange Area</b></p> <p>a. While Lockerbie Square is not as greatly affected, we strongly oppose leaving old roadway beds in place anywhere inside the interchange. We request the interchange be graded and contoured to create a pleasing ground plane viewed from O'Bannon Park and the Monon Trail and the crossing city streets as well as a basis for sustainable reforestation.</p> <p>b. The interchange should be a visual extension of the park landscape as required by Section 4(f).</p> <p>c. We also request dense urban forest plantings to buffer the height of the interstate bridges and overpasses. This urban forest should be designed to have a pleasing result of massed and open space areas to create a positive experience by motorists and pedestrians on the ground plane.</p>	<p>INDOT has developed renderings of the interchange with and without the earthen berm (Attachment B). The berms could be sculpted and trees planted to make them appear more natural. Additional information regarding the possible berms is included in Section 106 Update Memo #10 and additional input from consulting parties is being requested before a final decision is made about the berms.</p> <p>Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the use of certain public and historic lands for federally funded transportation facilities unless there is no feasible and prudent alternative. The law applies to significant publicly owned parks, recreation areas, wildlife / waterfowl refuges, and NRHP eligible or listed historic properties regardless of ownership. The interchange reconstruction, either with or without a berm, will not result in a use under Section 4(f). Section 4(f) does not require a visual extension of the O'Bannon Soccer Park landscape. Tree plantings within the interchange area will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>Connectivity Improvements</b></p> <p>Per the National Historic Preservation Act an increased level of detail is required to "enable informed consideration of avoidance, minimization, or mitigation measures." We have the following requests for more information on the proposed Connectivity Improvements:</p> <ol style="list-style-type: none"> <li>1. What are the details of the proposed light types and locations, sign location, wall treatments, pedestrian way and mural spaces?</li> <li>2. INDOT did not address their proposed treatments for the other underpasses beyond Alabama, Central and College. What are the proposed treatments for the other local streets (New York, Michigan, Vermont, 10th Street)?</li> <li>3. Old Northside Connector: While this area is not adjacent to Lockerbie Square, our residents want the opportunity to use it. Please extend the connector to the bike lanes on Pennsylvania and the bike boulevard on Alabama.</li> <li>4. Monon Loop Trail: The existing O'Bannon Park trails are substandard and are in poor shape. Any Monon detour path should match the existing Monon Trail width and cross section construction. We also request that this entire trail loop remain as a permanent feature as it increases pedestrian connectivity between the historic districts.</li> </ol>	<p>See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.</p>

<p><b>Oral History Initiative</b> This is not mitigation. The history of the historic neighborhoods, the interstate construction and its impacts, and the revitalization of the neighborhoods is already well-documented. We recommend the funds be put towards infrastructure and urban forestry-based mitigation.</p>	<p>The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated the oral history initiative would not be effective mitigation.</p>
<p><b>Vibration Monitoring and Control Plan:</b> The proposal states that the "design-build contractor shall develop a Vibration Monitoring and Control Plan. The plan should at least include all buildings within historic properties or districts within 140 feet of project construction activities" 140 feet should be increased to at least 400 feet. Vibration from construction has been known to negatively impact structures further away than 140 feet (roughly the depth of one lot), in some cases more than a block. 400 feet, roughly one block and two local streets deep, would better capture those buildings likely to be affected. From a liability perspective, it seems it would also be in INDOT's best interest for this area to be expanded. An even larger area may also be considered for this plan.</p>	<p>Please refer to response to this comment in the main body of Section 106 Update Memo #10.</p>
<p><b>Mitigation Efforts Not Proposed</b> 1. Financial Assistance: It is unclear what INDOT's plan is to address repairs or soundproofing of buildings negatively impacted by the construction of this project, as well as any local business loss of revenue during construction. 2. Long-term maintenance: It is unclear what INDOT's plan is to address the maintenance of any Section 106 mitigation measures. Relying on the volunteer efforts of adjacent neighborhoods is insufficient and IN DOT needs to propose a long-term sustainability plan.</p>	<p>See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.</p>
<p><b>Holy Cross Neighborhood Association – Kelly Wensing – January 30, 2020</b></p>	
<p>I believe capturing the oral history of what our city was like prior to the introduction of the highway system would be a good idea. We are losing those legacy neighbors every year.</p>	<p>The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated the oral history initiative would not be effective mitigation.</p>
<p><b>Holy Cross Neighborhood Association – Kelly Wensing – January 31, 2020</b></p>	
<p>We are very supportive of tree preservation and plantings. As we stated previously, we believe that maintaining and building on the current urban forest will create a visually more attractive sound barrier, reduce carbon, and help with run off. The highway runs through the west side of our neighborhood and our neighbors maintain these grassed areas by picking up trash and mowing.</p>	<p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>We would like to go on record that we stand with Lockerbie Square Historic and their position on the District Do Not Disturb area mentioned in bullet point 'h' for the western side of the highway project that falls</p>	<p>See response to comments submitted by Lockerbie Square People's Club on January 31, 2020, starting on page 12.</p>



between New York and Michigan. We understand that by keeping the trees the highway wall will be taller in this area.	
It is not clear what the plan is for the trees that have been growing on the eastern side of this very same stretch of highway (New York to Michigan along Pine). We would hope that these trees would not be removed but have a feeling, since they didn't make it into the report, they will be removed. We would like to go on the record to state that we fully expect that any trees removed during the process of 65/70 reconstruction project that fall within our neighborhood boundaries* will be replaced as 2 new for 1 removed. We are under the assumption that all new trees will be with like or larger dbh (following your 2-inch dbh or greater rule).	Trees in this area will likely be removed during construction. Trees and shrubs will be replanted in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> . Side slope plantings will include new trees, shrubs and native plantings that will result in a greater number of trees planted on the slope. Planted trees will be 2-inch dbh or larger.
We would also like to go on the record that we support: <ul style="list-style-type: none"> <li>• the maintaining the cultural trail detour as a permanent feature</li> <li>• Protecting the brick portion of 10th Street</li> </ul>	It is assumed the trail detour comment refers to the Monon Trail detour which will be constructed as part of the project. Portions of the Monon Trail detour will be retained as a permanent feature. The brick portion of 10 <sup>th</sup> Street will be protected from construction equipment.
As for Education/Interpretation/Community outreach we are in support of INDOT's efforts to complete an oral history and believe that should reach all neighborhoods who have been impacted and not just historic neighborhoods. We are supportive of a documentary film/podcast/website/etc. and the traveling exhibit.	We appreciate your feedback. The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated the oral history initiative would not be effective mitigation.
<b>Historic Urban Neighborhoods of Indianapolis – Garry Chilluffo – January 31, 2020</b>	
We concur and are in agreement with the findings of the Rethink analysis report and submit their report as an attachment to this letter, for your consideration and incorporation into the project record.	See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.
<b>National Trust for Historic Preservation – Elizabeth Merritt – January 31, 2020</b>	
We support the detailed comments submitted by the Rethink 65/70 Coalition, and the comments submitted by Indiana Landmarks. A couple of issues warrant specific mention.	See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.
<b>Vibration Effects</b> First, we specifically endorse the proposal by the Coalition that the area covered by the Vibration Monitoring Plan should be increased from a 140-foot zone around all construction activities to a 400-foot zone.	Please refer to response to this comment in the main body of Section 106 Update Memo #10.
<b>Indiana Landmarks Center</b> Second, we are especially concerned that the discussion of mitigation measures in the December 19 Update Memo #8 fails to address the foreseeable adverse effects on the historic Indiana Landmarks Center. As we have previously commented, the expanded highway will be 22 feet closer to the Indiana Landmarks Center than the current highway, and the elevation will be six to seven feet higher than the existing road, with a four-foot Jersey barrier on top. In addition, the new retaining wall will be 10-12 feet tall. The Indiana Landmarks Center is a 19th-century brick	<p>The Indiana Landmarks Center is within the Old Northside Historic District, which will be adversely affected by the project.</p> <p>Please refer to response to the vibration and revenue loss during construction comments in the main body of Section 106 Update Memo #10.</p> <p>It is not clear how an alternative venue would work for events during construction or whether an organization or individual would pay Indiana Landmarks to hold an event at a different</p>

<p>building, and the close proximity of the construction activities will have the potential to damage the building physically. In addition, the construction will have a significant financial impact on Indiana Landmarks by interfering with the revenue from rentals of the property for events. (See <a href="https://www.indianalandmarks.org/our-historic-sites/indiana-landmarks-center-campus">https://www.indianalandmarks.org/our-historic-sites/indiana-landmarks-center-campus</a>.) This needs to be specifically addressed by exploring ways that this adverse economic impact can be both minimized and mitigated. For example, we have previously suggested that mitigation could include providing an alternative venue for Indiana Landmarks to use for events during the construction period. This photograph highlights the extremely close proximity of the highway to this property. can be both minimized and mitigated.</p>	<p>location.</p>
<p><b>Chatham Arch Neighborhood Association – Shawn Miller – January 31, 2020</b></p>	
<p>First off we appreciate that the Sound Barriers proposed and presented at our neighborhood meeting in November have been removed from the project. We do however feel that the mitigation proposals in your most recent Findings of Adverse effect are inadequate. The Oral History Initiative is a complete waste of time and money, and does nothing to assist or help the neighborhoods that are negatively affected in a very real and tangible way by this Project. All of this is already in place in most of these Districts- these are mature Historic Districts -not areas that need this kind of assistance. Additionally, the impact this project will have on the Neighborhoods both during construction and thereafter is so large that only real tangible things are going to help mitigate this taller and more dominant interstate.</p>	<p>The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated the oral history initiative would not be effective mitigation.</p> <p>Section 106 mitigation items have been revised based on comments from consulting parties.</p>
<p>We need lots of trees- mature ones, not saplings, planted all along the earthen slopes. I would be great if there was some way to capture run off from the interstate to water these trees so they grow quickly. We need increased connectivity-through construction of additional trails and roadways. Particular properties that are near the interstate will need retrofitted with sound deadening windows and doors. Businesses that will be disrupted need to be compensated for that. And certainly roads that will be used as alternative routes during the construction need to be improved and repaved after construction is completed. Vibration monitoring needs to be done far further than 140 feet from the project. I could go on and on, but no need you have heard all of this before.</p>	<p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p> <p>Regarding connectivity improvements, please see response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.</p> <p>Regarding retrofitting properties with sound deadening windows and doors, compensation of businesses, and vibration concerns, please refer to responses in the main body of Section 106 Update Memo #10.</p>
<p>We appreciate your timetable and your desire to get this process behind you so you can start construction; however, to me this process seems quite laborious and designed specifically to get us all to just go away and let</p>	<p>Section 106 consultation for the North Split Project was initiated in September 2017. It has been underway for over 2 years. Per the Section 106 regulations, there are 4 specific steps that must be followed: 1) Initiate consultation; 2)</p>



<p>you start your project. It seems we have to keep saying the same things over and over. You keep coming back with proposals that really don't address the core problems and issues this project is going to cause to our neighborhoods. It's really hard not to think that INDOT is just trying to take the cheapest possible approach to this project, which is unfortunate with such a visible project that cuts through the heart of our Capital City. If you truly want to move this along, please advise whomever it is that you report to, or is calling the shots here, to give us some real mitigation solutions that we can all get behind and support.</p>	<p>Identify historic properties; 3) Assess effects on historic properties; and 4) Resolve any adverse effects. The project is currently in Step 4. The Context Sensitive Solutions (CSS) process and noise barrier public involvement meetings are in addition to the Section 106 process.</p> <p>INDOT's process is intended to reach a balance between effective mitigation for the effects of an interstate reconstruction project and fiscal responsibility on behalf of taxpayers of the State of Indiana.</p>
<b>Rethink 65/70 Coalition – Kevin Osburn – January 31, 2020</b>	
<p>We concur that the project will result in an Adverse Effect upon the Old Northside Historic District, St. Joseph Neighborhood District, Chatham-Arch Historic District, Massachusetts Avenue Commercial Historic District, Lockerbie Square Historic District, and the Morris-Butler House.</p>	<p>Thank you for your concurrence.</p>
<p>We concur with Indiana Landmarks that their Headquarters Building is especially impacted within the Old Northside Historic District and urge special consideration for noise and vibration on that structure.</p>	<p>Please refer to response to this comment in the main body of Section 106 Update Memo #10.</p>
<p>We also believe that the Martindale Brightwood neighborhood should be considered eligible as both a national register district per 36 CFR 800 and locally designated historic district. The two neighborhoods were originally settled in the 1870s and are integral to the history of Indianapolis's growth and development.</p>	<p>A Historic Property Report was completed for the North Split Project in 2017. This document reported on the buildings and districts listed on the National Register of Historic Places (NRHP) and identified additional resources that were determined eligible for the NRHP. Investigations were conducted by historians to determine whether properties meet NRHP guidelines for significance and historic integrity. A portion of the Martindale Brightwood neighborhood is located within the Area of Potential Effects (APE) for the project. The Martindale Brightwood neighborhood has a rich history, but the portion of the neighborhood within the APE was recommended not eligible because historians believed it did not satisfy the requirements for NRHP listing. The SHPO concurred with the results of the Historic Property Report in a letter dated February 8, 2018. No other consulting party comments were received regarding the identification of the Martindale Brightwood neighborhood as eligible for the NRHP.</p> <p>Per the Section 106 regulations, there are 4 specific steps that must be followed: 1) Initiate consultation; 2) Identify historic properties; 3) Assess effects on historic properties; and 4) Resolve any adverse effects. Identification of historic properties is Step 2. The project is currently in Step 4 in the consultation process.</p> <p>As part of Section 106, districts are not recommended for local listing.</p>
<p><b>Traffic Noise Barrier Update</b></p> <p>1. We agree with the SHPO and are pleased that noise barrier walls NB4, NB5, and NB7 will not</p>	<p>NB4, NB5, and NB7 are not recommended for construction and are not included in the North Split project.</p>

<p>be recommended for implementation because they represent the most significant impact to the historic districts.</p> <p>2. Regarding proposed barrier walls 3W and 3E in the Martindale Brightwood neighborhood, we defer to the neighborhood's decision. Should they agree to the noise barriers, please mitigate the impact of the noise barrier structure on the eligible historic district. We request INDOT install vines to cover the walls and plant a dense vegetative buffer on the interstate side slopes. The current sound impacts can be heard several blocks away from the interstate.</p>	<p>The North Split Aesthetic Design Guidelines include trees specifically selected for screening along NB3W and NB3E. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>Possible Mitigation Ideas</b></p> <p>We agree that mitigation should be compensation for the diminishment of a historic property as stated in your presentation. In addition, it is our understanding that Section 106 should also explore ways to avoid adverse effects to historic properties. Because of Section 106, federal agencies must assume responsibility for the consequences of the projects they carry out, approve or fund on historic properties, and be publicly accountable for their decisions.</p> <p>We understand that the ideas contained on slides 14-27 represent possible ideas proposed by INDOT/HNTB for the mitigation and resolution of adverse effects on the above-mentioned historic districts and resources. The ideas proposed are focused on Tree Preservation, Connectivity Improvements, Education/Interpretation, and Vibration. We also understand that INDOT/HNTB is in possession of previous comments regarding the project's adverse effects on historic properties provided by the Coalition on September 9, 2019 (attached) in response to the previous consulting parties meeting presentation (August 29, 2019).</p> <p>Our previous comments included ideas on tree preservation, plantings, vegetative buffering, side slope treatments, connectivity, underpass treatments, vibration protection AND referenced the need for the Section 106 mitigation efforts to incorporate and integrate the ideas proposed in response to the Context Sensitive Solutions process submitted to INDOT/HNTB on August 20, 2019 (attached). The Coalition views the ideas contained in these previous submittals as essential to the mitigation and resolution of adverse effects on the above-mentioned historic districts and properties and requests that INDOT/HNTB give them serious thought and consideration. We also request that INDOT/HNTB provide a response as to how these ideas will or will not be addressed in the Section 106 and CSS mitigation processes.</p>	<p>Side slope construction, tree/shrub planting, and underpass treatments will be in accordance with the North Split Aesthetics Design Guidelines, which were not available when Section 106 Update Memo #8 was sent to consulting parties. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p> <p>Section 106 mitigation items have been revised based on comments from consulting parties.</p>

<p>The following comments represent the Coalition’s position and response to the latest mitigation ideas proposed by INDOT/HNTB based on detailed discussions with our constituents, the leadership of the impacted historic districts and properties, and our previously prepared and submitted responses to both the Section 106 and CSS processes.</p> <p>We find the Possible Mitigation Ideas outlined in the presentation woefully inadequate in addressing compensation or assuming responsibility for the consequences on impacting historic properties for a finding of Adverse Effect on five downtown Indianapolis historic districts, multiple national registered structures and multiple potentially eligible historic districts and structures.</p>	
<p><b>Tree Preservation and Plantings &amp; Side Slope Treatments (Slides 14-21)</b></p> <p><b>1. General:</b> The ideas proposed on slides 14-19 represent a significant removal and reduction of existing trees and vegetation along the side slopes of the interstate, particularly in the Old Northside Historic District (North side of I-65 from College Ave. to Alabama St.), where a significant and effective buffer of mature evergreen and deciduous trees is present. Depending upon the side slope treatments employed, the number of existing trees to be removed will either be a minimum of 60% or as much as 100% of the total existing trees present. The proposed mitigation ideas along the Old Northside interface do not include any replanting or replacement of the removed trees. Far from mitigation of adverse effects, these ideas compound and expand the adverse effects by removing the existing vegetative buffer along the interstate.</p> <p>In general, the proposed tree preservation and planting ideas lack specificity, fall short of providing an effective mitigation of the project’s adverse effects, and, in some locations, add to the adverse effects. As a general rule, the Coalition and our constituents would like to see the side slope treatments and vegetative buffering be maintained at their current level of effectiveness or, better yet, increased to provide enhanced buffering (see previously submitted comments regarding “urban forest”). The Coalition requests that INDOT respond with more detail regarding the total quantity of trees to be removed and an effective mitigation strategy for replacement of those trees and the benefits they provide to the impacted historic properties and districts.</p>	<p>The Assessment of Effects Report indicated all trees within the existing right-of-way would be removed, as this was a worst-case scenario. Since that time, it has been determined preservation of some trees is possible. Preservation of these existing trees limits the areas the design-builder can work at a greater cost to INDOT. INDOT views this as a minimization measure under Section 106.</p> <p>A 15-foot work area is identified at the top of the slope to allow work in constructing the retaining wall for the interstate, but trees below this 15-foot work area will be preserved in a “Do Not Disturb” area. In addition, new side slope planting treatments, which include trees, shrubs, and native plantings will be replanted within the 15-foot work zone at the top of the slope. These side slope landscape treatments are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>2.Tree Removals:</b> We recommend INDOT conform with City of Indianapolis Flora Permit requirements (<a href="https://www.indy.gov/activity/urban-forest">https://www.indy.gov/activity/urban-forest</a>) which state “Living trees removed from the right-of-way must be</p>	<p>INDOT will conform to the City of Indianapolis Flora Permit requirements within City right-of-way.</p> <p>Tree/shrub planting will be in accordance with the North Split</p>

<p>replaced with a number of new trees determined by the city.” The Rethink Coalition believes a reasonable number is three new trees for every tree removed.</p>	<p>Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>3. <b>Tree Preservation:</b> The Tree Preservation and Do Not Disturb areas need to be considered in the context of INDOT’s Side Slope Treatments. Per the National Historic Preservation Act, an increased level of detail is required to “enable informed consideration of avoidance, minimization, or mitigation measures.” Please provide scaled drawings at a minimum of three locations that show the range of existing and proposed conditions and INDOT’s proposed plan to minimize side slope impacts on the visual and landscape quality of the affected historic districts.</p>	<p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>4. <b>Planting Terraces:</b> If terraces are proposed to minimize tree impacts, Rethink recommends they optimize planting areas. Vegetative buffering needs to be equal or better in density and size to existing conditions and should include a variety of mature evergreen and deciduous shade trees to ensure screening on a year-round basis. Planting design on terraces should consider minimizing mowing and weeding requirements after establishment to minimize future maintenance operations.</p>	<p>Constructing terraced side slopes would require removal of any trees within the existing right-of-way. Terraced side slopes were considered during the project development. Ultimately terraced side slopes were removed from consideration because of the increased cost (an increase of \$1.4M for a 3-level terrace for each stretch between bridges along I-65/I-70 south of the interchange and an increase of \$650,000 for a 3-level terrace south of I-65 from Alabama to Central) and concerns with maintenance. The terrace wall for each level would be approximately 10 feet tall. Maintenance of the second level would be extremely difficult to access as well as water from either the above interstate or street level. This would result in a less desirable aesthetic condition.</p> <p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>5. <b>I-65 / I-70 Interchange Area</b></p> <p>a. The Coalition strongly opposes leaving old roadway beds in place inside the interchange. We request the interchange be graded and contoured to create a pleasing ground plane viewed from O’Bannon Park and the Monon Trail and the crossing city streets as well as a basis for sustainable reforestation.</p> <p>b. The interchange should be a visual extension of the park landscape as required by Section 4(f).</p> <p>c. We also request dense urban forest plantings to buffer the height of the interstate bridges and overpasses. This urban forest should be designed to have a pleasing result of massed and open space areas to create a positive experience by motorists and pedestrians on the ground</p>	<p>INDOT has developed renderings of the interchange with and without the earthen berm (Attachment B). The berms could be sculpted and trees planted to make them appear more natural. Additional information regarding the possible berms is included in Section 106 Update Memo #10 and additional input from consulting parties is being requested before a final decision is made about the berms.</p> <p>Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the use of certain public and historic lands for federally funded transportation facilities unless there is no feasible and prudent alternative. The law applies to significant publicly owned parks, recreation areas, wildlife / waterfowl refuges, and NRHP eligible or listed historic</p>

<p>plane.</p>	<p>properties regardless of ownership. The interchange reconstruction, either with or without a berm, will not result in a constructive use under Section 4(f). Section 4(f) does not require a visual extension of the O'Bannon Soccer Park landscape.</p> <p>Tree plantings within the interchange area will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>Connectivity Improvements</b> Per the National Historic Preservation Act, an increased level of detail is required to “enable informed consideration of avoidance, minimization, or mitigation measures.” We have the following requests for more information on the proposed Connectivity Improvements:</p> <ol style="list-style-type: none"> <li>1. What are the details of the proposed light types and locations, sign location, wall treatments, pedestrian ways and mural spaces?</li> <li>2. INDOT did not address their proposed treatments for the other underpasses beyond Alabama, Central and College. What are the proposed treatments for the other local streets (New York, Vermont, 10th Street, St. Clair, etc.)?</li> <li>3. Old Northside Connector: please extend the connector to the bike lanes on Pennsylvania and the bike boulevard on Alabama.</li> <li>4. Monon Loop Trail: The existing O'Bannon Park trails are substandard and are in poor shape. Any Monon detour path should match the existing Monon Trail width and cross section construction. We also request that this entire trail loop remain as a permanent feature as it increases pedestrian connectivity between the historic districts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Proposed light types and locations, sign location, wall treatments, pedestrian way and mural spaces are addressed in Aesthetic Guidelines for the North Split project. These guidelines were not yet available at the time this comment was submitted. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</li> <li>2. The proposed treatments for the other underpasses beyond Alabama, Central and College are addressed in Aesthetic Guidelines for the North Split project. These guidelines were not yet available at the time this comment was submitted. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</li> <li>3. The Old Northside Connector (between Pennsylvania and Talbot Streets) will be implemented by the Benjamin Harrison Presidential Site. INDOT has agreed to provide supplemental funding for this project, which improves pedestrian/bicycle connectivity in the Old Northside Historic District. Other portions of the trail will not be constructed by INDOT due to the presence of mature trees and the need to utilize the interstate limited access right-of-way.</li> <li>4. The Monon Trail detour through O'Bannon Park and along the east side of College Avenue will be 12 feet wide compared to the 10-foot width of the existing Monon Trail and it will be left in place after construction. The section between College Avenue and 10<sup>th</sup> Street will be temporary and removed after construction since sidewalks are available nearby on College Avenue and 10<sup>th</sup> Street.</li> </ol>
<p><b>Oral History Initiative</b> This is not mitigation. The history of the historic neighborhoods, the interstate construction and its impacts, and the revitalization of the neighborhoods is already well-documented. We recommend the funds be put</p>	<p>The Education/Interpretation/Community Outreach oral history initiative discussed in Section 106 Update Memo #8 has been removed from consideration based on consulting party feedback. The majority of consulting party responses indicated the oral history initiative would not be effective</p>

towards infrastructure and urban forestry-based mitigation.	mitigation.
<b>Vibration Monitoring and Control Plan</b> The proposal states that the “design-build contractor shall develop a Vibration Monitoring and Control Plan. The plan should at least include all buildings within historic properties or districts within 140 feet of project construction activities” 140 feet should be increased to at least 400 feet. Vibration from construction has been known to negatively impact structures further away than 140 feet (roughly the depth of one lot), in some cases more than a block. 400 feet, roughly one block and two local streets deep, would better capture those buildings likely to be affected. From a liability perspective, it seems it would also be in INDOT’s best interest for this area to be expanded. An even larger area may also be considered for this plan.	Please refer to response to this comment in the main body of Section 106 Update Memo #10.
<b>Mitigation Efforts Not Proposed</b> 1. <b>Financial Assistance:</b> It is unclear what INDOT’s plan is to address repairs or soundproofing of buildings negatively impacted by the construction of this project, as well as any local business revenue loss during construction. 2. <b>Long-term maintenance:</b> It is unclear what INDOT’s plan is to address the maintenance of any Section 106 mitigation measures. Relying on the volunteer efforts of adjacent neighborhoods is insufficient and INDOT needs to propose a long-term sustainability plan.	1. Financial Assistance. Please refer to response to this comment in the main body of Section 106 Update Memo #10.  2. Long-term Maintenance. Long-term maintenance of the roadway elements and structural features of the bridges and interstate highways will be conducted by INDOT. Local streets will be maintained by Indianapolis Department of Public Works. Tree plantings within the interchange area will be in accordance with the North Split Aesthetics Design Guidelines. INDOT has agreed to maintain the trees and shrubs for three years to assist in their establishment. Future maintenance as well as screening the interstate were important considerations in the development of the Aesthetics Design Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .  No local groups indicated a willingness to maintain landscaping. In the absence of local partners or community maintenance, features such as annual flowers or other related plant bed materials are not included in the Guidelines. However, these items could be pursued after construction if desired by the community.
<b>Cross Section Diagrams</b> We attach a representative Cross Section that shows our analysis and recommendations for mitigation of the proposed interstate improvements and its impact on existing trees. This information was constructed from public documents and Google Earth. We assume INDOT has more precise information, including a topographic survey, tree survey, and CAD drawings. We expect at least this level of detail in future refinement and presentation of mitigation proposals.	Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
North Split Project Adverse Impacts to Old Northside Neighborhood landscape buffer (Existing Central Ave	As described in the Section 106 800.11(e) Documentation, the edge of pavement for the Pennsylvania Street exit ramp



<p>Underpass):</p> <ol style="list-style-type: none"> <li>1. Expands pavement 7-foot north</li> <li>2. Creates 15-foot work zone at top of embankment</li> </ol> <p>Result: 22-foot intrusion into the existing embankment results in steeper slopes, damage to existing tree roots with impact on sustainability of plant material's noise mitigation and visual buffering.</p>	<p>will be moved a maximum of 26 feet closer to the Old Northside Historic District boundary. The design-builder will have an additional 15-foot work zone in order to construct the retaining wall. The retaining wall will tie into the existing slope. If trees within the "Do Not Disturb" areas do not survive within one (1) year of the conclusion of construction activity within fifteen (15) feet of the area, INDOT shall plant replacement trees, at 2-inch dbh or greater in size, at a ratio of three to one (three replacement trees for each tree that does not survive). The replacement trees shall be planted in the "Do Not Disturb" areas if space allows.</p> <p>Shrub planting in the 15-foot work zone after construction will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>North Split Project Adverse Impacts to right-of-way buffers adjoining eastbound I-65 North Split Project Adverse Impacts to right-of-way buffers adjoining eastbound I-65 (north side of Interstate 65 [Westbound] at Alley 500 North, between College and Park Avenues</p> <ol style="list-style-type: none"> <li>1. Adds 14-foot or greater roadway width [Chatham Arch]</li> <li>2. Adds 15-foot temporary work zone &amp; permanent maintenance zone.</li> <li>3. Increases slope angles impacting future landscape buffer sustainability [See ONS Neighborhood mitigation recommendations [in Red]</li> </ol>	<p>As described in the Section 106 800.11(e) Documentation, the edge of pavement for the interstate will be moved a maximum of 12 feet closer to the Chatham-Arch Historic District boundary. There is no restricted work zone for the design-builder other than to stay outside of the "Do Not Disturb" areas.</p> <p>Side slope construction and tree/shrub planting will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>North Split Project Adverse Impacts to Old Northside Neighborhood landscape buffer (Existing Central Ave Underpass):</p> <ol style="list-style-type: none"> <li>1. Expands pavement 7-foot north</li> <li>2. Creates 15-foot work zone at top of embankment</li> </ol> <p>Result: At least 50% of existing vegetative buffer will be eliminated between Central and Alabama by roadway expansion at that narrower R/W condition, probable increased visual and noise impacts on adjacent historic neighborhood.</p>	<p>As described in the Section 106 800.11(e) Documentation, the edge of pavement for the Pennsylvania Street exit ramp will be moved a maximum of 26 feet closer to the Old Northside Historic District boundary. The design-build will have an additional 15-foot work zone in order to construct the retaining wall. The retaining wall will tie into the existing slope.</p> <p>Shrub planting in the 15-foot work zone after construction will be in accordance with the North Split Aesthetics Design Guidelines. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>Recommended Mitigation of Adverse Impacts:</b> Applicable to all neighborhoods adjoining the North Split</p>	<ol style="list-style-type: none"> <li>a. Existing trees will be protected within the "Do Not Disturb" areas. The only area with a 15-foot work</li> </ol>



<p>project</p> <ol style="list-style-type: none"> <li>Protect existing embankment and vegetation below 15-foot work zone.</li> <li>Create planting shelf 8-foot below top of barrier rail for massed native shrub planting*</li> <li>Remove exist R/W fence to facilitate landscape maintenance [8-foot wall ht. b. is safety fence equivalent].</li> <li>Supplement existing vegetative buffer with dense mix of evergreen &amp; hardwoods for more effective visual buffering and noise mitigation.</li> </ol> <p>*List of recommended multiple species to be developed by consulting party: 10-15 foot-height at maturity. Drought and salt tolerant. Low maintenance.</p>	<p>zone is north of I-65 northbound, adjacent to the Old Northside Historic District. Vegetation below the 15-foot work zone in this area will be protected.</p> <ol style="list-style-type: none"> <li>The 15-foot work zone slope will be planted in accordance with the North Split Aesthetic Design Guidelines. A species list is included in the Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</li> <li>The existing right-of-way fence will be replaced where it currently exists.</li> <li>Landscape applications in the interchange includes a dense mix of evergreen and deciduous trees.</li> </ol>
<p>Per your report, there are 51 National Register listed or eligible resources potentially affected by the North Split project. An Adverse Effect is defined as when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."</p> <p>You have determined there are three "Adverse Effect Findings."</p> <ol style="list-style-type: none"> <li>Old Northside Historic District</li> <li>Morris Butler House</li> <li>Chatham-Arch Historic District.</li> </ol> <p>The report indicates that twenty-six resources have No Adverse Effect Findings and twenty-two resources have No Effect Findings.</p>	<p>As documented in the Section 106 800.11(e) Documentation, there are six historic properties with "Adverse Effect" findings:</p> <p>Old Northside Historic District Morris Butler House Chatham-Arch Historic District Saint Joseph Neighborhood Historic District Massachusetts Avenue Commercial Historic District (if NB7 is constructed) Lockerbie Square Historic District (if NB7 is constructed)</p> <p>There are 22 No Effect findings and 23 No Adverse Effect findings.</p>
<p>The interstates have had lasting impacts that the current planning and design has not addressed. Despite no additional lanes, the interstate facility has expanded, and its current transparency has been diminished further by greater bridge widths and reduced air gaps between bridge structures. Therefore, the Rethink 65/70 Coalition is concerned that not enough detail is provided to properly characterize the nature and intensity of the effects to the historic resources within the Area of Potential Effects (APE) of the North Split.</p>	<p>Please see response to previous comment in Section 106 Update Memo #6 Attachment B.</p>
<ol style="list-style-type: none"> <li>Per the National Historic Preservation Act, an increased level of detail is required to "enable informed consideration of avoidance, minimization, or mitigation measures."</li> <li>A delineation of how, exactly, the proposed plans for the North Split would alter or diminish the integrity of the</li> </ol>	<p>Please see response to previous comment in Section 106 Update Memo #6 Attachment B.</p>

<p>character-defining features of the impacted historic resources is needed.</p> <p>3. We would like to see more detail on those historic resources that received a “No Adverse Effect Findings” to understand the logic applied to that determination, for example to St. Joseph, Windsor Park and Cottage Home Historic Districts.</p> <p>4. In spite your report that a traffic simulation model concluded traffic changes would not result in adverse effects in historic districts surrounding the North Split, how do the ramp changes affect traffic patterns? The magnitude of those traffic shifts has not been reported so the residents can better understand how their historic resources would be impacted both during and after construction and the likely bottlenecks that will be shifted to other locations. Please provide the data from which the conclusions were derived. There may be improvements to the local street grid that can help mitigate these impacts.</p> <p>5. A visual analysis for each historic resource in proximity to the North Split should be provided so residents can accurately determine the visual impact of the interstate embankments and interstate infrastructure on them. This should be conveyed by technical drawings rather than illustrative renderings with distorted perspective.</p>	
<p>The Rethink 65/70 Coalition has recommended CSS features such as new pedestrian and bicycle connectivity, new street connections, improved underpass designs that fosters neighborhood connectivity, side slope treatments that include measures to restore and improve existing vegetative buffering, and improvements to noise reduction and air quality. <b>These CSS proposals need to be included in all Section 106 mitigation measures.</b></p> <p>1. Improve the local street and pedestrian grid so local traffic can reach local destinations without getting on the interstate:</p> <ul style="list-style-type: none"> <li>• Connect 11th Street to Davidson Street as a local cross-town street connector.</li> <li>• Connect the N/S Streets under I-70 between 16th and Roosevelt Ave.</li> <li>• Connect 12th Street to 15th Street as a local cross-town connector</li> <li>• Mill, repave, and restore pavement markings to all streets within the historic districts after construction.</li> <li>• Repair and/or provide new sidewalk connections to create a connected pedestrian network between the historic districts and through the interstate.</li> <li>• We support the recently reported decision of maintaining Vermont Street as a vehicular way in addition to</li> </ul>	<p>Please see response to previous comment in Section 106 Update Memo #6 Attachment B for response to comments #1 and #6. Updates for the remaining comments are provided below.</p> <p>2. Greenway System: The North Split Project will construct a new, wider trail across O’Bannon Park, a new trail along the east of College Avenue, and will widen the segment of the Monon Trail from approximately 13<sup>th</sup> Street to 10<sup>th</sup> Street. INDOT will provide supplemental funding for a portion of the proposed Old Northside Trail between Pennsylvania Street and Talbot Street, which is currently being planned by the Benjamin Harrison Presidential Site. Other suggested trail segments will not be constructed due to the presence of mature trees and the need to utilize the interstate limited access right-of-way. The Payne Connection will receive treatments as described in the North Split Aesthetic Design Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p> <p>3. Underpass Design: Most of the design features requested in this comment are included or addressed in the North Split Aesthetic Design Guidelines. These guidelines were not yet available at the time this comment was submitted. Additional detail is provided in these Guidelines which are now available</p>

<p>improving the underpass for safe, well-lit bicycle/pedestrian facilities.</p> <p>2. Integrate the Greenway System within current dead zones along the interstate:</p> <ul style="list-style-type: none"> <li>• Develop a greenway link along 11 Street to the Davidson Street connector.</li> <li>• Develop a crosstown greenway link between Martindale Brightwood and the Old Northside, utilizing the interstate bridge crossing College to incorporate an elevated pedestrian connector for the greenway link.</li> <li>• Ensure the 10th Street Payne Connection between the Indianapolis Cultural Trail and the Monon Trail is equal to or better than existing conditions.</li> </ul> <p>3. All underpasses should be designed to:</p> <ul style="list-style-type: none"> <li>• Incorporate wide sidewalks with separation buffer from traffic</li> <li>• Be easy to maintain free of graffiti and constructed of durable, long-lasting materials.</li> <li>• Have lighting levels that are uniform and consistent with day or night lighting conditions outside the underpass, not introduce veiling glare or hot spots, and ideally be reflective rather than direct. Underpass lighting should be variable at approaches and exits to compensate for abrupt change of light levels [exceeding 3:1] at those locations. Daylighting light wells [gaps in overpass structures as currently exist at the three 10th Street overpass bridges] should be incorporated for long underpasses. We do not want the poor light conditions such as that under the Virginia Street parking garage or at the Heliport underpass.</li> <li>• Have no nooks or crannies where people can sleep or hide.</li> <li>• Have no drainage systems emptying into the pedestrian space.</li> <li>• Integrate walls into the urban fabric and make them pedestrian scaled (no higher than 8-feet) to minimize or eliminate right-of-way fencing.</li> <li>• Restore the Payne Connection Plaza, murals and custom light fixtures between Bellefontaine and 10th Street.</li> </ul> <p>4. Within the historic districts, the design and configuration of side slopes, embankments, and retaining walls should optimize the planting of dense vegetation on wide terraces. Vegetative buffering needs to be equal or better in density and size to existing conditions and should include a variety of mature evergreen and deciduous shade trees to ensure screening on a year-round basis.</p> <p>5. The pending results of the Section 106 Noise Addendum are also of great interest and concern and we</p>	<p>at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p> <p>Payne Connection Plaza components, art features (except murals), and custom light fixtures between Bellefontaine and 10th Street will be removed, stored during construction, and re-installed as part of the project. It is not feasible to preserve the murals that are part of the existing infrastructure.</p> <p>4. Side slope construction, tree/shrub planting, and underpass treatments will be in accordance with the North Split Aesthetics Design Guidelines, which were not available when Section 106 Update Memo #8 was sent to consulting parties. Future maintenance as well as screening the interstate were important considerations in the development of these Guidelines. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p> <p>5. Noise Studies: Section 106 Update Memorandum #6 documents the results of the noise analysis for historic properties and the Traffic Noise Barrier Addendum to the Assessment of Effects Report documents the effects to historic properties from possible reasonable and feasible locations of noise barriers. INDOT has determined that noise barriers adjacent to historic districts (NB4, NB5, and NB7) are not recommended for construction. Next generation pavement grooving will be used on the interstates throughout the project area. Steep grades are minimized in the project area in accordance with FHWA guidelines for urban interstate highways. Vehicle noise regulations are an enforcement issue outside the scope of the project. Please refer to response to soundproofing comment in the main body of Section 106 Update Memo #10.</p> <p>7. Vibration Impacts: Please refer to response to this comment in the main body of Section 106 Update Memo #10.</p>
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<p>look forward to further engagement and discussions to reduce noise generation through design, materials, vehicular controls, including:</p> <ul style="list-style-type: none"> <li>• Minimizing steep grades on main lines and ramps.</li> <li>• Delineation of where the “Next Generation” pavement grooving will be applied.</li> <li>• Enacting/enforcing vehicle noise regulations such as truck engine-braking and deficient exhaust systems.</li> <li>• Soundproofing windows in structures within one block of the interstate.</li> </ul> <p>6. Design road edges for noise containment/deflection</p> <ul style="list-style-type: none"> <li>• Specify higher median/edge crash barriers.</li> <li>• Consider tall double median barriers with dense plant material infill between the opposing travel lanes where possible.</li> <li>• Install dense vegetation along roadway edges and between structures.</li> </ul> <p>7. Repair and reinforce existing historic structures to withstand vibrations during construction activities.</p>	
<p><b>Response to INDOT CSS Round 2</b></p> <p>The following is a response developed by the Rethink 65/70 Coalition to INDOT's request for feedback and on the North Split Round 2 Presentation for CSS Neighborhood Workshops dated July-August 2019 and the CSS Resource Team presentation dated July 26, 2019. This response represents a collective response from our Coalition members of over 50 separate businesses, organizations, area residents, neighborhoods, civic organizations, urban designers, landscape architects, architects, transportation planners, and economic development specialists. We represent thousands of individuals invested in downtown.</p>	<p>Thank you for providing this response and for participating in the CSS process.</p>
<p><b>Our Overall Comments</b></p> <p>1. The presentation appears to be based on advanced technical drawings. To assess the recommendations properly the Rethink 65/70 Coalition requests the opportunity to review the underlying technical drawings.</p> <p>2. There is a lack of a comprehensive sustainability plan for the property between the interstate travelway and the outer edge of the right-of-way where the majority of the proposed CSS features occur. Sustainability should not be dependent on neighborhoods, volunteer groups, or political cycles of governance.</p>	<p>1. Final design plans for the project will be developed by the design-builder and are not yet available.</p> <p>2. Long-term Maintenance. Long-term maintenance of the roadway elements and structural features of the bridges and interstate highways will be conducted by INDOT. Local streets will be maintained by Indianapolis Department of Public Works. Tree plantings within the interchange area will be in accordance with the North Split Aesthetics Design Guidelines. INDOT has agreed to maintain the trees and shrubs for three years to assist in their establishment. Future maintenance as well as screening the interstate were important considerations in the development of the Aesthetics Design Guidelines. Additional detail is provided in these Guidelines which are available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>. In the absence of local partners or community maintenance, features such as annual flowers or other related</p>

	plant bed materials are not included in the Guidelines.
<p><b>Workshop Orientation – Station 2: Context</b></p> <p>The largest, highest bridge should have a signature design to mark the interchange as a gateway to the City. Consider dramatic lighting, linear elements along the bridge railing, vertical elements at the abutments, etc. See these case studies for inspiration:</p> <p><a href="http://www.engineersjournal.ie/2016/10/04/irish-engineers-nelson-street-cycleway-new-zealand/">http://www.engineersjournal.ie/2016/10/04/irish-engineers-nelson-street-cycleway-new-zealand/</a></p> <p><a href="https://www.chicagotribune.com/news/breaking/ct-biz-navy-pier-flyover-opening-20181127-story.htm">https://www.chicagotribune.com/news/breaking/ct-biz-navy-pier-flyover-opening-20181127-story.htm</a></p>	<p>Up-lighting and architectural bridge features are described in North Split Aesthetic Design Guidelines. These Guidelines were not yet available at the time this comment was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>Pages 11-16: July 26 CSS Resource Team Presentation Comments</p> <p>General Comments</p> <ol style="list-style-type: none"> <li>1. There should be less focus and investment on applying ornamentation to the “hard” infrastructure components – walls, piers, bridge abutments, barriers, signage, etc. - and more on the components of connectivity, pedestrian-level interface/experience, and landscape treatments that screen and buffer the raised highway.</li> <li>2. The proposed “classic” and “civic” design themes fail to capture the context of the Capitol City and the neighborhoods; they feel like an amalgamation of paste-on textures and colors rather than expressive and innovative infrastructure forms. We would rather see honest, and simple treatments of the bridge structural elements that express the “art of engineering”, and are a simple backdrop for the pedestrian-level enhancements and landscape treatments.</li> </ol>	<p>Final aesthetic treatments for bridges responded to this comment, placing less focus on bridge treatments, more exposure of infrastructure design, and a more simple approach to bridge abutments at underpasses. These treatments are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>Page 11: Simplify the form and texture palette. Don’t “paste on” historic features across diverse neighborhoods.</p>	<p>Final aesthetic treatments for bridges responded to this comment, placing less focus on bridge treatments, more exposure of infrastructure design, and a more simple approach to bridge abutments at underpass. These treatments are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>Page 12: Create neutral, not desert color palette, to enable the landscape and public art to stand out. Avoid red as it fades quickly to pink.</p>	<p>Final color palette is neutral and is identified in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p>Pages 13/14: Rethink supports the general cross section of sidewalks with 8-ft landscape buffer next to</p>	<p>Landscape buffer areas that extend under the bridges are paved with asphalt pavers and are identified in the North Split</p>



vehicle lanes. What is the treatment of the landscape buffer under the bridges?	Aesthetics Design Guidelines, which were not available at the time this question was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
Page 15: Both themes are fussy - Rethink would rather invest the funding into the pedestrian experience of the underpasses and edges. Provide more detail for materials, cross section, colors, and treatment of the ceilings in the underpasses.	Final aesthetic treatments for bridges and underpasses were simplified. Additional details are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this question was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
Page 16: Wall patterns should avoid faux “natural” patterns/colors and random architectural textures. Patterns should feature repeating patterns of simple, cast-in-place architectural reveals, panels and pilasters. Utilize full height MSE panels to avoid segmented appearance with horizontal joint patterns See April 2019 Rethink response memo to INDOT CSS Part 1: Visioning. Use terracing to avoid wall elements greater than 8-foot tall. Patterns should feature repeating patterns of simple, cast-in-place architectural reveals, panels and pilasters. Utilize full height MSE panels to avoid segmented appearance with horizontal joint patterns See April 2019 Rethink response memo to INDOT CSS Part 1: Visioning. Use terracing to avoid wall elements greater than 8-foot tall.	Wall patterns avoid faux “natural patterns/colors and random architectural textures” as suggested. Additional details are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
PAGE 17 COMMENTS Premature until we see technical drawings to understand extents. It appears that the illustrated piers and columns would be largely confined to the interchange portions of the project rather than the bridges over local roadways. If that is the case, the public's interaction with these piers would be very limited and at some distance, with the exception of the piers along the Monon Trail.	Bridge pier and column treatments are included in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
PAGE 18 COMMENTS 1. Underpass lighting should be reflective against the designed surface rather than glare-inducing down light; consider light fixtures that shine light up and reflect off of “ceiling” surfaces, providing an indirect wash of light with no glare or hotspots at the pedestrian level. 2. All underpasses should have a minimum light level of 1.50 - 2.0 foot candle. Lighting level should be consistent throughout the underpass and minimize variance between bright and dark areas. 3. Consider acoustics in the underpasses - i.e. parallel walls reinforce sound waves. Consider every underpass an acoustic issue.	<ol style="list-style-type: none"> <li>1. Underpasses are designed to expose the engineering of the bridge, as a response to previous Rethink 65/70 Coalition comments. It may not be feasible to highlight the engineering and provide a reflective ceiling for the pedestrian lighting.</li> <li>2. All pedestrian lighting in the underpasses shall be designed to meet INDOT pedestrian illumination standards.</li> <li>3. Acoustics were not specifically considered in the design of the underpasses, but several features of the bridge and pavement design will reduce noise for pedestrians. Please refer to response to this comment in the main body of Section 106 Update Memo #10.</li> </ol>
PAGES 19-20 COMMENTS Simple is better. Bridge names are helpful orientation devices. However applied color fades and weathers. Font style and readability matter.	A simple font has been included for readability. Red and other colors subject to fading have been avoided. Additional details are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this

	comment was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
<p><b>PAGE 21 COMMENTS</b></p> <p>Sound barriers as indicated are obnoxious expansion of vertical surfaces. There are more advanced technical materials and forms available. See April 2019 Rethink response memo to INDOT CSS Part 1: Visioning.</p>	<p>NB4, NB5, and NB7 are not recommended for construction and are not included in the North Split Project. Noise barrier patterns and forms for NB3E and NB3W have been kept simple and avoided faux materials, patterns, or finishes. Additional details are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this question was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>. Additional coordination will occur with the adjacent neighborhood for NB3E and NB3W in the design phase regarding sound barrier aesthetics.</p>
<p><b>PAGE 22 COMMENTS</b></p> <p>Black coating preferred. Fencing should be limited. The terraces and retaining walls may provide the protection and fencing is not needed. Drawings will help us understand the options.</p>	<p>Black vinyl coated fencing has been identified for use throughout the project to replace the existing right-of-way fence. The purpose of the right-of-way fence is to keep people outside of the right-of-way and to identify where the right-of-way line is located to prevent encroachments. Fencing details are identified in the North Split Aesthetics Design Guidelines, which were not available at the time this question was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>PAGE 23 COMMENTS</b></p> <p>Options A-D - Should be very limited application and only with substantial evergreen and deciduous tree plantings included.</p> <p>Options E-F: Preferred.</p> <p>Option G: Avoid if there are no trees planted at top of slope.</p> <p>Option H: Acceptable if thick buffer of trees along slopes or terraces is similar to what exists in the Old Northside today. See April 2019 Rethink response memo to INDOT CSS Part 1: Visioning</p>	<p>Side slope plantings and treatments have been identified in conjunction with local neighborhoods and residents. These elements are illustrated in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>. Please note that the majority of treatments use a combination of sides slopes and a maximum height wall. Treatment options E-G are not included in the current design.</p>
<p><b>PAGE 24 COMMENTS</b></p> <p>The potential landscape treatments are mostly appropriate; notably absent is the idea of a forest in the interstitial spaces and wider terracing to support trees. Planting should be compatible across the system as a parkway edge for its entire extents. See April 2019 Rethink response memo to INDOT CSS Part 1: Visioning.</p>	<p>Landscape treatments include a substantial amount of deciduous and evergreen trees. Final design direction and species are indicated in the North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>.</p>
<p><b>PAGE 25 COMMENTS</b></p> <p>The public art examples appear to be cut and paste which is understandable at this stage. A comprehensive and curated approach is needed.</p>	<p>The North Split Aesthetics Design Guidelines, which were not available at the time this comment was submitted, identifies areas for the potential inclusion of public art. These Guidelines are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a>. INDOT would participate in community efforts to make the best use of the available space, but</p>



	INDOT is not currently obligating project funds for the installation of art.
<p>PAGES 28-32 COMMENTS</p> <p>Additional Opportunities that are listed: Lewis Street extension, ped/bike connections to the Monon, Monon Landing, etc are consistent with Rethink April 2019 Rethink response memo to INDOT CSS Part 1: Visioning. These items should be labeled as “PREFERRED” opportunities for which the community has expressed strong and consistent support.</p> <p>The exception to the above would be the conversion of the Vermont Street underpass to ped/bike only; the Coalition believes this underpass should continue to accommodate bike, peds, and vehicles in an “upgraded” manner with enhanced connectivity - similar to that being proposed for other overpasses where the ped/bike experience is significantly enhanced from current conditions. This connection is vital to the urban grid. It functions as a local connector, keeping some local traffic off of NY and Michigan. As shown in these illustrations, this underpass appears to be approximately 30 ft. wide and 170 ft. long; a wider, well-lit underpass that accommodates both vehicles and peds provides a much greater sense of security.</p>	<p>Items were listed as “Additional Opportunities” because they were not specifically required for construction of the North Split interchange. All “Additional Opportunities” require partners for implementation. As noted in previous responses to this comment letter, some elements will be implemented with the project and others may be advanced in the future in separate processes.</p> <p>The Vermont Street underpass will continue to accommodate vehicles as well as pedestrians and cyclists when the North Split project is complete. The underpass will be wider than current underpass and will be lit for pedestrians.</p>
Ensure air gaps under bridges for pedestrian comfort - review technical documents.	Underpasses are designed for an enhanced pedestrian experience. The underpass treatments are described in North Split Aesthetic Design Guidelines. These guidelines were not yet available at the time this comment was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> . Air gaps for pedestrian comfort were not specifically designed for the underpasses; however, INDOT is providing wider bridge openings for the underpasses.
The Monon Loop - needs pedestrian bridge over College which can be combined with interstate bridge instead of on-grade crossing at College.	A pedestrian bridge over College Avenue is not included in the North Split Project. However, pedestrian and bicycle enhancements will be provided on College Avenue at the underpass locations.
Support the Monon Loop, ONS Trail, and Lewis Street extension	The north and west legs of the Monon Loop will be included as permanent features in the project. See previous responses to this letter and attachment regarding the Old Northside Trail and Lewis Street extension.
Monon Landing - needs to be integrated with park design. Seems to indicate long shade structure? Would be a major improvement over the current experience.	The Monon Landing is not included in the project. It could potentially be considered in the future if the City of Indianapolis planned and advocated for the project and if a funding plan was developed for construction and maintenance.
Vermont Street Underpass - see above comments.	The Vermont Street underpass is planned as a vehicle and pedestrian underpass based on public comment.
Relinquish Excess Property to the City.	Relinquishment of property is not included in the project. It could potentially be considered as a separate action in the future.
See April 2019 Rethink response memo to INDOT CSS	Landscape treatments for interior areas of the interchange,

Part 1: Visioning regarding reforestation of interior landscape areas to create the sensation of passing through a dense urban forest and providing year-round tree canopy and buffering for air pollutant, noise, and stormwater mitigation - little maintenance needed.	including final design direction and species are described in the North Split Aesthetics Design Guidelines, which were not available at the time this question was submitted. Additional detail is provided in these Guidelines which are now available at <a href="https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf">https://northsplit.com/wp-content/uploads/2020/03/North-Split-Aesthetic-Design-Guidelines.pdf</a> .
<b>Mass Ave Merchants Association – Meg Storrow – January 31, 2020</b>	
The Mass Ave Merchants Association has reviewed the INDOT presentation given by INDOT /HNTB at the January 16, 2020 Consulting Parties Meeting and letter sent December 19, 2019. We appreciate the opportunity to comment on your findings and proposals.	See response to comments submitted by Rethink 65/70 Coalition on January 31, 2020, starting on page 18.
We concur with the Rethink 65/70 Coalition letter dated January 31 and attach it to our response.	
<b>Chatham Arch Neighborhood Association – Shawn Miller – February 9, 2020</b>	
<i>I know I am a late comer to this whole process but wondered if there was any chance that the NE segment of the Interstate could be treated like the western segment-elevated bridges with parking underneath instead of earthen berms. We have a serious parking shortage here in this area and this would really help to alleviate that, and obviously I bet more people would get on board if this approach was taken, at least partially.</i>	<i>I believe this was at least thought about, but there is a cost concern. It is more expensive to construct a bridge than a road on an earthen embankment. When the interstate was originally constructed, there were so many cross streets on the western segment it made sense to build one big bridge -- 4 road crossings in 2,500 feet between Capitol and Alabama. Because there is only one road crossing between Alabama and College (in 2,100 feet), it is not cost effective to replace the embankment with a large structure only for parking.</i>
<b>State Historic Preservation Officer – Chad Slider – March 2, 2020</b>	
Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108); implementing regulations at 36 C.F.R. Part 800, and the "Programmatic Agreement (PA) Among the Federal Highway Administration, the Indiana Department of Transportation, the Advisory Council on Historic Preservation and the Indiana State Historic Preservation Officer Regarding the Implementation of the Federal Aid Highway Program In the State of Indiana" ("Indiana Minor Projects PA"); and also pursuant to Indiana Code 14-21-1-18 and 312 Indiana Administrative Code ("IAC") 20-4, the staff of the Indiana State Historic Preservation Officer and of the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, has reviewed the update memo# 9, which was submitted and received on January 30, 2020.	Thank you for your review and concurrence.
It is our understanding that Noise Barriers 3E and 3W will be constructed, and Noise Barriers 4, 5, and 7 will not be constructed as a measure to avoid and minimize adverse effects of the overall undertaking. Furthermore, it is our understanding per the update memo that there have been some design modifications that are minor in scope and within the existing right-of-way. Based on our review of the description of these changes, we would agree that the recent modifications do not appear to change the effect findings or their severity, as described in the 36 CFR	

800.11(e) documentation.	
<p>In regard to archaeological resources within the additional portions of the proposed project area, as described in the present submission, please provide clarification about whether or not additional archaeological investigations will be conducted in these areas of "existing right-of-way." If not, then please describe the current and past land uses within the project area; in particular, state whether or not the ground is known to have been disturbed by construction, excavation, grading, or filling, and, if so, indicate the part or parts of the project area that have been disturbed and the nature of the disturbance; agricultural tilling generally does not have a serious enough impact on archaeological sites to constitute a disturbance of the ground for this purpose. Once the indicated information is received, the Indiana SHPO will resume identification and evaluation procedures for this project. Please keep in mind that additional information may be requested in the future.</p>	<p>All project modifications described in Section 106 Update Memo #9 will take place in existing right-of-way, previously disturbed by transportation infrastructure construction. Noise Barrier 3W (NB3W) is proposed along the north side of westbound I-70, from Commerce Avenue to Lewis Street. NB3W is anticipated to be constructed on the existing road slope. However, to provide the design-builder flexibility, additional archaeological investigations will occur at the toe of slope where previously undisturbed soils may be present within the existing right-of-way. The results of these investigations will be forwarded to the SHPO for review. Stipulations for archaeological investigations are included in the Draft MOA.</p>

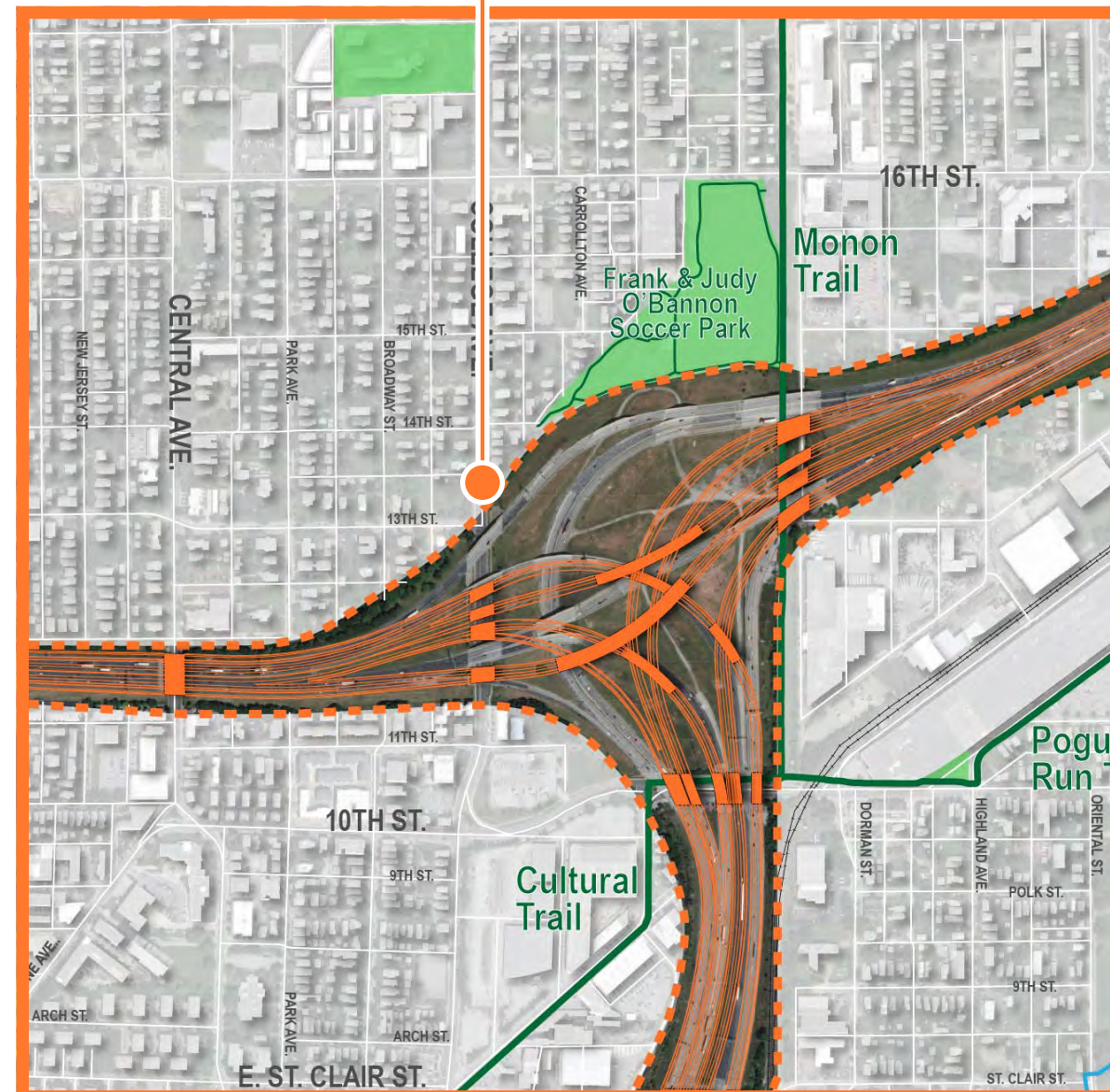
**Section 106 Update Memo #10**

# **Attachment B**

**Earthen Berm Figures**



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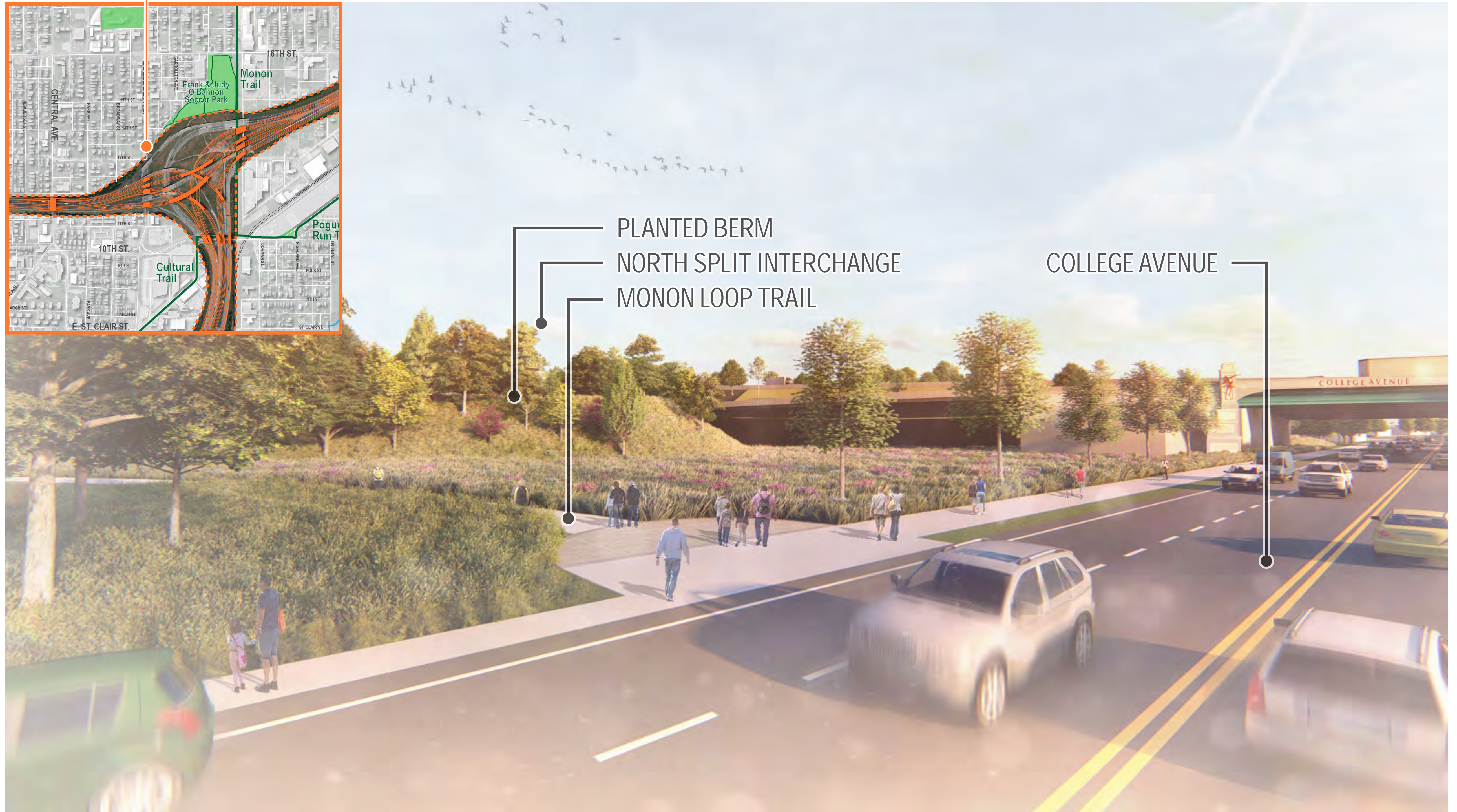
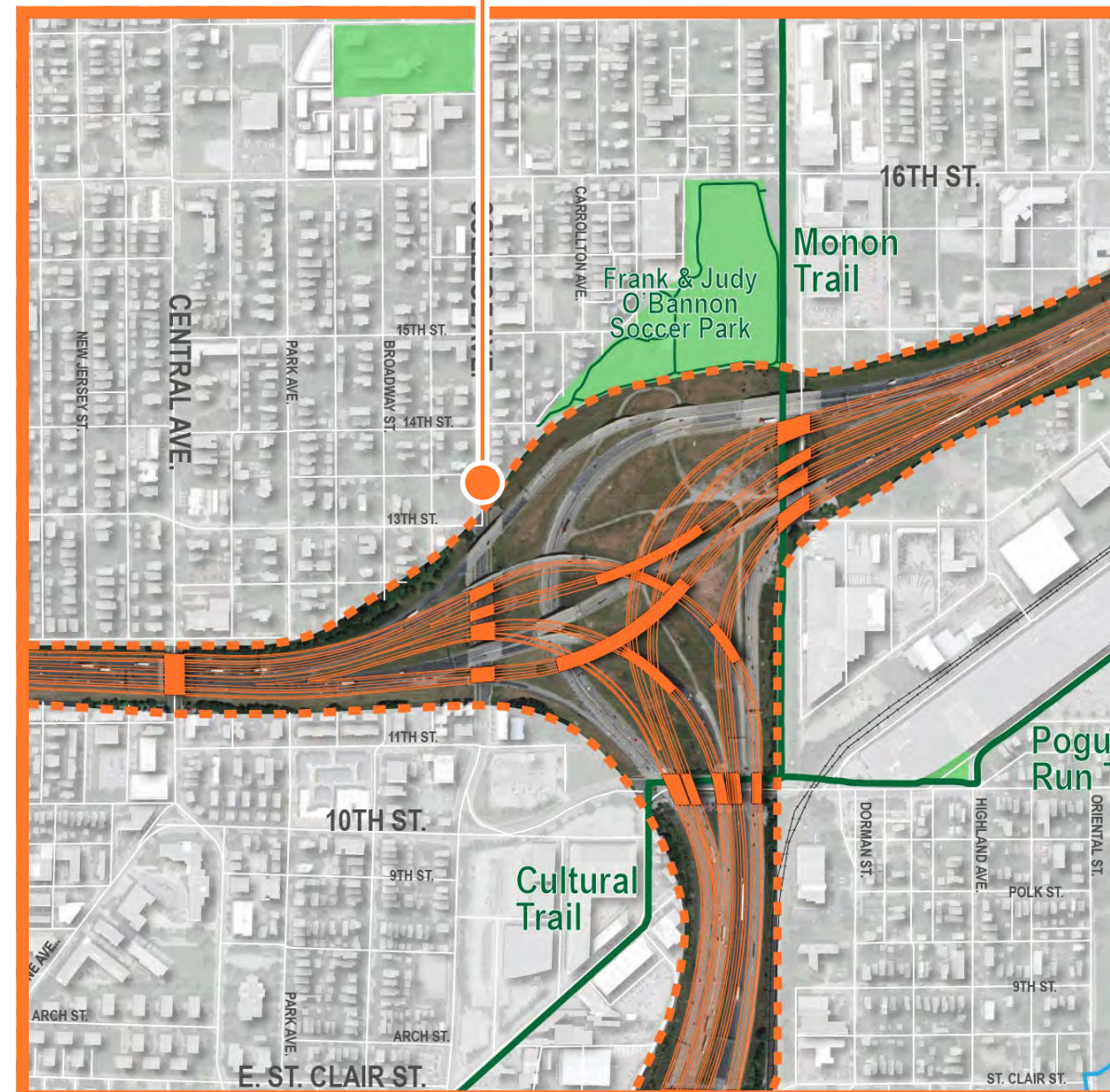


# Screen Plantings without Berm

ELEVATED VIEW LOOKING SOUTHEAST ALONG COLLEGE AVENUE



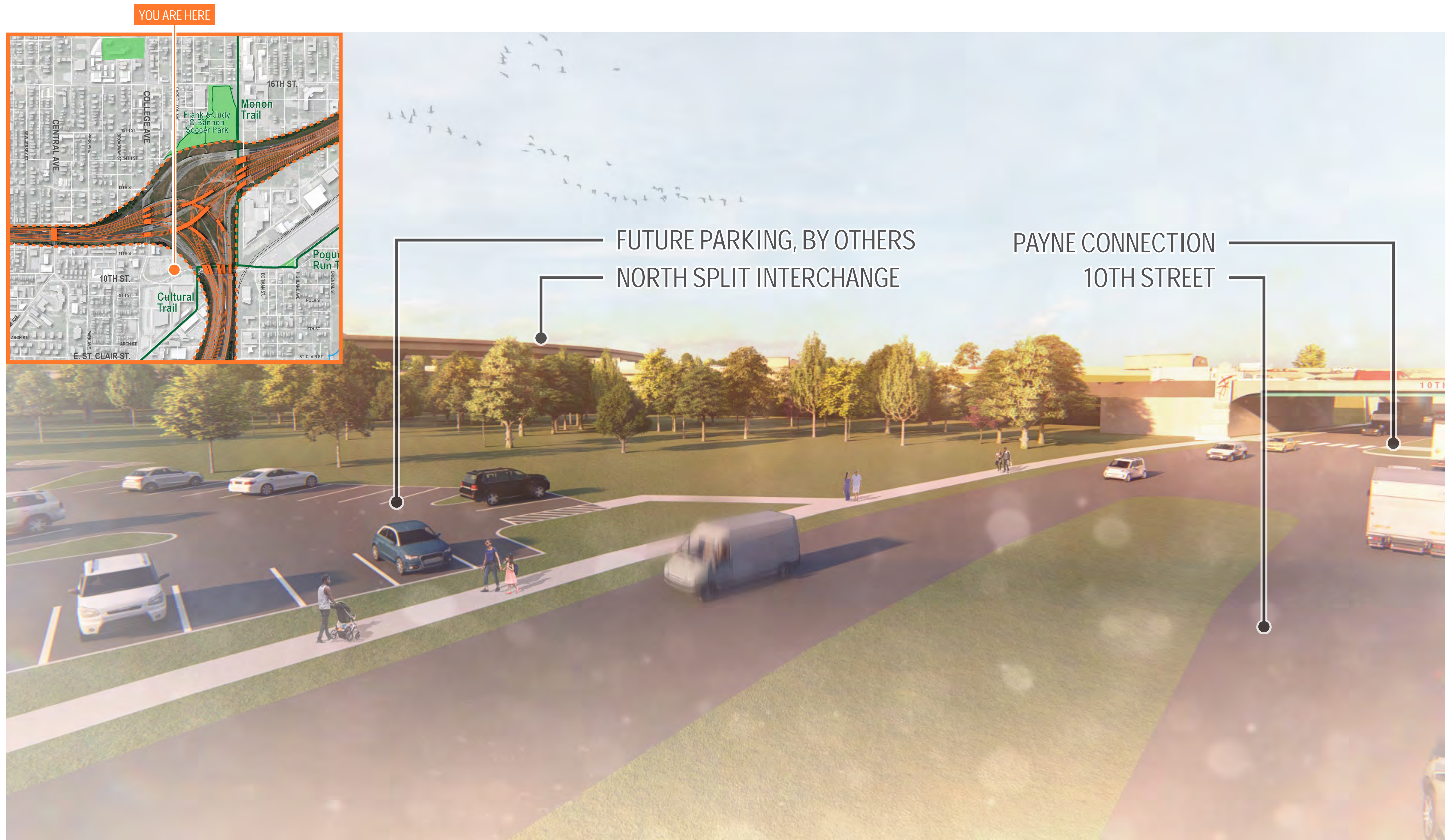
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# Screen Plantings with Berm

ELEVATED VIEW LOOKING SOUTHEAST ALONG COLLEGE AVENUE





# Screen Plantings without Berm

ELEVATED VIEW LOOKING NORTHEAST ALONG 10TH STREET









# North Split Interchange

ELEVATED VIEW LOOKING SOUTHWEST





# North Split Interchange

PLAN VIEW

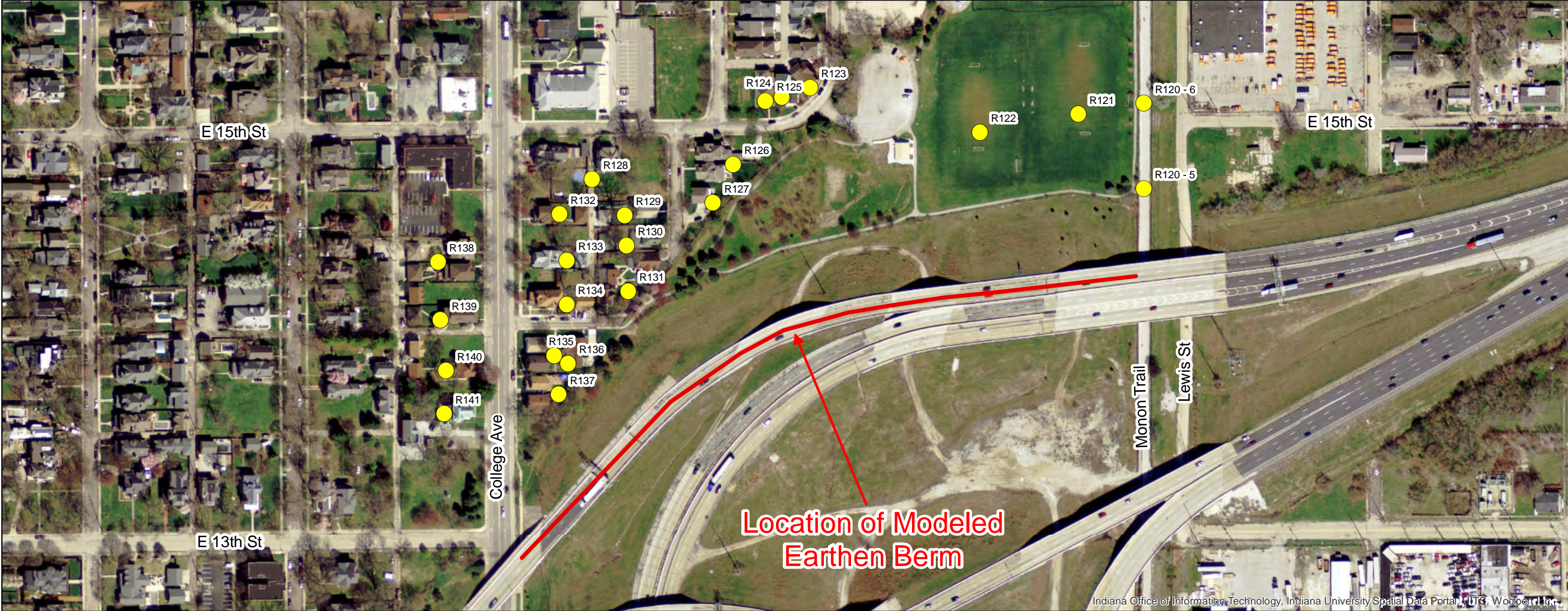


**Section 106 Update Memo #10**

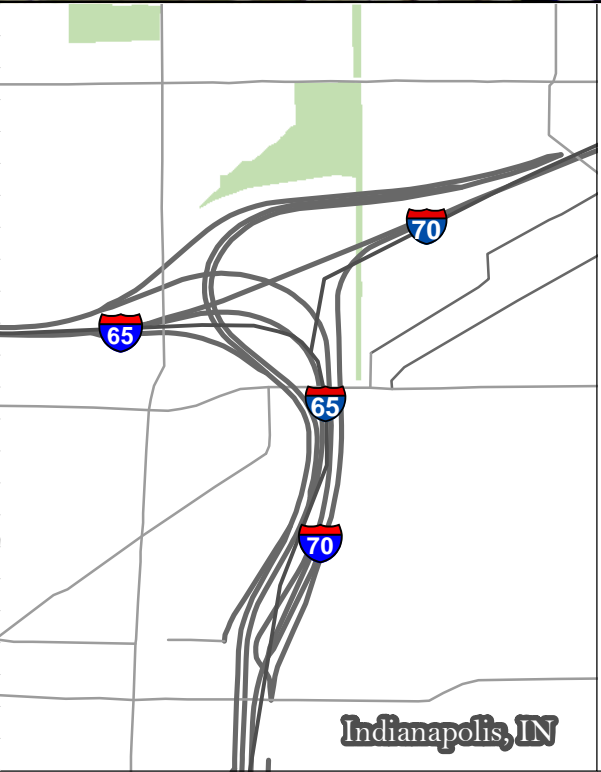
# **Attachment C**

**Earthen Berm Noise Map**





Receptor	2017 Noise Level	2041 Noise Level w/ berm	2041 Noise Level w/o berm	2041 w/o berm minus 2041 with berm	2041 w/o berm minus 2017
R120-5	66.7	65.1	65.8	0.7	-0.9
R120-6	64.9	63.4	63.9	0.5	-1
R121	64.3	61.5	63.6	2.1	-0.7
R122	64	59.3	63.5	4.2	-0.5
R123	61.2	59.4	61.2	1.8	0
R124	61.1	59.4	61.3	1.9	0.2
R125	61	59	61.1	2.1	0.1
R126	61.8	59	61.1	2.1	-0.7
R127	62.2	58.9	61.3	2.4	-0.9
R128	60.7	58.8	60.4	1.6	-0.3
R129	61.4	58.2	60.8	2.6	-0.6
R130	61.8	57.7	61.1	3.4	-0.7
R131	62.9	57.6	61.9	4.3	-1
R132	60.7	58.2	60.1	1.9	-0.6
R133	61.6	58.1	60.8	2.7	-0.8
R134	62.5	58.2	61.5	3.3	-1
R135	63.4	58.8	62.1	3.3	-1.3
R136	63.8	58.5	62.3	3.8	-1.5
R137	64.4	58.6	62.5	3.9	-1.9
R138	60.1	59	60.1	1.1	0
R139	61	59.4	60.7	1.3	-0.3
R140	61.9	60	61.4	1.4	-0.5
R141	62.9	60.7	62	1.3	-0.9



North Split  
Traffic Noise Analysis  
With and Without Earthen Berm

Predicted Noise Levels

Marion County, IN

Revised: 2/19/2020

DRAFT



**Section 106 Update Memo #10**

# **Attachment D**

**FTA Manual Excerpt**



F E D E R A L   T R A N S I T   A D M I N I S T R A T I O N

# Transit Noise and Vibration Impact Assessment Manual

SEPTEMBER 2018

FTA Report No. 0123  
Federal Transit Administration

**PREPARED BY**  
John A. Volpe National Transportation Systems Center



U.S. Department of Transportation  
Federal Transit Administration



likelihood of community noise complaints by ensuring that any necessary mitigation measures are included in the construction plans.

- **Compliance enforcement program** – If construction noise is an issue in the community, it is important that a program be implemented to monitor contractor compliance with the noise control specifications and mitigation plan. It is recommended that this function be performed by a construction management team on behalf of the public agency.
- **Public information and complaint response procedures** – To maintain positive community relations, it is recommended to keep the public informed about the construction plans and efforts to minimize noise, and procedures should be established for prompt response and corrective action to noise complaints during construction.

Most of these provisions are appropriate for large-scale projects, where construction activity will continue for many months, if not years. The linked references contain more information on construction noise for major transportation projects.<sup>(60)(65)</sup>

## 7.2 Construction Vibration Assessment

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings founded on the soil near the construction site respond to these vibrations with varying results, ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels.

While ground vibrations from construction activities do not often reach the levels that can damage structures, fragile buildings must receive special consideration. The construction vibration criteria include consideration of the building condition.

The key elements of the Construction Vibration Assessment procedures and recommended workflow are as follows:

- Step 1:** Determine level of construction vibration assessment
- Step 2:** Use a qualitative construction vibration assessment
- Step 3:** Use a quantitative construction vibration assessment
- Step 4:** Assess construction vibration impact
- Step 5:** Determine construction vibration mitigation measures

## Step 1: Determine Level of Construction Vibration Assessment

*Determine the appropriate level of assessment based on the scale and type of the project and the stage of environmental review.*

### Ia. Determine if an assessment is required.

Construction Vibration Assessments are not required for many small projects including:

- Installation of safety features like grade-crossing signals
- Track improvements within the ROW
- Erecting small buildings and facilities, which are similar in scale to the surrounding development

### Ib. Determine whether a qualitative or quantitative assessment is required.

- **Qualitative Construction Vibration Assessment** – A qualitative construction vibration assessment is appropriate for projects where prolonged annoyance or damage from construction vibration is not expected. For example, equipment that generates little or no ground vibration—such as air compressors, light trucks, and hydraulic loaders—only require qualitative descriptions. See Section 7.2, Step 2 for more information on qualitative construction vibration assessments.
- **Quantitative Construction Vibration Assessment** – A quantitative construction vibration analysis is appropriate for projects where construction vibration may result in building damage or prolonged annoyance. For example, activities such as blasting, pile-driving, vibratory compaction, demolition, and drilling or excavation near sensitive structures require a quantitative analysis. See Section 7.2, Step 3 for more information on quantitative construction vibration assessments.

If there is uncertainty in how to determine the appropriate level of assessment, contact the FTA Regional office.

## Step 2: Use a Qualitative Construction Vibration Assessment

*Use a qualitative construction vibration assessment to estimate vibration for appropriate projects per Section 7.2, Step 1b.*

Provide qualitative descriptions in the environmental document of the following elements:

- Duration of construction (both overall and at specific locations)
- Equipment expected to be used
- Description of how ground-borne vibration will be maintained at an acceptable level

Note that the criteria in Section 7.2, Step 4 do not apply to qualitative assessments.

### Step 3: Use a Quantitative Construction Vibration Assessment

Use a quantitative construction vibration assessment to estimate vibration for appropriate projects per Section 7.2, Step 1b.

For quantitative construction vibration assessments, follow the recommended procedure in this step. Vibration source levels from typical construction equipment and operations are provided below, and procedures on how to estimate construction vibration for damage and annoyance are provided in Steps 3a and 3b, respectively.

- **Vibration Source Levels from Construction Equipment** – Table 7-4 presents average source levels in terms of velocity for various types of construction equipment measured under a wide variety of construction activities. The approximate rms vibration velocity levels were calculated from the PPV limits using a crest factor of 4, representing a PPV-rms difference of 12 dB. Note that although the table gives one level for each piece of equipment, there is considerable variation in reported ground vibration levels from construction activities. The data in Table 7-4 provide a reasonable estimate for a wide range of soil conditions.<sup>(66)(67)(68)(69)</sup>

**Table 7-4 Vibration Source Levels for Construction Equipment**

Equipment		PPV at 25 ft, in/sec	Approximate Lv* at 25 ft
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.17	93
Clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.21	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

\* RMS velocity in decibels, VdB re 1 micro-in/sec

#### 3a. Damage Assessment

Assess for building damage for each piece of equipment individually.

Construction vibration is generally assessed in terms of peak particle velocity (PPV), as described in Section 5.1.

- Determine the vibration source level ( $PPV_{ref}$ ) for each piece of equipment at a reference distance of 25 ft as described above and in Table 7-4.
- Use Eq. 7-2 to apply the propagation adjustment to the source reference level to account for the distance from the equipment to the receiver. Note that the equation is based on point sources with normal propagation conditions.

**Equation 7.2**

$$PPV_{equip} = PPV_{ref} \times \left(\frac{25}{D}\right)^{1.5} \quad \text{Eq. 7-2}$$

where:

$PPV_{equip}$  = the peak particle velocity of the equipment adjusted for distance, in/sec

0.12 in/sec  
(Table 7-5)

$PPV_{ref}$  = the source reference vibration level at 25 ft, in/sec

1.518 in/sec for impact pile driver (Table 7-4)

$D$  = distance from the equipment to the receiver, ft

140 feet means  $PPV_{equip}$  is under 0.12 in/sec

**3b. Annoyance Assessment**

Assess for annoyance for each piece of equipment individually. Ground-borne vibration related to human annoyance is related to rms velocity levels, expressed in VdB as described in Section 5.1.

Estimate the vibration level ( $L_v$ ) using Eq. 7-3.

$$L_{v.distance} = L_{v.ref} - 30 \log\left(\frac{D}{25}\right) \quad \text{Eq. 7-3}$$

where:

$L_{v.distance}$  = the rms velocity level adjusted for distance, VdB

$L_{v.ref}$  = the source reference vibration level at 25 ft, VdB

$D$  = distance from the equipment to the receiver, ft

**Step 4: Assess Construction Vibration Impact**

*Compare the predicted vibration levels from the Quantitative Construction Vibration Assessment with impact criteria to assess impact from construction vibration.*

Assess potential damage effects from construction vibration for each piece of equipment individually. Note that equipment operating at the same time could increase vibration levels substantially, but predicting any increase could be difficult. The criteria presented in this section should be used during the environmental impact assessment phase to identify problem locations that must be addressed during the engineering phase.

Compare the PPV and approximate  $L_v$  for each piece of equipment determined in Section 7.2, Step 3 to the vibration damage criteria in Table 7-5, which is presented by building/structural category, to assess impact.<sup>(70)(71)</sup> The approximate rms vibration velocity levels were calculated from the PPV limits using a crest factor of 4.

**Table 7-5 Construction Vibration Damage Criteria**

Building/ Structural Category	PPV, in/sec	Approximate $L_v$ *
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

\*RMS velocity in decibels, VdB re 1 micro-in/sec

Compare the  $L_v$  determined in Section 7.2, Step 3 to the criteria for the General Vibration Assessment in Section 6.2 to assess annoyance or interference with vibration-sensitive activities due to construction vibration.

### Step 5: Determine Construction Vibration Mitigation Measures

*Evaluate the need for mitigation and select appropriate mitigation measures where potential human impacts or building damage from construction vibration have been identified according to Section 7.2, Step 4.*

**5a.** Determine the appropriate approach for construction vibration mitigation considering equipment location and processes.

- **Design considerations and project layout**
  - Route heavily-loaded trucks away from residential streets. Select streets with the fewest homes if no alternatives are available.
  - Operate earth-moving equipment on the construction lot as far away from vibration-sensitive sites as possible.
- **Sequence of operations**
  - Phase demolition, earth-moving, and ground-impacting operations so as not to occur in the same time period. Unlike noise, the total vibration level produced could be substantially less when each vibration source operates separately.
  - Avoid nighttime activities. Sensitivity to vibration increases during the nighttime hours in residential neighborhoods.
- **Alternative construction methods**
  - Carefully consider the use of impact pile-driving versus drilled piles or the use of a sonic/vibratory pile driver or push pile driver where those processes might create lower vibration levels if geological conditions permit their use.
    - Pile-driving is one of the greatest sources of vibration associated with equipment used during construction of a project. The source levels in Table 7-4 indicate that sonic pile drivers may provide substantial reduction of vibration levels compared to impact pile drivers. But, there are some additional vibration effects of sonic pile drivers that may limit their use in sensitive locations.
    - A sonic pile driver operates by continuously shaking the pile at a fixed frequency, literally vibrating it into the ground. Continuous operation at a fixed frequency may, however, be more

noticeable to nearby residents, even at lower vibration levels. Furthermore, the steady-state excitation of the ground may induce a growth in the resonant response of building components. Resonant response may be unacceptable in cases of fragile buildings or vibration-sensitive manufacturing processes. Impact pile drivers, however, produce a high vibration level for a short time (0.2 seconds) with sufficient time between impacts to allow any resonant response to decay.

- Select demolition methods involving little to no impact, where possible. For example, sawing bridge decks into sections that can be loaded onto trucks results in lower vibration levels than impact demolition by pavement breakers. Milling generates lower vibration levels than excavation using clam shell or chisel drops.
- Avoid vibratory rollers and packers near sensitive areas.

**5b.** Describe and commit to a mitigation plan that will be developed and implemented during the engineering and construction phase when the information available during the project development phase will not be sufficient to define specific construction vibration mitigation measures. The objective of the plan should be to minimize construction vibration damage using all reasonable and feasible means available. The plan should include the following components:

- A procedure for establishing threshold and limiting vibration values for potentially affected structures, based on an assessment of each structure's ability to withstand the loads and displacements due to construction vibrations
- A commitment to develop a vibration monitoring plan during the engineering phase and to implement a compliance monitoring program during construction