



Jennings County Indiana • Des. No. 0401402

US 50 NORTH VERNON PROJECT ENVIRONMENTAL ASSESSMENT



PREPARED BY

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PREPARED FOR



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**FHWA-Indiana Environmental Document
CATEGORICAL EXCLUSION / ENVIRONMENTAL ASSESSMENT FORM
GENERAL PROJECT INFORMATION**

Road No./County:	U.S. 50 North Vernon Project
Designation Number:	0401402
Project Description/Termini:	This project will construct a new roadway connecting U.S. 50 west of North Vernon to S.R. 3 north of North Vernon.

After completing this form, I conclude that this project qualifies for the following type of Categorical Exclusion (FHWA must review/approve if Level 4 CE):

	Categorical Exclusion, Level 2 – The proposed action meets the criteria for Categorical Exclusion Manual Level 2 - table 1, CE Level Thresholds. Required Signatories: ESM (Environmental Scoping Manager).
	Categorical Exclusion, Level 3 – The proposed action meets the criteria for Categorical Exclusion Manual Level 3 - table 1, CE Level Thresholds. Required Signatories: ESM, ES (Environmental Services).
	Categorical Exclusion, Level 4 – The proposed action meets the criteria for Categorical Exclusion Manual Level 4 - table 1, CE Level Thresholds. Required Signatories: ESM, ES, FHWA.
X	Environmental Assessment (EA) – EAs require a separate FONSI. Additional research and documentation is necessary to determine the effects on the environment. Required Signatories: ES, FHWA.

Note: For documents prepared by or for Environmental Services, it is not necessary for the ESM of the district in which the project is located to release for public involvement or sign for approval.

Approval _____
 ESM Signature _____ Date _____ ES Signature [Signature] _____ Date _____

[Signature] 10-24-11
 FHWA Signature _____ Date _____

Release for Public Involvement _____
 ESM Initials _____ Date _____
BZ 10-24-11
 ES Initials _____ Date _____

Certification of Public Involvement _____
 Manager, Public Hearings Signature _____ Date _____

Note: Do not approve until after Section 106 public involvement and all other environmental requirements have been satisfied.

Reviewer Signature [Signature] Date October 24, 2011

Name and organization of CE/EA Preparer: Daniel Prevost, AICP – Parsons Corporation

Form version: March 2011

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Part I - PUBLIC INVOLVEMENT

Every Federal action requires some level of public involvement, providing for early and continuous opportunities throughout the project development process. **The level of public involvement should be commensurate with the proposed action.**

Discuss what public involvement activities (legal notices, letters to affected property owners and residents, meetings, special purpose meetings, newspaper articles, etc.) have occurred for this project.

Remarks: A Public Involvement Plan (PIP) was developed for the project and approved by the Indiana Department of Transportation (INDOT) in September 2010. A copy of the PIP is provided in Appendix A. Key elements of the plan include:

- Developing and maintaining a comprehensive mailing list;
- Issuing a Notice of Survey to adjacent landowners;
- Initiating early coordination with the required agencies;
- Consultation regarding historic properties and resources;
- Maintaining a project website;
- Publishing periodic news releases in local media outlets;
- Establishing and holding meetings with a Community Advisory Committee (CAC): and
- Conducting public meetings and a public hearing at appropriate project milestones.

During the development of the project, the following actions have been taken to solicit input from concerned stakeholders:

Notice of Survey Letter

Notice of Survey letters were sent on September 21, 2010 to property owners located in the vicinity of the studied alignments notifying them that project personnel may be entering their property. When the development of additional project alternatives required additional field survey activities, a second set of Notice of Survey letters were sent February 14, 2011 to affected property owners.

Early Coordination Letter

An Early Coordination Letter (ECL) was sent on November 3, 2010 to 46 federal, state, and local agencies informing them of the scope of the project and to solicit their input. A list of agencies to which the ECL was sent can be found in Section K. A sample of the letter and copies of all responses received are included in Appendix B.

Public Meetings

INDOT has hosted two public open houses and three meetings of the project's CAC. The public meetings were advertised in the local newspaper and by direct mailings to property owners. The CAC was comprised of community leaders and representatives of local businesses and organizations invited to serve in an advisory role to INDOT, FHWA, and the project team. CAC members were notified of meetings by e-mail and letter invitation.

Public Open House #1

On September 30, 2010, INDOT hosted a public open house to re-introduce the public to the U.S. 50 North Vernon Project. It was in this meeting that the public was informed of INDOT's plan to divide the recommendations of the 2008 Preliminary Alternatives Screening Report into two separate projects. The first project is a series of spot improvements on existing U.S. 50. This component will address operational problems along U.S. 50 from U.S. 31 to the west edge of North Vernon by improving intersections, replacing deteriorated structures, and adding travel lanes to certain sections. The second project is a new roadway link from existing U.S. 50 near CR 400 W around the west and north sides of North Vernon to S.R. 3. This new roadway will address the

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principal transportation needs identified in the 2008 study and allow for the completion of a full bypass around North Vernon at a later date.

One hundred sixty-seven people signed the attendance sheets at the meeting. Attendees received handouts that summarized the spot improvement and new roadway projects, identified the key needs for the new roadway, showed the two alternatives (2W-A and 2W-B) advanced out of the 2008 study, and gave a preliminary project schedule.

The majority of the comments received centered around 4 topics: private property concerns, support for a full bypass of North Vernon, maintenance of access to/from existing roadways, and concerns about increased congestion from the new roadway. A meeting summary, along with sign-in sheets, returned comment forms and copies of the materials presented at the meeting can be found in Appendix A.

CAC #1

The first meeting of the CAC was held December 13, 2010. This meeting summarized the first public meeting and presented new alignment alternatives that were developed after the public meeting. The new roadway project around North Vernon was divided into south, middle and north sections. The original alternatives advanced from the 2008 study were only different at the extreme north end where they joined S.R. 3. Two new northern options were developed, and became known as Alternatives N1 and N2. The old 2W-A and 2W-B became Alternatives N3 and N4, respectively. In the middle section, new Alternative M2 was introduced. New Alternative S2 was presented in the southern section. CAC members were given a schedule for the spot improvement and new roadway projects. Minutes of the meeting and a copy of the slide presentation given at this meeting is included in Appendix A.

CAC #2

The second meeting of the CAC was held on February 17, 2011. Since the previous CAC meeting, ongoing engineering analysis and meetings with concerned property owners led to additional alternatives. These new alternatives in the southern section, S3 and S4, and in the northern section, N5 and N6, were presented to the CAC along with the alternatives discussed at the first CAC meeting. It was at this meeting that INDOT presented the alternatives that would be carried forward for detailed study in the Environmental Assessment (EA). The alternatives advanced included a pair from each of the three sections of the project: S1 and S2, M1 and M2, and N3 and N6. The meeting also included a discussion of likely and potential access points to/from the new roadway and the existing roadway system. Minutes of this meeting, as well as the sign-in sheets and presented materials are attached in Appendix A.

Public Open House #2

The second public open house was held on April 5, 2011. Materials presented in this meeting summarized all of the alternatives developed to date (S1-S4, M1-M2, and N1-N6), presented the pairings of alternatives to be studied in the EA, and discussed likely access points to/from the new roadway. An updated project schedule was also given. The open house format allowed attendees to view project displays and ask questions of the project team. One hundred five people signed the attendance sheets. Part way through the open house, a formal presentation was given in the gym by project staff. A summary of this meeting, as well as returned comment forms and a copy of the materials presented, can be found in Appendix A.

Comments were received from 22 households in response to this meeting. Seven of the comments were about the southern section, 12 about the middle, and 4 were about the northern section. Besides comments about personal property impacts, the next most common comments were about access to/from existing roadways and comments in favor of a specific alternative.

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CAC #3

The final meeting of the CAC was held on April 28, 2011. The materials and comments from the second open house were discussed. The project team also presented modified versions of two of the alternatives selected for detailed study in the EA. At the south end of the project, Alternative S2 was modified to include a new bridge over the CSX railroad allowing a connection to CR 400 N and access to Base Road. Alternative S2-Modified has lower costs and is preferred by the public. The other modification occurred at the north end where Alternative N6-Modified, which would relocate the roadway's intersection with S.R. 3 approximately 1,000 feet south of CR 350 N. This was developed to address concerns that the Alternative N6 intersection was too close to CR 350 N. The project team identified the combination of Alternatives S2-Modified, M2, and N6-Modified as the recommended alternative. The meeting concluded with a discussion of the updated project schedule. A meeting summary, and copies of the sign-in forms and presentation, are located in Appendix A.

Informal Meetings

Throughout project development, several concerned property owners have asked for private meetings with project staff to discuss their individual concerns. Project officials have also responded to individual concerns through phone calls and e-mail.

Project Website

The project team maintained a series of web pages at www.in.gov/indot/div/projects/us50/northvernon to serve as a repository for project information. This website has been updated throughout the public involvement process with meeting materials and dates of upcoming meetings. The website also includes maps, handouts and documents that can be viewed or downloaded. Also included is contact information for submitting comments to project staff.

Media

Throughout the project there have been several articles published in the North Vernon Plain Dealer & Sun. These articles are included in Appendix A.

Agency Coordination

Throughout the project, INDOT and the project team have coordinated with federal, state, and local agencies regarding design or environmental issues related to the project. These contacts are discussed throughout this document. Where copies of coordination letters have not been incorporated as part of another attachment, they are included in Appendix B. In addition to the written correspondence, INDOT and Parsons hosted an Agency Review Meeting on January 28, 2011. This gave the project team and resource agencies the opportunity to discuss the revised scope of the U.S. 50 project, the key resources in the area, and the alternatives under consideration.

Section 106 Consulting Party Coordination

Under Section 106 of the National Historic Preservation Act (NHPA) certain groups and individuals with a demonstrated interest in the project may participate as consulting parties. Eight organizations were sent invitations to participate, along with a copy of the Historic Property Report (HPR), with instructions on how to accept the invitation and provide comments. Three organizations accepted the invitation, along with the Division of Historic Preservation and Archaeology (DHPA) of the Indiana Department of Natural Resources (IDNR) who is also entitled to participate as a consulting party. More information on the Section 106 process can be found in Part III, Section C of this document as well as Appendix F.

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Public Controversy on Environmental Grounds

Will the project involve substantial controversy concerning community and/or natural resource impacts?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks:

This project has not involved substantial controversy concerning community and/or natural resource impacts. Notwithstanding individual property owner concerns about noise and traffic, there has been no collective negative concern about the project. The most common concern raised by community members not directly impacted by the project has been impacts to the existing transportation network. The new roadway will be a limited access facility, which means there will be no private access to the new roadway, and only certain existing roads will have intersections with the new facility. INDOT has solicited public input on intersections and access points during the public open house and CAC meetings. The current project plans incorporate intersections and road closures that strike the best balance between the desires of the motoring public and the engineering requirements of a limited access facility.

	Yes	No
Opportunity for a Public Hearing Required	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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Part II - General Project Identification, Description, and Design Information

Sponsor of the Project: INDOT Local Name of the Facility: U.S. 50 New Roadway INDOT District: Seymour

Funding Source: [X] Federal [X] State [] Local [] Private

PURPOSE AND NEED:

Describe the problem that the project will address.

There are four core problems that this project will address. They are:

- 1. Congestion. Traffic volumes on U.S. 50 and S.R. 3/S.R. 7 in North Vernon are projected to increase by 1% to 3.3% annually... 2. Safety. U.S. 50, from the west side of North Vernon eastward to the Muscatatuck River has an elevated crash frequency... 3. Accessibility. New employment, land use planning and economic development requires an improved transportation network... 4. Planning. Improvements of U.S. 50 are necessary to maintain consistency with statewide and regional transportation plans.

The purpose of this project is to seek a cost-effective solution to the four documented transportation problems in the U.S. 50/North Vernon area. Alternatives will be evaluated on how well they improve upon the existing deficiencies defined above. Specifically, alternatives must:

- 1. Reduce congestion along U.S. 50 and S.R. 3/S.R. 7 around the north and west sides of North Vernon. 2. Provide a safer transportation facility for both truck and passenger vehicles around the north and west sides of North Vernon.

1 Brown, Laurence and Roy Nunnally. "U.S. 50 North Vernon Bypass Analyses" Indiana Department of Transportation, June 18, 2009.

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3. Provide an efficient transportation link between the existing and growing industrial area on the north side of North Vernon to U.S. 50 west of town.
4. Support State and local transportation planning.

Besides the four driving factors above, the alternatives will be judged on how well they meet the following non-transportation goals:

- Minimize impacts to environmental and cultural resources.
- Minimize social and economic impacts due to right-of-way acquisition and relocations.
- Support local community needs and interests.
- Provide a transportation facility consistent with local development plans.

PROJECT DESCRIPTION (PREFERRED ALTERNATIVE):

County: Jennings
Municipality: North Vernon

Limits of Proposed Work: U.S. 50 near CR 400 W to S.R. 3 near CR 350 N
Total Work Length / Area: 4.5 mi/199 ac. Mile(s) / Acre(s)

Is an Interchange Modification Study / Interchange Justification Study (IMS/IJS) required?
If yes, when did the FHWA grant a conditional approval for this project?

Yes ¹	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
Date: _____	

¹If an IMS or IJS is required; a copy of the approved CE/EA document must be submitted to the FHWA with a request for final approval of the IMS/IJS.

In the Remarks box below, describe in detail the scope of work for the project, including the preferred alternative. Include a discussion of logical termini. Discuss any major issues for the project and how the project will improve safety or roadway deficiencies if these are issues.

In 2008, INDOT published a Preliminary Alternatives Screening Report for U.S. 50 in Jennings and Jackson Counties and the City of North Vernon. For analysis and evaluation purposes, the study was divided into two sections—a western section from U.S. 31 in Jackson County eastward to Jennings CR 575 W, and an eastern section from CR 575 W eastward to near the Jennings/Ripley County line. The eastern section investigated bypass alternatives around North Vernon and recommended two alternatives for further study.

In 2010, Parsons began work on an EA to further refine the two bypass alternatives advanced out of the Preliminary Alternatives Screening Report. Due to budget constraints, INDOT scaled back the bypass portion of the project to include only the western half of the bypass envisioned in the Screening Report. This project proposes a new two-lane roadway connection from U.S. 50 near CR 400 W north and east to S.R. 3, on the north side of North Vernon. The western section of U.S. 50 is being advanced as a series of intersection “spot” improvements, which will be evaluated under a separate environmental document. These “spot” improvements will include improvements to intersections, signage and guardrail, replace three water crossings, and add travel lanes in certain sections. Recently INDOT identified funding for the remainder of the bypass and will, in 2012, initiate a study to evaluate a range of roadway alternatives for its alignment. INDOT will coordinate with agencies, local officials and the general public regarding the scope and potential impacts of that project and will prepare a separate environmental document documenting the study’s findings.

The southern terminus of the project is on U.S. 50 near Jennings County Road 400 W. From here, the new roadway will travel northeast and terminate at S.R. 3 on the north side of North Vernon, just south of CR 350

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N. The approximate length of the roadway will be 4.5 miles. This new roadway will help alleviate some of the operational concerns created by commercial truck traffic by creating a new, more efficient access to the industrial areas of North Vernon. The northern terminus at S.R. 3 was chosen to allow for the continuation of the roadway to the east at a later date while maintaining sufficient separation from the intersection of S.R. 3 and CR 350 N.

While two lanes are sufficient to effectively carry traffic in this corridor for the foreseeable future, in accordance with its designation as a Statewide Mobility Corridor, INDOT plans to acquire sufficient right-of-way for a future four-lane roadway. The two-lane roadway constructed as part of this project would serve as the westbound lanes of that roadway. Through most of the corridor, a 300-foot wide right-of-way will be acquired, allowing for construction of the eastbound lanes in the future. The impacts described in this document are based on use of the full right-of-way corridor.

Based on environmental and engineering investigations and input from the public and agency stakeholders, INDOT developed additional alignments for evaluation in addition to those identified in the Preliminary Alternatives Screening Report. The project limits were divided into three sections: southern, middle, and northern to allow for multiple combinations of alternatives. Through this process, Parsons investigated 5 alternatives in the southern segment, 2 in the middle segment, and 7 in the northern segment. These alternatives went through an initial screening, which eliminated alternatives that had severe impacts or did not meet the project goals. After the initial screening, two alternatives from each segment remained. These alternatives, S1 and S2 in the southern segment, M1 and M2 in the middle segment, and N3 and N6 in the northern segment, were presented to the public at an open house meeting in April 2011. Based on comments received from the public and additional engineering analysis, the S2 and N6 alternatives were modified to minimize impacts, improve operations and reduce costs. The alignments S1 and S2-Modified, M1 and M2, and N3 and N6-Modified, as well as the "Do-Nothing" alternative, have undergone detailed analysis in this EA. For the "Do-Nothing" alternative, INDOT would continue to maintain the existing U.S. 50 corridor in its present condition (i.e., no upgrades/ improvements, other than "committed" projects already in active development).

The engineering and environmental analysis, in conjunction with public comments, has led INDOT to select the combination of Alternatives S2-Modified, M2, and N6-Modified as the preferred alternative (see Figure 1 in Appendix C). At the south end, Alternative S2-Modified will take off from the existing U.S. 50 alignment near CR 400 W. About a quarter mile north, there will be a new 4-way signal-controlled intersection with a realigned existing U.S. 50 to the south and a new connector roadway to the north. The new connector roadway will have a bridge over the CSX railroad and connect to CR 400 W north of Base Road. This element is included to maintain access to Base Road once the existing wooden Base Road bridge over the CSX railroad is removed as part of this project. East of this intersection, the new roadway turns north to cross over the CSX railroad on a new bridge. North of the tracks, the new roadway follows the railroad alignment for a short distance. Alternative M2 begins here and turns north near CR 150 N (O&M Avenue). The new roadway will run due north from CR 150 N, about a quarter mile west of CR 250 W (Kipper Lane) and begin to curve to the northeast just before crossing CR 200 N. At both CR 150 N/O&M Avenue and CR 200 N, full access intersections will be provided. The county roads will be stop-controlled; the new roadway will be free-flowing. About a half mile northeast of CR 200 N, Alternative M2 adjoins Alternative N6-Modified which continues northeast to an intersection with S.R. 7. From the S.R. 7 intersection, Alternative N6-Modified continues northeast and then curves north to cross CR 300 N. CR 300 N will be closed with cul-de-sacs on either side of the new roadway. Finally, Alternative N6-Modified curves to the east and terminates at S.R. 3, about two-tenths of a mile south of CR 350 N.

INDOT has selected the combination of Alternatives S2-Modified, M2 and N6-Modified as the preferred alternative because it best meets the project's Purpose and Need and achieves several other desirable outcomes. A summary of the impacts is included in Table 1. Specifically, the preferred alternative:

- Aligns with INDOT's long-term goals for the U.S. 50 corridor by allowing for completion of a bypass around North Vernon in the future.
- Provides for an efficient connection with existing U.S. 50 to facilitate use of the new roadway.

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- Supports the planning and economic development goals of North Vernon and Jennings County.
- Provides the best balance between construction cost and access.
- Minimizes impacts to residences and businesses.
- Minimizes impacts to wetlands and streams.
- Received broad support from the community and agency stakeholders.

Table 1
Environmental Impact Summary Table

	EA Alternatives						
	Do-Nothing	Southern Segment		Middle Segment		Northern Segment	
		S1	S2-Modified	M1	M2	N3	N6-Modified
Right-of-way (ac)	0	99	95	56	52	46	49
Relocations (residential)	0	5	6	8	1	15	4
Relocations (business)	0	1	0	0	0	0	0
Stream impacts (feet)							
Ephemeral	0	3,565	1,384	106	1,130	1,084	990
Intermittent	0	794	0	247	698	521	488
Perennial	0	0	0	0	0	429	385
Wetland impacts (ac)							
Emergent	0	0	0.67	0.04	0.77	0.60	0.04
Forested	0	0.16	0.27	0	0.02	0.08	0.30
Farmland (ac)	0	65	65	73	31	40	16
Indirect Impacts (ac)							
Forest	0	32	15	37	32	37	41
Farmland	0	59	61	116	119	69	75
Wetlands	0	0.2	1.5	1.3	1.2	1.4	6.6

OTHER ALTERNATIVES CONSIDERED:

Describe all discarded alternatives, including the Do-Nothing Alternative and an explanation of why each discarded alternative was not selected.

This section describes the other alternatives that were investigated and dismissed. Please refer to Appendix C, Figures 2-4.

Do-Nothing: The Do-Nothing alternative was eliminated from consideration because it did not meet the project's Purpose and Need. Doing nothing produces no environmental or community impacts and no construction costs. However, it does nothing to improve safety, relieve congestion and improve access to the community of North Vernon.

S1: This alternative, along with Alternative S2-Modified, was selected for detailed analysis as part of the EA. Alternative S1 was not selected as the preferred alternative because of cost and access issues. While Alternative S1 included a frontage road between county roads 450 W and 400 W to help with access, the new roadway would still create access issues for residents and farmers in the area. Additional details regarding this alternative are provided throughout this EA.

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S2: Alternative S2 was eliminated from consideration because of the expense of the bridge connecting CR 450 W to Base Road over existing U.S. 50 and the CSX railroad. Moving the proposed bridge to a location north of the existing Base Road bridge (Alternative S2-Modified) allowed for a shorter, cheaper bridge over the railroad.

S3: Alternative S3 was eliminated from consideration because it did not allow the new roadway to be the through movement. Traffic connecting to and from the new roadway would be forced to make a turn at a new signalized intersection. This design characteristic was in conflict with INDOT's plan to make the new roadway a complete, uninterrupted bypass of North Vernon in the future.

S4: Alternative S4 was eliminated from consideration because it had the greatest stream, open water, and wetland impacts and required the most right-of-way.

M1: This alternative, along with M2, was selected for detailed analysis as part of the EA. Alternative M1 was not selected as the preferred because it required more relocations than Alternative M2 and was not preferred by the public.

N1: Alternative N1 was eliminated from further consideration because of the engineering challenges and costs that result from crossing CR 300 N in a creek valley. Also, this alternative impacted a large wooded wetland at the northern terminus.

N2: Alternative N2 was eliminated from further consideration because of the engineering challenges and costs that result from crossing CR 300 N in a creek valley.

N3: This alternative, along with N6-Modified, was selected for detailed analysis as part of the EA. Alternative N3 was not selected as the preferred because of the high number of residential relocations (15) and the need to re-align a portion of S.R. 3 at the northern terminus of the project.

N4: Alternative N4 was eliminated from further consideration because it did not comply with community planning goals. Future extension of the new roadway along the CR 250 N corridor (completion of the bypass at a later time) would not support the city and county's plans for future development. Furthermore, extending Alternative N4 to the east would create severe impacts to commercial and residential properties, and potentially impact a hazardous materials landfill.

N5: Alternative N5 was eliminated from further consideration because of its high number of relocations and severe impacts to a wooded wetland at the northern terminus.

N6: Alternative N6 was eliminated from further consideration when Alternative N6-Modified was created to reduce relocations and improve the intersection separation distance between the new road/S.R. 3 intersection and the CR 350 N/S.R. 3 intersection.

The Do Nothing Alternative is not feasible, prudent or practicable because (Mark all that apply):

It would not correct existing capacity deficiencies;

It would not correct existing safety hazards;

It would not correct the existing roadway geometric deficiencies;

It would not correct existing deteriorated conditions and maintenance problems, or

It would result in serious impacts to the motoring public and general welfare of the economy.

Other:

It would not relieve traffic congestion, support the community's plans for growth and development or enhance the area's accessibility.

X
X

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ROADWAY CHARACTER:

Functional Classification: Rural Principal Arterial

Current ADT:	<u>N/A</u>	<u>VPD 20()</u>	Design Year	<u>6,560</u>	<u>VPD 20(32)</u>
Current Year DHV	<u>N/A</u>	<u>Trucks (%)</u>	Design Year DHV	<u>526</u>	<u>Trucks (%)</u>
Designed Speed (mph):	<u>60</u>	Legal Speed (mph):	<u>55</u>		

	Existing	Proposed
Number of Lanes:	<u>N/A</u>	<u>2 (future 4-lane divided)</u>
Type of Lanes:	<u>N/A</u>	
Pavement Width:	<u>N/A</u> ft.	<u>24</u> ft.
Shoulder Width:	<u>N/A</u> ft.	<u>10</u> ft.
Median Width:	<u>N/A</u> ft.	<u>0 (50.5)</u> ft. (4-lane divided)
Sidewalk Width:	<u>N/A</u> ft.	<u>N/A</u> ft.

Setting: Urban Suburban Rural
 Topography: Level Rolling Hilly

If the proposed action has multiple roadways, this section should be filled out for each roadway.

DESIGN CRITERIA FOR BRIDGES:

Structure Number(s): 50-40-9584 Sufficiency Rating: N/A

	Existing	Proposed
Bridge Type:	<u>N/A</u>	<u>Composite Pre-stressed Concrete Bulb-Tee beam bridge</u>
Number of Spans:	<u>N/A</u>	<u>1 span</u>
Weight Restrictions:	<u>N/A</u> ton	<u>N/A</u> ton
Height Restrictions:	<u>N/A</u> ft.	<u>23'</u> ft.
Curb to Curb Width:	<u>N/A</u> ft.	<u>47'4"</u> ft.
Outside to Outside Width:	<u>N/A</u> ft.	<u>50'4"min</u> ft.
Shoulder Width:	<u>N/A</u> ft.	<u>11'8"min</u> ft.
Length of Channel Work:	<u>N/A</u> ft.	<u>NA</u> ft.

Describe bridges and structures; provide specific location information for small structures.

Remarks: This bridge carries the new roadway over CSX railroad. At this stage in design the exact quantity and location of small structures is not known. There will be a total of four bridges required for this project: the two described in this document (over CSX) and two in the northern segment of the new roadway (over Branch of Sixmile Creek). Preliminary design information is not available at this stage for the northern bridges.

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	Yes	No	N/A
Will the structure be rehabilitated or replaced as part of the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Structure Number(s): <u>50-40-9775</u>	Sufficiency Rating: <u>N/A</u>		

	Existing	Proposed
Bridge Type:	<u>N/A</u>	<u>Composite pre-stressed AASHTO type III Concrete I-beam bridge</u>
Number of Spans:	<u>N/A</u>	<u>1 span</u>
Weight Restrictions:	<u>N/A</u> ton	<u>N/A</u> ton
Height Restrictions:	<u>N/A</u> ft.	<u>23'</u> ft.
Curb to Curb Width:	<u>N/A</u> ft.	<u>27'4"</u> ft.
Outside to Outside Width:	<u>N/A</u> ft.	<u>30'4"</u> ft.
Shoulder Width:	<u>N/A</u> ft.	<u>3'8"min</u> ft.
Length of Channel Work:	<u>N/A</u> ft.	<u>N/A</u> ft.

Describe bridges and structures; provide specific location information for small structures.

Remarks: This bridge will carry CR 400 W over the CSX railroad.

	Yes	No	N/A
Will the structure be rehabilitated or replaced as part of the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

MAINTENANCE OF TRAFFIC (MOT) DURING CONSTRUCTION:

	Yes	No
Is a temporary bridge proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is a temporary roadway proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the project involve the use of a detour or require a ramp closure? (describe in remarks)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for access by local traffic and so posted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for through-traffic dependent businesses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made to accommodate any local special events or festivals.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will the proposed MOT substantially change the environmental consequences of the action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there substantial controversy associated with the proposed method for MOT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks: Full-access, stop-controlled intersections are proposed where the new roadway crosses both O&M Avenue/CR 150 N and CR 200 N. However, each will need to be closed during construction of the intersection and adjacent new roadway. It is anticipated that these intersections will not be closed at the same time, allowing for use of the other for detour purposes. INDOT also plans to do construction in this area during the summer months, when school is not in session, to minimize impacts to bus routes. Local schools, police, and emergency responders will be informed of any restrictions. INDOT will coordinate with local officials to minimize construction impacts on events, such as the county fair and large training exercises at Muscatatuck Urban Training Center (MUTC).

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ESTIMATED PROJECT COST AND SCHEDULE:

Engineering: \$ 5.2 mil (2011) Right-of-Way: \$ 3.7 mil (2011) Construction: \$ 19.2 mil (2011)
 Anticipated Start Date of Construction: May 2012
 Date project incorporated into STIP: 4/2011

RIGHT-OF-WAY:

Table 2
Proposed Right-of-Way (acres)

EA Alternatives

	Do-Nothing	Southern Segment		Middle Segment		Northern Segment	
		S1	S2 - Modified	M1	M2	N3	N6-Modified
Farmland (acres)	0	65	73	31	40	16	19
Forest (acres)	0	16	3	2	9	11	15
Residential (acres)	0	10	10	15	3	11	14
Commercial (acres)	0	0	0	0	0	5	0
Other (acres)	0	8	9	8	0	3	1

Remarks: Proposed right-of-way by alternative is summarized in Table 2 with the preferred alternative in bold. Existing land use is shown in Appendix C Figure 5.

In a memo dated March 10, 2011 FHWA confirmed that the state has the authority to pursue early land acquisition in accordance with the provisions in 23 CFR 710.501(a). This provision states "The State may initiate acquisition of real property at any time it has the legal authority to do so based on program or project considerations. The State may undertake early acquisition for corridor preservation, access management, or other purposes." This acquisition of right-of-way had no impact on the selection of the final alignment. This memo is included in Appendix K.

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Part III – Identification and Evaluation of Impacts of the Proposed Action

SECTION A – ECOLOGICAL RESOURCES

	Presence		Impacts	
	Yes	No	Yes	No
Streams, Rivers, Watercourses & Jurisdictional Ditches	X		X	
State Wild, Scenic or Recreational River		X		

Remarks: The project lies within three U.S. Geological Survey's (USGS) Hydrologic Unit Code (HUC) 14 digit watersheds. These watersheds include HUC 05120207070050 (HUC 14 Name: Sixmile Creek-Twomile Creek), HUC 05120207070020 (HUC 14 Name: Vernon Fork-Indian Creek), and HUC 05120207070060 (HUC 14 Name: Vernon Fork-Sixmile Creek). Water bodies in this area initially flow into either Sixmile Creek or Indian Creek, both of which flow into the Vernon Fork of the Muscatatuck River which flows into the Muscatatuck River which flows into the East Fork of the White River meeting up with the West Fork of the White River Before flowing into the Wabash River.

Seventeen streams have been identified as "Waters of the US" and "Waters of the State" within the preliminary right-of-way for the project. Of these waters, four have been determined to be intermittent, one perennial, and the remainder ephemeral. Individual streams are labeled in Appendix C Figure 5. Impacts to streams are shown in Table 3.

Table 3
Stream Impacts

	EA Alternatives						
	Do-Nothing	Southern Segment		Middle Segment		Northern Segment	
		S1	S2 - Modified	M1	M2	N3	N6-Modified
Ephemeral (EPH)	0	3,565	1,384	106	1,130	1,084	990
Intermittent (INT)	0	794	0	247	698	521	488
Perennial (PER)	0	0	0	0	0	429	385
Totals	0	4,359	1,384	354	1,828	2,034	1,863

The preferred alternative would impact 5,075 linear feet of streams, including 3,504 linear feet of ephemeral streams, 1,186 linear feet of intermittent streams, and 385 feet of perennial stream. Qualitative Habitat Evaluation Index (QHEI) and Primary Headwater Habitat Index (HHEI) forms are included in the Wetland Delineation Report (see Appendix D).

There are no National Wild and Scenic Rivers in Indiana. The Indiana Natural Resources Commission has included Vernon Fork and Otter Creek on its Outstanding Rivers List for Indiana. Neither of these watercourses will be impacted by this project.

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	<u>Presence</u>		<u>Impacts</u>	
	Yes	No	Yes	No
Other Surface Waters				
Reservoirs		X		
Lakes		X		
Farm Ponds	X		X	
Detention Basins		X		
Storm Water Management Facilities		X		
Other: _____		X		

Remarks: There does not appear to be any naturally-occurring ponds or lakes in the project area. None of the southern alternatives would impact any impoundments. Alternative M1 would impact three isolated farm ponds south of CR 150 N and Alternative M2 would impact just the western-most of the three. Just south of S.R. 7, Alternatives N6-Modified and N3 would impact a pair of small ponds. Near the north end of the project just west of S.R. 3, there are three man-made impoundments that were created by damming small drainage ways. The northern two are along the same drainage way and would be impacted by Alternative N6-Modified. The southern one would be impacted by Alternative N3. The northern two ponds drain south and the southern pond drains north into the same drainage way that ultimately makes its way to Sixmile Creek.

Wetlands	<u>Presence</u>		<u>Impacts</u>	
	Yes	No	Yes	No
	X		X	

Total wetland area: 4.08 acres Total wetland area impacted: 2.07 acres
 (If a determination has not been made for non-isolated/isolated wetlands, fill in the total wetland area impacted above.)

Wetland Number	Class	Total size (acres)	Impacts by Preferred Alternative (acres)	Comments
T2-W8	PEM	0.81	0.12	Emergent wetland in shallow depression connected to roadside ditch.
T1-W10	PFO	0.53	0.30	High quality forested wetland in the flat valley of a tributary to Sixmile Creek.
T1-W23	PFO	0.02	0.02	Very small, sparsely vegetated basin where water has pooled where a small ephemeral stream meets a roadside ditch.
T1-W31	PEM	0.22	0.04	Emergent wetland at the inlet side of a man-made impoundment.
T1-W32	PEM	0.44	0.33	Emergent wetland that receives water from roadside ditch and adjacent farm ground. The wetland adjoins a lake to the west.

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T1-W33	PEM	0.66	0.44	Emergent wetland that receives water from adjacent farm ground. The wetland adjoins a lake to the west.
T1-W34	PFO	0.45	0.04	Forested wetland along the outflow from a small man-made impoundment.
T1-W36	PEM	0.02	0.02	Emergent wetland in a shallow depression surrounded in grassy field.
T1-W37	PEM	0.12	0.12	Emergent wetland in a shallow depression surrounded in grassy field.
T1-W40	PFO	0.31	0.23	Shallow wooded depression surrounded by grassy field.
T1-W41	PEM	0.10	0.09	Emergent wetland in a shallow depression surrounded by grassy field.
T1-W42	PEM	0.25	0.17	Emergent wetland in a shallow depression surrounded by grassy field.
T1-W43	PEM	0.10	0.10	Emergent wetland in a shallow depression bordered by T1-W40 in an agricultural field.
T1-W44	PEM	0.05	0.05	Emergent wetland in a shallow depression surrounded by grassy field.

Table 4
Wetland Impacts by Alternative (ac)

	EA Alternatives						
	Do-Nothing	Southern Segment		Middle Segment		Northern Segment	
		S1	S2 - Modified	M1	M2	N3	N6 - Modified
Emergent Wetland (PEM)	0	0.0	0.67	0.04	0.77	0.60	0.04
Forested Wetland (PFO)	0	0.16	0.27	0.00	0.02	0.08	0.30
Totals	0	0.16	0.94	0.04	0.79	0.68	0.34

Wetlands
Wetland Determination
Wetland Delineation Report
USACE Isolated Waters Determination
Mitigation Plan

Documentation	
Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

ES Approval Dates
9/30/11

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**Individual
Wetland
Finding**

Improvements that will not result in any wetland impacts are not practicable because such avoidance would result in (Mark all that apply and explain): Yes No

Substantial adverse impacts to adjacent homes, business or other improved properties;	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Substantially increased project costs;	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Unique engineering, traffic, maintenance, or safety problems;	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Substantial adverse social, economic, or environmental impacts, or	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The project not meeting the identified needs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Measures to avoid, minimize and mitigate wetland impacts need to be discussed in the remarks section

Remarks: Wetland impacts for each alternative segment are summarized above in Table 4 with the preferred alternative in bold. Preliminary wetland boundaries were determined and surveyed for all potential alternatives. A formal wetland delineation was performed for just the preferred alternative. The Wetland Delineation Report is included in Appendix D.

None of the alternatives investigated as part of this project avoid all wetland impacts. However, alternatives were developed and screened based in part, on how well they minimized wetland impacts. Certain alternatives, like N1 and N5 were dismissed because of their severe impacts to wetlands. However, most alternatives strike a balance between wetland impacts and other factors such as relocations, cost and functionality. For example, Alternative N6-Modified impacts slightly more wetland acreage than the original Alternative N6 (0.34 ac versus 0.09 ac), but the modified alternative has 10 fewer residential relocations. Alternative M1 impacted fewer wetlands than M2, but would cause 9 relocations (compared to 1 with Alternative M2). Wetland mitigation will be discussed in the United State Army Corps of Engineers (USACE) 404 and Indiana Department of Environmental Management (IDEM) 401 permit applications.

Terrestrial Habitat	<u>Presence</u>		<u>Impacts</u>	
	Yes	No	Yes	No
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Use the remarks table to identify each type of habitat and the acres impacted (i.e. forested, grassland, farmland, lawn, etc).

Remarks: Wildlife habitat types in the project area vary and, depending on their location, are constantly under pressure due to (sub)urban development, particularly in the areas northwest of North Vernon. These habitat types include backyard, landscaped (urban) habitat, agricultural/fallow fields, small fragmented forest land, and riparian habitat. A multitude of both plant and animal species can be found in the project area. Examples of typical animal species include white-tailed deer, opossum, raccoons, skunk, rabbits, beaver, various small mammals such as mice and other rodents, great blue heron, red-tailed hawk, migrating waterfowl (e.g., Canada geese, mallard, etc.) and a variety of songbird species. Aquatic habitats are home to species such as minnows, sunfish, turtles, and various amphibians. Vegetative species include oak, maple, and various species of conifers and shrubs.

Aquatic systems have the potential for providing habitat for fish, invertebrate and mollusk species.

Terrestrial habitats occurring within the project area include forest, agricultural land, developed

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land/open space/lawn, and developed land. Terrestrial habitats were assessed via general field reconnaissance rather than formal inventories or surveys. Species lists were compiled while conducting a variety of field work.

Wooded areas within the project are widely scattered and consist of small isolated tracts of early, and mid growth successional forests. Typical observed species for these forests include sweet gum (*Liquidambar styraciflua*), tulip tree (*Liriodendron tulipifera*), American sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), eastern cottonwood (*Populus deltoides*), spice bush (*Lindera benzoin*), multiflora rose (*Rosa multiflora*), spotted touch-me-not (*Impatiens capensis*), and stinging nettle (*Urtica dioica* ssp. *dioica*).

Herbacious areas within the project area occur in unmaintained lawns and fallow fields. Typical observed species located within these areas include grass (*spp.*), clover (*spp.*), wild carrot (*Daucus carota*), dandelion (*Taraxacum officinale*), honeysuckle (*spp.*), multiflora rose (*Rosa multiflora*), and black raspberry (*rubus occidentalis*).

Wildlife species typically observed in this habitat type include raccoon (*Procyon lotor*), whitetail deer (*Odocoileus virginianus*), woodchuck (*Marmota monax*), striped skunk (*Mephitis mephitis*), belted kingfisher (*Chloroceryle americana*), Tufted Titmouse (*Parus bicolor*), Wood Thrush (*Hylocichla mustelina*), Blue Jay (*Cyanocitta cristata*), Downy Woodpecker (*Picoides pubescens*), Red-tailed Hawk (*Buteo jamaicensis*).

Environmental Consequences

Do-Nothing Alternative

The Do-Nothing Alternative would incur no impacts to terrestrial habitat and wildlife.

Build Alternatives

Impacts to land use type vary by segment with a greater percentage of farmland impacted in the southern and middle segment and greater percentage of forest and developed land in the northern segment. This shift in habitat type is due to the higher concentration of residential lots between S.R. 7 and S.R. 3. Overall impact acreages are fairly consistent across all alternatives. Impacts to habitat type are summarized in Table 5.

Table 5
Potential Impacts to Habitat Types (acres)

	EA Alternatives						
		Southern Segment		Middle Segment		Northern Segment	
	Do-Nothing	S1	S2-Modified	M1	M2	N3	N6-Modified
Farmland	0	65	73	31	40	16	19
Forest	0	16	3	2	9	11	15

If there are high incidences of animal movements observed in the project area, or if bridges and other areas appear to be the sole corridor for animal movement, consideration of utilizing wildlife crossings should be taken.

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	Yes	No
Karst		
Is the proposed project located within or adjacent to the potential Karst Area of Indiana?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are karst features located within or adjacent to the footprint of the proposed project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes, will the project impact any of these karst features?	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A

Use the remarks table to identify any karst features within the project area. (Karst investigation must comply with the Karst MOU, dated October 13, 1993)

Remarks:	The project does not lie within the boundary defined by the Karst Memorandum of Understanding, signed by INDOT, IDNR, IDEM and United States Fish and Wildlife Service (USFWS). Two Geographic Information System (GIS) files, "Sinkhole Areas and Sinking-Stream Basins" and "Number of Mapped Cave Entrances per Square Kilometer" were reviewed for this project. Both data sources are general and should not be used for site-specific analyses. These layers indicate that there may be karst features in the area around North Vernon, but that these features are concentrated along the Muscatatuck River south of town. The closest mapped location is about 1.5 miles north of the project on S.R. 7 (see Appendix C Figure 7). No karst features are mapped within the project limits and no karst features were identified during field review of the project area. This project will not impact any karst features.
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	<u>Presence</u>		<u>Impacts</u>	
	Yes	No	Yes	No
Threatened or Endangered Species				
Within the known range of any federal species?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any critical habitat identified within project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Federal species found in project area (based upon informal consultation)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State species found in project area (based upon consultation with IDNR)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is Section 7 formal consultation required for this action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Remarks:	<p>The Endangered Species Act (ESA) of 1973 requires federal agencies to use their authority to carry out their programs for the conservation of endangered species and their critical habitat. Section 7 of the Act requires that federal agencies (and recipients of federal funds) assist in the conservation of federally listed Threatened and Endangered Species (TES) and, in consultation with the USFWS, ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat.</p> <p>Information about threatened and endangered species within the project area was provided by the USFWS and IDNR. The USFWS stated that the project area is within the range of the federally endangered Indiana Bat (<i>Myotis sodalis</i>). There are no current records of Indiana Bats, or any other plant or animal species listed as state or federally threatened, endangered, or rare reported to exist in the project vicinity. The USFWS indicated that there is suitable summer habitat for Indiana Bats throughout the vicinity of the study area. There are multiple recent records of Indiana Bat in Jennings County, from the Muscatatuck National Wildlife Refuge in the west, Big Oaks National Wildlife Refuge in the east, and the North Fork/Vernon Fork Muscatatuck River in</p>
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the northeast.

At the request of the USFWS, an Indiana Bat survey was conducted between July 16 and July 23, 2009. A total of 29 individuals representing six species (Eastern Pipistrelle, Little Brown Bat, Big Brown Bat, Eastern Red Bat, Northern Long Eared Bat, and Evening Bat) were captured during this mist-net survey; however no Indiana Bats were captured or observed during this survey. Bats were captured at all five sites. One bat species listed as endangered by the state of Indiana, the Evening Bat, was captured. Captures were representative of reproductive communities indicating habitat was suitable for reproductive bats.

A subsequent survey was done at the request of USFWS in order to properly assess the potential for Indiana Bats along the corridor of Alternatives N3 and N6-Modified. Bat mist netting in the vicinity of S.R. 7 was conducted May 18, and May 19, 2011. Sampling was conducted on both sides of S.R. 7 approximately 1 mile north of the S.R. 3 intersection with S.R. 7. Efforts resulted in the capture and release of two Big Brown Bats (*Eptesicus fuscus*) and three Red Bats (*Lasiurus borealis*) at Site 1 (East of S.R. 7). No bats were captured at Site 2 (West of S.R. 7). The full report of this survey is included in Appendix H.

Environmental Consequences

Do- Nothing

The Do-Nothing Alternative would incur no impacts to threatened and endangered species

Build Alternatives

In response to a request for information received on June 6, 2011, IDNR Division of Nature Preserves stated that there are no endangered, threatened, or rare (ETR) species, high quality natural communities, or natural areas documented in the project area.

In an e-mail dated June 16, 2011 the USFWS concluded that this project is not likely to adversely affect threatened or endangered species as long as seasonal tree clearing restrictions are required.

SECTION B – OTHER RESOURCES

	<u>Presence</u>		<u>Impacts</u>	
	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
Drinking Water Resources				
Sole Source Aquifer (SSA)		X		
Is the Project in the St. Joseph Aquifer System?		X		
Is the FHWA/EPA SSA MOU Applicable?		X		
Initial Groundwater Assessment Required?		X		
Detailed Groundwater Assessment Required?		X		
Source Water Protection Area(s)		X		
Public Water System(s)	X			X
Residential Well(s)	X			X
Wellhead Protection Area		X		

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Remarks: The public water system serving North Vernon and surrounding communities relies on surface water from the Vernon Fork of the Muscatatuck River. Potential impacts to surface water will be minimized to the greatest extent possible by the implementation of Best Management Practices (BMPs). Agency requests for implementation of BMPs are included in Section J. These BMPs will help avoid impacts to the Vernon Fork of Muscatatuck River by containing sediment and pollutants within the project site. Specific information regarding the location, quantity, and type of BMP will be included in the Rule 5 permit documentation. No known aquifer recharge areas are situated in the study area.

There are no sole source aquifers in the project area.

In response to the ECL, the IDEM Ground Water Section replied that the project is not located within a Wellhead Protection Area (see Appendix B).

	<u>Presence</u>		<u>Impacts</u>	
	Yes	No	Yes	No
Flood Plains				
Longitudinal Encroachment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transverse Encroachment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the project located in a FEMA designated floodplain?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Homes located in floodplain within 1000' up/downstream from project.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discuss impacts according to classification system described in the "Procedural Manual for Preparing Environmental Studies".

Remarks: This project does not encroach upon a regulatory floodplain of the US Department of Housing and Urban Development (HUD) Special Flood Hazard Area. Therefore, it does not fall within the guidelines for the implementation of 23 CFR 650, 23 CFR 771 and 44 CFR.

	<u>Presence</u>		<u>Impacts</u>	
	Yes	No	Yes	No
Farmland				
Agricultural Lands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Prime Farmland (per NRCS)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NRCS Form AD-1006/CPA-106 scored \geq 160?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Provide the NRCS Form AD-1006/CPA-106 score and state whether there is a significant loss of farmland as a result of the project in the remarks section. See CE Manual for guidance to determine which NRCS form is appropriate for your project.

Remarks: Historically, agriculture has played a central role in the economy of Jennings County. Like many of the surrounding counties Jennings County has relied upon soybeans, corn, wheat, hay, cattle, and hogs to support its agricultural economy. Over the last half century, urban development (residential and commercial) has spread throughout the area surrounding North Vernon, reducing the amount of land available for agriculture.

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According to the Indiana Agricultural Statistics Service, in 2007 there were 613 farms in Jennings County encompassing 138,331 acres, which was approximately 57 percent of the land in the county. The average value per acre for land and buildings in 2007 was \$3,189. The statewide ranking for Jennings County based on commodity type production in 2007 is as follows; 67th in corn, 57th in soybeans, 78th in wheat, 38th in hay, 13th for beef cows, 71th for hogs, and 40th for sheep.

Prime farmland soils are prominent throughout the project area. As defined by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), prime farmland is "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses (i.e., land that could be cropland, pastureland, rangeland, forest land or other land, but not urban built-up land or water)." These soils must also be protected from flooding and not be susceptible to ponding for long periods of time in order to be considered prime farmland.

In Jennings County, a majority of the project area is underlain by Nabb, Cobbsfork, and Avonburg soils, which are all prime or prime if drained farmland. These soils have the "quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods."

All alternatives will impact soils with some prime farmland designation.

Environmental Consequences

Do-Nothing Alternative

The Do-Nothing Alternative would incur no impacts to farmland.

Build Alternatives

Farmland Conversion Impacts

Construction of the build alternatives would result in the direct conversion of farmland to roadway right-of-way. Under the Farmland Protection Policy Act of 1981 (FPPA), all Federal corridor projects are required to calculate and describe the proposed acres of farmland impacts and report such findings to the NRCS through the NRCS-CPA-106 review process. If farmland impacts equal or exceed a score of 160 points on the NRCS-CPA-106 form, the FPPA suggests the agency consider alternative actions, as appropriate, to reduce adverse impacts. None of the alternatives scored 160 points or above on the NRCS-CPA 106 forms so alternative actions are not necessary. Copies of the NRCS-CPA-106 forms are included in Appendix E. Farmland impacts (as calculated on the CPA-106 form) for each alternative are shown in Table 6. These values are provided by NRCS, based on an assumption that all proposed right-of-way is agricultural; therefore these values are elevated compared to values presented in Part II, and Part III Section A and G, which are based upon actual corridor land uses. Farmland within the proposed right-of-way of the build alternatives is described as "converted directly." Farmland that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to it is labeled as "converted indirectly." As discussed below (*Bisected Parcels*), for this project such restricted access to landlocked parcels is expected to be temporary and therefore not considered "converted indirectly" for the purposes of the NRCS CPA-106 form and evaluation. None of the alternative alignments will indirectly convert prime farmland.

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Table 6
Impacts to Farmland (acres)

	EA Alternative						
	Do-Nothing	Southern Segment		Middle Segment		Northern Segment	
		S1	S2-Modified	M1	M2	N3	N6-Modified
Total Acres Converted (Directly)	0	111	95	55	55	46	49
Total Acres Converted (Indirectly)	0	0	0	0	0	0	0
Total Acres	0	111	95	55	55	46	49

Alternative S1 carries the greatest total impact to farmland (111 acres) and 16 acres more than Alternative S2-Modified. Farmland impacts for both alignments in the middle segment, M1 and M2, totaled 55 acres. Impacts are slightly higher for Alternative N6-Modified (49 acres) than for Alternative N3 (46 acres) in the northern segment.

Bisected Parcels
In addition to the direct conversion of farmland to roadway, the build alternatives also result in bisected parcels, a secondary impact to farmland. Such bisecting can result in odd shaped parcels or landlocked parcels. Given that many of these bisected parcels are landlocked by ownership rather than physical barriers, a variety of alternatives exist to keep these parcels in agricultural production. Such alternatives include sale or rent to an adjacent owner, creation of a new access point for the original owner, or structural accommodations associated with the new facility such as a culvert large enough to move farm equipment through. If these mitigation measures are not reasonable than the parcel would be addressed as landlocked during the right-of-way acquisition process. Due to the likelihood that these prime farmland acres would remain in production, bisected parcels were not tabulated in the NRCS-CPA-106 form as "converted indirectly".

No other alternatives other than those already discussed in this document will be considered without a re-evaluation of the project's potential impacts upon farmland. This project will not have a significant impact to farmland.

SECTION C – CULTURAL RESOURCES

	Category	Type	INDOT Approval Dates
Minor Projects PA Clearance			

Eligible and/or Listed Resource Present

Results of Research

	Yes	No
Archaeology		X
History/Architecture		X
NRHP Buildings/Site(s)		X
NRHP District(s)		X
NRHP Bridge(s)		X

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Project Effect	Yes	Not Applicable	SHPO/ES/FHWA Approval Dates
No Historic Properties Affected	X		INDOT-ES – 10/13/11/ DHPA – 10/13/11
No Adverse Effect		X	
Adverse Effect		X	

Documentation Prepared

Documentation	Yes	Not Applicable	SHPO/ES/FHWA Approval Dates
Historic Properties Short Report		X	
Historic Property Report	X		INDOT-ES – 8-11-11/ DHPA – 9/23/11
Archaeological Records Check/ Review	X		Included with Phase Ia
Archaeological Phase Ia Survey Report	X		INDOT-ES – 8-23-11/ DHPA – 9/23/11
Archaeological Phase Ic Survey Report		X	
Archaeological Phase II Investigation Report		X	
Archaeological Phase III Data Recovery		X	
APE, Eligibility and Effect Determination	X		INDOT-ES – 10/13/11 / DHPA – 10/13/11
800.11 Documentation	X		INDOT-ES – 10/13/11 / DHPA – 10/13/11
Memorandum of Agreement		X	

Describe all efforts to document cultural resources, including a detailed summary of the Section 106 process, using the categories outlined in the remarks box. The completion of the Section 106 process requires that a Legal Notice be published in local newspapers. Please indicate the publication date, name of paper(s) and the comment period deadline. Likewise include any further Section 106 work which must be completed at a later date, such as mitigation or deep trenching.

Remarks: **Area of Potential Effect (APE):** The APE is mostly based on the preferred alternative (Corridors S2-Modified, M2, and N6-Modified), but also includes the alternative corridors present during the various periods of fieldwork (October 2010 and March 2011). Along the preferred alternative, the APE generally is a minimum of 1,000 feet from the centerline, but narrows to 800 feet in densely wooded locations. Along the other corridors, the APE is generally a minimum of 450 feet from the centerline and is reduced to 100 feet from the corridor at some of the termini. Because the APE encompasses all of the corridors, it is considerably wider than the given minimums in some locations.

Coordination with Consulting Parties: The State Historic Preservation Officer (SHPO), DHPA in Indiana, is entitled to participate in the Section 106 process as a consulting party. The following other individuals and organizations were invited, in writing, on August 12, 2011 to be consulting parties:

- Indiana Landmarks
- Jennings County Preservation Association
- Jennings County Historical Society
- North Vernon Parks & Recreation
- Jennings County Commissioner
- City of North Vernon, Mayor
- Jennings County Area Planning Commission
- Jennings County Historian

The above-listed parties have been provided with copies of the HPR and response postcards with

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which to accept or decline the invitation to be a consulting party. Mayor Harold Campbell of North Vernon accepted consulting party status. Tom Rice, the Jennings County Historian, accepted consulting party status. Greg Sekula of Indiana Landmarks accepted consulting party status. The Jennings County Historical Society declined consulting party status. Cheryl Trisler of the Area Planning Commission declined consulting party status. No other responses were received from the invitees. Greg Sekula agreed that none of the properties identified in the HPR appear to be eligible for the National Register of Historic Properties (NRHP); none of the other responders provided information identifying historic resources (Appendix F). In a letter dated August 11, 2011, DHPA concurred with the recommendations of the first archaeology report. In a letter dated September 23, 2011, DHPA provided comments on the HPR and addendum archaeology report. Regarding the APE, DHPA suggested that a wider APE may have been appropriate for a new terrain roadway, but expressed willingness to accept the APE proposed in the HPR, with the caveat that they might recommend a modification of the APE if it appears effects could occur outside the APE further into the review. DHPA also suggested expanding the APE further to the east and southeast to accommodate future extensions of the bypass, the locations of which would be dictated by the present proposed terminus. The letter concurred that no above-ground properties in the APE are listed in or eligible for inclusion in the NRHP. The letter also concurred that they have not identified any currently known archaeological resources listed in or eligible for inclusion in the NRHP within the proposed project areas presented in the addendum archaeology report (Appendix F).

FHWA and INDOT met with SHPO on October 11, 2011 to address the concerns raised in the SHPO's September 23, 2011 letter. At the meeting, SHPO expressed concern that in the HPR it appears that the proposed alignments extend to County Road 75. However, INDOT explained that the preferred alternative will terminate at S.R. 3. ASC Group notes that the APE extends approximately 0.75 miles beyond the eastern terminus of the preferred alternative. INDOT also explained that there is flexibility and a range of options for the next segment of the bypass, when it is initiated. Further, FHWA explained that it appears that the eastern bypass would have independent utility. Based on these reasons, it was determined that the APE for this project would not be enlarged. In that regard, INDOT indicated that they planned on submitting a "no historic properties affected" finding for the project.

In September 2011, a local resident contacted INDOT with information regarding possible Native American mounds adjacent to the project area. A field investigation by INDOT and ASC Group, Inc. determined that the mounds were shale spoil piles and are not Native American in origin. In an September 22, 2011 email to the SHPO, INDOT recommended against further investigation (Appendix F).

Archaeology: ASC Group completed the document *Phase Ia Archaeological Survey for the Proposed U.S. 50 North Vernon Bypass (Des. No. 0401402) in Center Township, Jennings County, Indiana*. Altogether, 12 alignments were investigated encompassing 264.8 ha (654.4 ac). Eighteen archaeological sites (12Jn521–12Jn523, 12Jn525–12Jn538, and 12Jn540) were recorded. Sites 12Jn521–12Jn523, 12Jn525–12Jn531, 12Jn533–12Jn538, and 12Jn540 are either prehistoric isolated finds or small lithic scatters that do not contain significant deposits. Consequently, they were recommended not eligible for the NRHP and required no further work. 12Jn532 is a prehistoric lithic scatter where a local landowner has collected 39 projectile points, hafted scrapers, and blanks from the immediate vicinity of the site. The points are predominantly Early Archaic and Late Archaic but Early Woodland and Mississippian points were also identified. There is also evidence of a mid- to late nineteenth century historic component. Because of the number of points reportedly found and the nineteenth century historic material in the area, and the fact that the area has not been plowed in approximately eight years, the site was recommended for avoidance or further work. No further work was recommended for any of the alternatives, except at 12Jn532 and at the no access areas. Phase Ic deep testing was not recommended as the small

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streams in the project area have limited floodplains. INDOT reviewed the report on July 11, 2011, and SHPO concurred with the recommendations on August 11, 2011. The title page, abstract and conclusions are included within the Section 106 documentation presented in Appendix F. Subsequently, additional alternatives were developed, and additional area was investigated, resulting in the production of a second archaeological report *ADDENDUM TO: Phase Ia Archaeological Survey for the Proposed U.S. 50 North Vernon Bypass (Des. No. 0401402) in Center Township, Jennings County, Indiana*. Fourteen additional project areas along the previously surveyed U.S. 50 bypass corridor were investigated. No additional sites were located. INDOT reviewed the report on August 23, 2011, and SHPO concurred with the recommendations on September 23, 2011. The title page, abstract and conclusions are included within the Section 106 documentation presented in Appendix F.

Historic Properties: ASC Group completed the document titled *Historic Property Report for the U.S. 50 Corridor Bypass (Des. No. 0401402), North Vernon, Jennings County, Indiana* examining all buildings within the APE. All buildings and structures more than 50 years of age were photographed, recorded on mapping, and evaluated for NRHP eligibility. A total of 24 resources 50 years in age or older were identified during the survey and evaluated for their eligibility for listing on the NRHP. Four previously inventoried resources were identified, a Contributing-rated house, two Contributing-rated farmsteads, and a Contributing-rated bridge. These properties included three farmsteads, a bridge, a railroad culvert, a pair of underpasses, and 18 houses. All of the resources lack significance and/or integrity and are recommended as not eligible for the NRHP. Although the area formerly was primarily agricultural in character, the APE today includes a mix of land uses, including farm fields, residential yards, woodland, and commercial use. The area along the APE no longer has a cohesive historic identity to provide it with significance or integrity as a historic district. INDOT reviewed the report on August 11, 2011, and SHPO concurred with the recommendations on September 23, 2011. The title page, abstract and conclusions are included within the Section 106 documentation presented in Appendix F.

Documentation, Findings: Archival and survey efforts have identified no properties in the APE that are listed in the NRHP. One archaeological site has been recommended eligible for the NRHP, but at the time of this documentation, it was being avoided by the proposed work and therefore will not be affected. INDOT determined that the finding of "No Historic Properties Affected" is appropriate as no historic properties are present within the preferred alternative (Appendix F). The SHPO has concurred with the results of the aboveground and archaeological survey reports, namely that no resources listed in or eligible for the NRHP within the APE will be affected.

Douglas Terpstra prepared the 800.11(d). He is on the SHPO Qualified Professional Roster. INDOT signed the "No Historic Properties Affected" finding on October 13, 2011. A SHPO letter dated October 19, 2011 concurred that there are no NRHP listed or eligible aboveground or archaeological resources in the APE.

Public Involvement: INDOT's Findings, made on behalf of FHWA, and supporting 800.11(d) documentation were provided to the SHPO and other consulting parties on October 13, 2011, for a final 30-day consultation/comment period. Views of the public will be sought through publication of INDOT/FHWA's findings in the North Vernon Plain Dealer. The notice will be published concurrently with the EA publication and public hearing announcement. The public will have 30 days to provide comment.

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SECTION D – SECTION 4(f) RESOURCES/ SECTION 6(f) RESOURCES

Section 4(f) Involvement

	<u>Presence</u>		<u>Use</u>		<u>FHWA / ES Approval/dates</u>
	Yes	No	Yes	No	
Parks & Other Recreational Land					
Publicly owned park	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Publicly owned recreation area	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other (school, state/national forest, bikeway, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Programmatic Section 4(f)	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Individual Section 4(f) Evaluation	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
“De minimis“ Impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

	<u>Presence</u>		<u>Use</u>		<u>FHWA / ES Approval/dates</u>
	Yes	No	Yes	No	
Wildlife & Waterfowl Refuges					
National Wildlife Refuge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
State Fish & Wildlife Area – recreation or refuge areas only	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Programmatic Section 4(f)	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Individual Section 4(f) Evaluation	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
“De minimis“ Impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

	<u>Presence</u>		<u>Use</u>		<u>FHWA / ES approval/dates</u>
	Yes	No	Yes	No	
Historic Properties					
Sites eligible and/or listed on the NRHP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Programmatic Section 4(f)	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Individual Section 4(f) Evaluation	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
“De minimis“ Impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

Discuss Programmatic Section 4 (f) and De minimis Section 4(f) impacts in the remarks section below. Individual Section 4(f) documentation must be separate Draft and Final documents. For further discussions on Programmatic, De minimis and Individual Section 4(f) documents please refer to the “Procedural Manual for the Preparation of Environmental Studies”. Discuss proposed alternatives that satisfy the requirements of Section 4(f).

Remarks:	<p>The following Section 4(f) resources are located within the vicinity of the project:</p> <ul style="list-style-type: none"> • Muscatatuck National Wildlife Refuge (5 miles west of southern project limit) • Crosley State Fish and Wildlife Area (3.5 miles south of project area) • Jennings County Schools athletic fields (1 mile east of project corridor) • North Vernon Park (1.4 miles south and east of project area) <p>None of these resources would be impacted by the project.</p> <p>Green Meadows is a pay lake and campground located on S.R. 7 near both Alternatives N3 and N6-Modified. Because this is a privately owned facility, it does not qualify for consideration under Section 4(f).</p>
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Section 6(f) Involvement

<u>Presence</u>		<u>Use</u>	
Yes	No	Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Section 6(f) Property

Discuss proposed alternatives that satisfy the requirements of Section 6(f). Discuss any Section 6(f) involvement.

Remarks: A search of the National Park Service database confirmed that there are no known resources purchased with or improved by Land and Water Conservation Fund Act grants that would be affected by any of the new roadway alternatives. This project will not impact a Section 6(f) resource.

SECTION E – Air Quality

Air Quality

Conformity Status of the Project

	Yes	No
Is the project in an air quality non-attainment or maintenance area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If YES, then:		
Is the project in the most current MPO TIP?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the project exempt from conformity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the project is NOT exempt from conformity, then:

Is the project in the Transportation Plan (TP)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is a hot spot analysis required (CO/PM)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is an MSAT level 1a Analysis required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is an MSAT level 1b Analysis required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is an MSAT level 2 Analysis required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is an MSAT level 3 Analysis required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is an MSAT level 4 Analysis required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is an MSAT level 5 Analysis required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks: No portion of the project area (Jennings County) is within a designated non-attainment area for any of the air pollutants for which the United States Environmental Protection Agency (USEPA) has established standards. Air quality monitoring data for the project area was obtained from the AirData website of the US EPA Office of Air Quality Planning and Standards.

INDOT is responsible for ensuring that projects meet regional conformity requirements through the long-range Transportation Plan (TP) and the short-range Transportation Improvement Program (TIP). Thus, any project listed in these documents has been determined to meet conformity requirements. The preliminary engineering phase of the project is listed in INDOT's FY 2012 – FY 2015 Statewide Transportation Improvement Program (INSTIP).

Environmental Consequences

Do-Nothing Alternative
Air quality impacts were not forecasted for the Do-Nothing Alternative.

Build Alternatives
No portion of this project is within a designated nonattainment area for any of the air pollutants for which the USEPA has established standards. As such, a conformity determination under 40 CFR Part 93 ("Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act") is not required for the build alternatives.

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The purpose of this project is to seek a cost effective solution to the four documented transportation problems in the U.S. 50/North Vernon area. This project will reduce congestion, improve safety, improve accessibility, and adhere to local and state planning objectives. This project will solve these transportation needs by constructing a new roadway connecting U.S. 50 on the west side of North Vernon to S.R. 3 on the north side of North Vernon. This project has been determined to generate minimal air quality impacts for Clean Air Act (CAA) criteria pollutants and has not been linked with any special Mobile Source Air Toxic (MSAT) concerns. As such, this project will not result in changes in traffic volume, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's Mobile 6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to increase by 145 percent. This will both reduce the background level of MSATs as well as the possibility of even minor MSAT emissions from this project.

SECTION F - NOISE

Noise	Yes	No
Is a noise analysis required in accordance with FHWA regulations and INDOT's noise policy?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	No	Yes/ Date
ES Approval of Noise Analysis	<input type="checkbox"/>	9/29/11

Remarks: A Noise Impact Analysis was conducted for the project in the spring of 2011. This study analyzed two alignments in each segment of the project, Alternative S1, S2-Modified, M1, M2, N3, and N6-Modified. The FHWA Traffic Noise Model (TNM) Version 2.5 was used to model existing and proposed noise levels. Measured in A-weighted decibels (dBA), existing noise levels in the corridor range from 57.2 dBA to 60.3 dBA. Design year (2032) modeled traffic generated noise levels range from 39.6 dBA to 67.1 dBA. Because the design year noise level has been predicted to approach or exceed the FHWA Noise Abatement Criteria (NAC) for one Category B residential receiver the project has been found to have a traffic noise impact. Based on the INDOT *Traffic Noise Analysis Procedure*, the feasibility and reasonableness of a noise barrier was evaluated at the location of the impacted receiver.

Based on the studies thus far accomplished, the State of Indiana has not identified any locations where noise abatement is likely. Noise abatement at these locations is based upon preliminary design costs and design criteria. Noise abatement has not been found to be reasonable based on the cost effectiveness criteria. A reevaluation of the noise analysis will occur during final design. If during final design it has been determined that conditions have changed such that noise abatement is feasible and reasonable, the abatement measures might be provided. The final decision of the installation of any abatement measure will be made upon the completion of the project's final design and the public involvement process.

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction.

Form version: March 2011

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SECTION G – COMMUNITY IMPACTS

Regional, Community & Neighborhood Factors

- Will the proposed action comply with the local/regional development patterns for the area?
- Will the proposed action result in substantial impacts to community cohesion?
- Will the proposed action result in substantial impacts to local tax base or property values?
- Will construction activities impact community events (festivals, fairs, etc.)?

Yes	No
X	
	X
	X
	X

Remarks: During implementation of the public involvement plan, INDOT sought feedback from stakeholders, community leaders and local residents as to whether the project will impact community or neighborhood cohesion, the local tax base, property values, public facilities, community centers or other resources important to the community. This public outreach resulted in several design changes to accommodate continued access for several of the local roads that will be intersected by the new roadway. Furthermore, the nature of this project — building rural highway around an urban center — means that there is a minimal chance of impacting community cohesion.

The preferred alternative will result in 11 residential relocations and conversion of approximately 199 acres from private ownership to state ownership. This will result in a minor loss to the local tax base. The majority of the converted lands are undeveloped lands, and are therefore assessed at a lower rate for local property taxes.

Indirect and Cumulative Impacts

Will the proposed action result in substantial indirect or cumulative impacts?

Yes	No
	X

Remarks: Impacts beyond those that would be directly incurred or induced by the U.S. 50 North Vernon New Roadway Project have been assessed. These impacts fall into one of two categories – indirect impacts and cumulative impacts. Indirect impacts are defined as the effects of the proposed project that occur at a different time or location of the direct impacts of the project. These effects include the future development of areas that are currently undeveloped and were not previously identified for potential future development. Any development on these parcels would be solely in response to the project.

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR § 1508.7). These areas include development that has been recently developed or is currently under construction, areas of proposed development with approved site plans, and undeveloped land that is zoned for development but for which no proposed plan exists. Based on a relative comparison of growth in the region, recent development, for the purposes of this study, includes that which did not exist prior to 1986.

The indirect and cumulative impact analysis was completed in accordance with methods detailed in the following documents: *Assessing Indirect Effects and Cumulative Impacts under NEPA* (Center for Environmental Excellence by American Association of State Highway and Transportation Officials (AASHTO), 2011); *Considering Cumulative Effects Under the National Environmental Policy Act* (Council on Environmental Quality, January 1997); *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* (National Cooperative Highway Research Program Report 466, 2002); *Indirect and Cumulative Impact Assessment in the Highway Project Development Process* (FHWA Position Paper, HEP-32, April 1992); and *Consideration of Cumulative Impacts in EPA Review of NEPA Documents* (US EPA 315-R-99-002, May 1999).

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Indirect Impacts

Methodology

The area of analysis was limited to the proposed intersection areas, assuming that development inspired solely by the project is likely to occur at these locations where direct access to a new limited access facility is granted. Also, where intersections are proposed in close proximity (approximately 1 mile apart), the area of analysis included the area connecting the two interchanges. The inclusion of the connection segment recognizes the likely surface street interaction between the two intersections.

Based on an assessment of rural, "bypass" route interchanges located throughout central Indiana and previous studies (Hartgen, D.T. et. Al., 1992), the area used for this analysis was measured approximately one-quarter mile from the midpoint of intersections and approximately a one-quarter mile buffer from the centerline of the intersecting roadways. This one-quarter mile buffer zone extends one-quarter mile along the cross-streets from the mainline new roadway. In addition, the area of analysis was extended to the east along each cross-street at intersection locations providing access back to the nearest state highway. These areas define, for purpose of this analysis, the intersection areas.

The impacts associated with the U.S. 50 North Vernon New Roadway project are sufficiently contained within these various boundaries. Current land uses were mapped within the study area. Land use data was cross-referenced with recent/current development, proposed development, potential future development, and transportation improvement projects. This information was mapped to graphically represent the locations of the land use and development data. Detailed development activity was analyzed for a 30 year time span, from the year 2000 to the present, and projected to the year 2030 (in reference to comprehensive plans). Analysis of impacts to specific natural resources (wetlands, streams, forests, and farmland) was accomplished via a GIS analysis based on primary and secondary source land use data.

Undeveloped Parcels (Indirect)

Most vacant parcels within the study area are currently zoned agricultural. Impacts in these areas are considered "indirect," influenced directly and solely by the U.S. 50 North Vernon Project in an area that is unlikely to be developed in the reasonably foreseeable future. (i.e., not zoned for residential or commercial development or not identified in the Comprehensive Plan). The majority of parcels adjacent to the proposed intersection locations are currently residential properties which limits probability of indirect impacts occurring at these intersection locations.

Do-Nothing Alternative

The Do-Nothing Alternative would incur no Indirect Impacts in the study areas

Build Alternatives

Areas of indirect impacts associated with the build alternatives are quantified below in Table 7. Indirect impacts to forest land range between 15 and 41 acres and are distributed fairly equally among the build alternatives. Indirect wetland impacts range between 0.2 and 6.6 acres. The 6.6 acres of indirect wetland impacts associated with Alternative N6-Modified, while within the study area, are not likely to be impacted due to the wetland's location behind several single family residential parcels. Impacts to prime farmland are fairly evenly distributed among the indirect impact study areas with higher acreages potentially impacted by development resulting from the proposed intersections at CR 150 N/O&M Avenue and CR 200 N.

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Table 7							
Indirect Impacts							
Resource (Direct Impacts in parentheses)	EA Alternative						
		Southern Segment		Middle Segment		Northern Segment	
	Do- Nothing	S1	S2- Modified	M1	M2	N3	N6- Modified
Forest (acres)	0	32 (16)	15 (3)	37 (2)	32 (9)	37 (11)	41 (15)
Farmland (acres)	0	59 (65)	61 (73)	116 (31)	119 (40)	69 (16)	75 (19)
Wetlands (acres)	0	0.2 (0.16)	1.5 (0.94)	1.3 (0.04)	1.2 (0.79)	1.4 (0.22)	6.6 (0.34)

Cumulative Impacts

Methodology
Analyzing cumulative effects differs from other environmental impact assessment because it requires the expansion of geographic boundaries to encompass additional effects on resources, ecosystems, and human communities of concern. When analyzing the contribution of the proposed build alternatives to cumulative effects, consideration was given to watershed boundaries, city and county level zoning data, local comprehensive plans, and available historic land use data. Cumulative impacts on farmland, forests, streams and wetlands were analyzed.

Potential Future Development
Multiple parcels of the undeveloped land in the area (agriculture, pasture, wooded, etc.) have been identified as potential sites for future industrial development by the Jennings County Economic Development Commission (EDC). These areas include:

- “Apsley Site” – Agricultural field north of U.S. 50/CR 175 N, south of CSX railroad, and west of CR 75 E is zoned agricultural.
- “Miller Site” – Agricultural fields along S.R. 3 north of CR350 N is zoned industrial.
- “Montrow Site” – Industrial park at the intersection of CR 350 N and CR 75 W. Currently an agricultural field southeast and northwest of CR 150 E and CR 300 S is zoned business.
- “North Vernon Municipal Airport Site” – Agricultural field bordered on the north by CR 450 N, on the south by CR 350 N, on the west by CR 75 W, and on the east by Betsey Cull Dr is currently zoned agricultural.
- “North Vernon Park Three – Shovel Ready” -Industrial park in the southwest corner of CR 350 N and CR 75 W is currently zoned industrial.
- “Montrow – Blue Building” – Existing standalone industrial site at 604 W. Montrow Industrial Parkway is zoned industrial.

Transportation Improvement Projects
INDOT and/or local transportation improvements planned in or near the project area include:

- INDOT’s programmed auxiliary lanes project on S.R. 3 from Smith Street to U.S. 50.
- INDOT’s programmed intersection improvement with added turn lanes at the intersection of S.R. 3 and Madison Ave.
- INDOT’s surface treatment of S.R. 7 from S.R. 3 to U.S. 31.
- INDOT’s pavement replacement on S.R.3/S.R. 7.
- INDOT’s planned completion of the bypass around North Vernon from S.R. 3 to U.S. 50

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east of North Vernon.

Analysis

The investigation included a review of existing road maps, aerial photographs, zoning maps, planning documents, and development plans as well as on-site reconnaissance. The following documents were reviewed for purposes of the Indirect and Cumulative Analysis:

- *North Vernon Comprehensive Plan*. (November, 2009) Economic Growth Team.
- *FY 2012-2015 Draft Statewide Transportation Improvement Program* (April 2011) INDOT

Historic Impacts by Resource

Historic reference to natural resource impacts (forests, wetlands, streams, and farmland) varies per resource; therefore, the timeframe of the resource impact analysis is dependent on historic resource documentation.

Farmland

Information regarding farmland acreage is based on Jennings County data. The earliest record of amount of land in farms in Jennings County is from the 1900 US Census of Agriculture which indicates that Jennings County had 226,014 acres in farms. The 2007 census of Jennings County revealed 138,331 acres in farms, a net loss of approximately 39 percent total acreage of farmland from 1900. This is above the state average of 30 percent for the same time period.

Forest

Information regarding forests is limited to countywide data. The earliest record of forested acreage in Jennings (13,982 acres) is from the 1930 US Census of Agriculture. From 1930, Jennings County experienced a trend of reducing pastureland and an increase in wooded areas. The most recent data (2007) reveals an increase in forested acreage (Jennings County – 21,571 acres). These represent mostly fragmented wood lots scattered throughout the county with large forested tracts within Big Oaks National Wildlife Refuge and Muscatatuck National Wildlife Refuge.

Wetlands

According to IDEM there were an estimated 5,600,000 acres of wetland in Indiana around 1800. This number was reduced to approximately 813,000 acres by the mid 1980's. IDEM has estimated that Jennings county accounted for approximately 7,386 acres. Pressures to wetlands (i.e. farm drainage, residential/commercial development) that have affected the state have also affected Jennings county and it is probably safe to assume that Jennings county has experienced a similar loss of wetland over time.

Conclusion

Over the last 20-30 years the City of North Vernon and Center Township, especially areas north of the City, have experienced a great deal of growth. The cumulative impacts of the project have the potential to be substantially greater than the indirect impacts. A large portion of that potential impact is associated with the North Vernon Comprehensive Plan. Also, while the route is yet to be determined, additional impact will result from INDOT's planned completion of the bypass around North Vernon. Cumulative effects are anticipated to have the highest impacts to farmland.

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Public Facilities & Services

Yes No

Will the proposed action result in substantial impacts on health and educational facilities, public utilities, fire, police, emergency services, religious institutions, public transportation or pedestrian and bicycle facilities? Discuss the maintenance of traffic, and how that will affect public facilities and services.

Remarks:

Community Facilities and Services

Community facilities and services were evaluated based on the expanded study area. This area was defined as 1,500 feet east and west of the center lines of the build alternatives, as well as the area between the alternatives.

Community facilities and services include, but are not limited to: health and educational facilities, public utilities, fire, police, emergency services, religious institutions (churches, mosques, synagogues, etc.), public transportation or pedestrian and bicycle facilities, schools, and libraries.

Hospitals

The closest Hospital is St. Vincent Jennings Hospital, approximately 1 mile southeast of the alternatives.

Schools

One school district is located in the expanded study area. Jennings County School District serves the entirety of Jennings County. There are no schools located within the expanded study area; however, schools within the above mentioned district utilize the adjacent county roads and cross-streets within the project area for bussing students.

Environmental Consequences

Do-Nothing Alternative

The Do-Nothing Alternative would incur no impacts to school property or school bus routes.

Build Alternatives

None of the build alternatives directly impact any schools in the above mentioned district; however, impacts associated with current bus routes may occur. The Jennings County School Corporation requested that the intersections of County Road 200 N and CR 150 N /O & M Avenue be constructed during the summer so that school bus routes are not affected.

Utilities

Affected Environment

The majority of the homeowners in the project area currently utilize private wells and septic systems. There are 10 public wells within or very near the project area.

There is one major gas line in the project area. This line belongs to Midwest Natural Gas Corp, a regional distributor of natural gas. This line carries natural gas and is 4 inches in diameter. This gas line parallels S.R. 3 approximately 250 feet to the east of the highway.

While not a locally managed utility, National Geodetic Survey (NGS) monuments are recognized for the purposes of this report as a Federal utility. The National Oceanic and Atmospheric Administration (NOAA) utilizes these fixed point monuments to establish coordinate systems. NGS monuments create the nation's spatial reference system by which all longitude and latitude navigational points are based. There are four NGS monuments in the project area.

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Environmental Consequences

Do-Nothing Alternative

The Do-Nothing Alternative would incur no impacts to major utilities.

Build Alternatives

All the build alternatives would require the relocation of both public and private above and below ground utilities.

Upon selection of a final alternative, NOAA and the NGS would be notified so that affected monuments can be reset. Three NGS monuments are affected by the build alternatives:

- K 92 – Alternative S2-Modified (Figure 5, Sheet 1)
- L 92 – Alternative S2-Modified (Figure 5, Sheet 3 and 14)
- M 92 – Alternative M1 and M2 (Figure 5, Sheet 5 and 16)

Fire Stations, Police Stations, and Emergency Medical Services (EMS)

The North Vernon/Center Township Fire Department has two fire stations located within the City of North Vernon providing fire protection, life support non-transport services as well as rescue and hazardous materials incident responses. Neither of these fire stations is located within the project area. This department also provides automatic aid to the five surrounding fire jurisdictions.

Incidents within the project area are covered by either the North Vernon Police Department or the Jennings County Sheriff. No police or sheriff stations are located in the project area.

St. Vincent Jennings Hospital provides health and emergency services the City of North Vernon and Jennings County. A network of ambulance and medic services are available to assist in emergency calls to the project area. Emergency responders include: the North Vernon Fire Department, local township fire departments, and St Vincent Jennings Hospital.

Environmental Consequences

Do-Nothing Alternative

The Do-Nothing Alternative would incur no impacts to emergency services or facilities.

Build Alternatives

None of the alternatives result in direct impacts to fire stations, police stations or EMS facilities. Proposed at grade intersections at CR 150 N/O&M Avenue and CR 200 N would maintain connectivity for emergency services in and adjacent to the project area. Emergency incidents on the proposed alternatives would require emergency responders to access the facility at intersection locations.

The build alternatives are not likely to notably increase emergency response time throughout the project area. Conversely, with access to the new roadway provided at CR 200 N, improved response times to some locations are anticipated. This decrease in response times is anticipated to apply to all emergency service providers. Residences along CR 300 N, which will be closed on either side of the proposed alignments, are not expected to experience increased response time as homes on either side of the alignment will be able to be accessed from S.R. 7 from the west or S.R. 3 from the east.

Religious Facilities

Affected Environment

There is one church located within the expanded study area:

- Lord of Life Lutheran Church located on the east side of S.R. 3 at the north end of the

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project (Appendix A, Figure 5, Sheet 9 and 20)

Environmental Consequences
Do-Nothing Alternative
 The Do-Nothing Alternative would incur no impacts to religious facilities.

Build Alternatives
 Alternative N3 would require the realignment of S.R. 3 and a modification of the driveway to the church.

Cemeteries
 There are no cemeteries located in the project area.

Libraries
 The closest library to the project area is the Jennings County Public Library at 2375 North S.R. 3, approximately 0.5 miles east of the project area.

Environmental Justice (EJ) (Presidential EO 12898)

During the development of the project were EJ issues identified?

Are any EJ populations located within the project area?

Will the project result in adversely high or disproportionate impacts to the EJ population?

Yes	No
X	
X	
	X

Remarks:

In accordance with Executive Order 12898 (February 11, 1994), population and income data were assessed for relevance to potential environmental justice (EJ) concerns. There are three fundamental environmental justice principles: (1) To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations; (2) To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; (3) To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations. To determine if any disproportionate environmental justice impacts exist within the proposed project area, the EJ guidelines set by INDOT were applied to the Preferred Alternative for the U.S. 50 North Vernon Project.

The INDOT Procedural Manual for Preparing Environmental Documents requires a full EJ analysis to identify minority, low-income populations, or environmental justice populations when a project involves (1) two or more relocations or (2) 0.5 acre or more of right-of-way. The preferred alternative for U.S. 50 North Vernon project will result in 11 relocations and the conversion of 199 acres of permanent right-of-way, thereby exceeding both thresholds. For this analysis, demographic data was utilized from the U.S. Census Bureau (2000, www.census.gov/main/www/cen2000.html) in order to determine whether any EJ populations exist within the project area. To make this determination, minority or low-income populations residing within the community that overlaps the project limits are compared to a reference community. The Affected Community(s) (AC) analyzed included five Block Groups (BGs) on the west side of North Vernon and Jennings County. This analysis will utilize the City of North Vernon as the reference community or Community of Comparison (COC). The AC impacted by the preferred alignment consists of BG 1 in Census Tract 9603 and all the BGs within Census Tract 9604.

To assess the data and determine the presence of EJ populations, the following guidelines were applied from the Procedures Manual:

- Does the AC have more than a 50% minority or low-income population; or
- Is the low-income population or minority population 25% higher than the population in the

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COC?

If the calculated value for the AC exceeded either of these thresholds, EJ populations are presumed to be present. Additional tables and figures illustrating the complete results of this analysis are in Appendix H with a brief summary below.

Poverty Level

To determine if populations residing within the project area have higher frequency of poverty, the combined BG values (Census Tract 9603-BG 1, and all BGs in Census Tract 9604) within the AC were compared to the COC threshold (greater than 125% of the low-income percentage in the reference populations). As shown in Table 8, the percentage of low-income individuals for the COC was 11.76%, whereas, the percentage of low-income individuals for the combined BGs was 10.58%. The 10.58% is below the COC threshold set at 14.70%. After reviewing the individual BGs for this analysis, only one, 9604-BG 1 with a low-income percentage of 19.64%, exceeds the 125% COC threshold requiring consideration as an EJ community.

Table 8
Poverty Level

	Household Income below poverty level (2000)		
	Total Population	#	%
Community of Comparison (COC)			
North Vernon, Indiana	6,345	746	11.76%
125% COC Threshold			14.70%
Affected Community (AC)			
Tract 9603-BG 1	1,476	63	4.27%
Tract 9604-BG 1	1,914	376	19.64%
Tract 9604-BG 2	1,059	89	8.40%
Tract 9604-BG 3	2,031	160	7.88%
Tract 9604-BG 4	965	100	10.36%
Combined BGs	7,445	788	10.58%

Source: U.S. Census Bureau 2000, Table P87, Census Data Set: Census 2000 Summary File 3 (SF 3)
Highlighted value indicates exceedance of COC threshold.

Minority Populations

To determine if higher concentrations of minority populations exist in the study area, the combined BG values (Census Tract 9603-BG 1 and all Block Groups in Census Tract 9604) within the AC were compared to the COC threshold (greater than 125% of the minority percentage in the reference populations). As shown in Table 9, the percentage of minorities living in the COC was 3.26% while the percentage of minorities in the combined BGs was 2.74%. This value of 2.74% is below the COC threshold of 4.08%. After reviewing the individual BGs there is one BG that exceeds the COC threshold requiring consideration as an EJ community. This is Census Tract 9604-BG 3 with a percent minority of 6.28%. The other BGs within the AC are below the COC threshold for minority populations.

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Table 9			
Population Characteristics: Race			
	Total Population	Minority Population	
		#	%
Community of Comparison (COC)			
North Vernon, Indiana	6,527	213	3.26%
125% COC Threshold			4.08%
Affected Community (AC)			
Tract 9603-BG 1	1,489	20	1.34%
Tract 9604-BG 1	2,061	28	1.36%
Tract 9604-BG 2	1,082	0	0.00%
Tract 9604-BG 3	2,038	128	6.28%
Tract 9604-BG 4	965	21	2.18%
Combined BGs	7,445	197	2.64%

Source: U.S. Census Bureau 2000, Table P07, Census Data Set: Census 2000 Summary File 3 (SF 3)
 Highlighted value indicates exceedance of COC threshold.

Summary
 After reviewing the 2000 U.S. Census data, it appears that there are EJ populations in the bypass study area. This is due to a higher frequency of low-income persons and minorities being located within the AC compared to the COC, the City of North Vernon. Based on property records, field observations, and meetings with landowners in the area, the impacts of known minority or low-income residents do not appear to be disproportionate because no significant concentrations will be displaced or otherwise adversely affected by the project

One important goal that was pursued during the selection process was to find a preferred alternative that would minimize social and economic impacts due to relocations and right-of-way acquisition. Thus, the Preferred Alternative minimizes these impacts while affecting all populations equally in the same manner and magnitude regardless of their race, ethnicity, and income level.

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Relocation of People, Businesses or Farms:

Will the proposed action result in the relocation people, businesses or farms?
 Is a Business Information Survey (BIS) required?
 Is a Conceptual Stage Relocation Study (CSRS) required?

Yes	No
X	
	X
	X

Number of relocations: Residences: 11 Businesses: 0 Farms: 0 Other: 0

If a BIS or CSRS is required, discuss the results in the Remarks section.

Remarks: A variety of housing units and commercial units are located in the project area. Some of these units are directly impacted by the proposed build alternatives. Impacts to physical structures or to property access would require residents/owners to relocate.

The acquisition and relocation program will be conducted in accordance with 49 CFR 24 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended. Relocation resources are available to all residential and business relocatees without discrimination. No person displaced by this project will be required to move from a displaced dwelling unless comparable replacement housing is available to that person.

Environmental Consequences

Do-Nothing Alternative
 The Do-Nothing Alternative would incur no residential or commercial relocations.

Build Alternatives
 There are a number of residential properties that would be displaced by the various build alternatives. Some of these displacements occur in the area of the proposed new roadway tie-ins with existing U.S. 50 and S.R. 3, while others are less concentrated along the proposed roadway's crossings of existing county roads.

If design changes are required after approval of the environmental document a re-evaluation will be undertaken to analyze new impacts.

RESIDENTIAL DISPLACEMENTS

Displaced housing units are illustrated in Figure 5. A housing unit was considered displaced if it was located within the project right-of-way or if reasonable access could not be maintained. Alternative S2-Modified displaces the greatest number of residential properties (6) in the southern segment. Alternative M1 displaces the greatest number of residential properties (8) in the middle segment. Alternative N3 displaces the greatest number of residential properties (16) in the northern segment of the project. Displaced homes in the project area have an average market value of \$96,000.

Available replacement housing was assessed based on a web based market search performed in July 2011. Although available housing is dynamic, this analysis was intended to be representative of the replacement housing available at any given time. However, it is also important to note that new, localized development is occurring throughout Center Township and Jennings County.

If sufficient comparable replacement housing is not available, last resort housing measures will be used to provide housing. Such measures may include the building of new homes, building additions to existing homes, rehabilitating existing homes, or developing special financing arrangements.

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The number of displaced housing units for each alternative is included in Table 10 and available replacement housing is included in Table 11.

Table 10
Displaced Residential Housing Units

Home Value (\$1,000)	EA Alternatives						
		Southern Segment		Middle Segment		Northern Segment	
	Do-Nothing	S1	S2 - Modified	M1	M2	N3	N6 - Modified
0 – 49	0	0	1	0	0	6	0
50 – 99	0	4	3	3	0	5	1
100 – 149	0	1	1	5	0	3	1
150 – 199	0	0	1	0	1	0	2
200 – 249	0	0	0	0	0	1	0
> 250	0	0	0	0	0	0	0
Total	0	5	6	8	1	15	4

*Valuation of displaced housing units is an estimation based on local housing sales and assessed value.

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Table 11	
Available Replacement Housing	
Price Range (\$1,000)	Center Township
0 – 49	5
50 – 99	12
100 – 149	7
150 – 199	4
200 – 249	0
> 250	3
Total	31

Source: zillow.com

COMMERCIAL DISPLACEMENTS
 Among the build alternatives studied only Alternative S1 would impact a commercial property. The proprietor of this business indicated during an interview that he was willing to relocate and would likely have no trouble finding suitable land on which to relocate.

AGRICULTURAL DISPLACEMENTS
 None of the build alternatives studied would result in the relocation of an active farm. The preferred alternative passes through several active farms and would split many of those farms creating uneconomic remnants (too small to productively farm). To mitigate this impact the cost of constructing a local service road will be compared to the value of the property to be served. If the cost of the service road exceeds the value of the remnant parcel the remnant will be considered landlocked and addressed as such during the right-of-way acquisition process.

SECTION H – HAZARDOUS MATERIALS & REGULATED SUBSTANCES

	Documentation	
	Yes	No
Red Flag Investigation	<input type="checkbox"/>	X
Hazardous Materials Site Assessment Form	<input type="checkbox"/>	X
Phase I Initial Site Assessment (ISA)	<input type="checkbox"/>	X
Phase II Preliminary Site Investigation(PSI)	<input type="checkbox"/>	X
Design/Specifications for Remediation required?	<input type="checkbox"/>	X

	No	Yes/ Date
ES Review of Investigations	N/A	N/A

Include a summary of findings for each investigation.

Remarks: Potential fatal flaws in the wide project area were evaluated in the *U.S. 50 North Vernon Corridor Planning and Environmental Assessment Study* (Appendix J). This document identified and screened out preliminary alternatives that had fatal flaws and fulfilled the purpose of the Red Flag Investigation. Only one site, an underground storage tank, was identified within the search area for the alternatives evaluated in this document (Figure 5, Sheet 20). The database lists the tank as being on property currently owned by Metaldyne. The Metaldyne facility is on the east side of S.R. 3, about a tenth of a mile south of the project's northern terminus (Figure 5, Sheet 20). There will be no impacts to this facility as a result of this project. No other hazardous waste sites were identified during visits to the project site.

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SECTION I – PERMITS CHECKLIST

	<u>Required</u>	<u>Not Required</u>
Army Corps of Engineers (404/Section10 Permit)		
Individual Permit (IP)	X	
Nationwide Permit (NWP)		X
Regional General Permit (RGP)		X
Pre-Construction Notification (PCN)		X
Other		X
Wetland Mitigation required	X	
IDEM		
Section 401 WQC	X	
Isolated Wetlands determination	X	
Rule 5	X	
Other		X
Wetland Mitigation required	X	
Stream Mitigation required	X	
IDNR		
Construction in a Floodway	X	
Navigable Waterway Permit		X
Lake Preservation Permit		X
Other		X
Mitigation Required	X	
US Coast Guard Section 9 Bridge Permit		X
Others (Please discuss in the Remarks section below)		X

Remarks: Based on information developed to date, INDOT's OES has indicated the need for the following permits:

IDEM - Section 401 – Individual Permit
 USACE - Section 404 – Individual Permit
 IDEM - Rule 5
 IDNR - Construction in a Floodway

SECTION J- ENVIRONMENTAL COMMITMENTS

Information below must be included on Commitments Summary Form. List all commitments, indicating which are firm and which are optional.

Remarks: The following commitments, both firm and optional, have been made during the project development process. Legal requirements may be modified upon issuance of the requisite permits.

1. Post DO NOT DISTURB signs at the construction zone boundaries and do not clear trees or understory vegetation outside the boundaries. (Firm)
2. Restrict below-water work to placement of piers, pilings and/or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap.(Optional)
3. Restrict channel work and vegetation clearing to within the width of the normal approach road

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- right-of-way. (Firm)
4. Minimize the extent of artificial bank stabilization. (Optional)
 5. If riprap is utilized for bank stabilization, extend it below low-water elevation to provide aquatic habitat. (Optional)
 6. Implement temporary erosion and siltation control devices such as placement of straw bales in drainage ways and ditches, covering exposed areas with burlap, jute matting or specifications. straw, and grading slopes to retain runoff in basins. (Firm)
 7. Re-vegetate all disturbed soil areas immediately upon project completion. (Firm)
 8. Avoid all work within the inundated part of the stream channel during the fish spawning season (April 1 through June 30), except for work within sealed structures such as caissons or cofferdams that were installed prior to the spawning season (as applicable). (Firm)
 9. Minimize and contain within the project limits in-channel disturbance and the clearing of trees and brush. (Firm)
 10. Do not work in the waterway from April 1 through June 30 without prior written approval of the Division of Fish and Wildlife. (Firm)
 11. Post "Do Not Mow or Spray" signs along the right-of-way. (Optional)
 12. Seed and protect all disturbed stream banks and slopes that are 3: 1 or steeper with erosion control blankets (follow manufacturer's recommendations for installation); seed and apply mulch on all other disturbed areas. (Firm)
 13. Revegetate "low maintenance" areas with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species as soon as possible upon completion; low endophyte tall fescue may be used in "high maintenance" areas only. (Firm)
 14. Do not cut any trees suitable for Indiana bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark) from April 1 through September 30. (Firm)
 15. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; specifications. maintain these measures until construction is complete and all disturbed areas are stabilized. (Firm)
 16. Do not excavate in the low flow area except for the placement of piers, foundations, and riprap, or removal of the old structure. (Firm)
 17. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids. (Firm)
 18. The project must not create conditions that are less favorable for wildlife passage under the structure compared to current conditions. This includes maintaining land under the bridge unarmored with riprap to allow for wildlife passage. (Firm)
 19. If any archaeological artifacts or human remains are uncovered during construction, work must stop and the discovery must be reported within 2 business days. (Firm)

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- 20. Revegetate all bare and disturbed areas with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species as soon as possible upon completion. (Firm)
- 21. Place all excavated material landward of the floodway. (Firm)
- 22. Do not leave felled trees, brush, or other debris in the floodway. Remove all construction debris from the floodway. (Firm)
- 23. Keep the bridge waterway opening free of debris and sediment at all times. (Firm)
- 24. Plant five trees, at least 2 inches in diameter-at-breast height, for each tree which is removed that is ten inches or greater in diameter-at-breast height. (Optional)
- 25. The physical disturbance of the stream and riparian vegetation, especially large trees overhanging any affected water bodies should be limited to only that which is absolutely necessary to complete the project. (Optional)
- 26. IDEM recommends that appropriate structures and techniques be utilized both during the construction phase, and after completion of the project, to minimize the impacts associated with storm water runoff. (Optional)
- 27. Reasonable precautions must be taken to minimize fugitive dust emissions from construction and demolition activities. Dirt tracked onto paved roads from unpaved areas should be minimized. (Firm)
- 28. All facilities slated for renovation or demolition must be inspected by an Indiana-licensed asbestos inspector prior to renovation or demolition activities. If regulated asbestos- containing material (RACM) that may become airborne is found, demolition, renovation, or asbestos removal activities must be performed in accordance with notification and emission control requirements. (Firm)
- 29. In all cases where a demolition activity will occur (even if no asbestos is found), the owner or operator must still notify IDEM 10 working days prior to the demolition. (Firm)
- 30. IDEM encourages all efforts to minimize human exposure to lead-based paint chips and dust. (Optional)
- 31. The use of cutback asphalt, or asphalt emulsion containing more than seven percent (7%) oil distillate, is prohibited during the months of April through October. (Firm)
- 32. Install silt fence or other erosion control measures around the perimeter of any wetlands and/or other water bodies to remain undisturbed at the project site. (Firm)
- 33. Stabilize all disturbed areas upon completion of land disturbing activities. (Firm)
- 34. Sediment-laden water which otherwise would flow from the project site shall be treated by erosion and sediment control measures appropriate to minimize sedimentation. (Firm)
- 35. Wastes and unused building materials shall be managed and disposed of in accordance with all applicable statutes and regulations. (Firm)

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36. A stable construction site access shall be provided at all points of construction traffic ingress and egress to the project site. (Firm)
37. Public or private roadways shall be kept cleared of accumulated sediment that is a result of run-off or tracking. (Firm)
38. Designs for new bridges should include an opening with minimum dimensions of 8' tall by 24' wide that does not include the size of the opening over the channel. This opening under the bridge with un-submerged dry land is essential for wildlife passage. If riprap is planned under the bridge, only dry land unarmored with riprap is considered in the opening dimensions. Considerations can be made if alternative armoring materials are used. (Optional)
39. The Environmental Unit recommends bridges rather than culverts and bottomless culverts rather than box or pipe culverts. Wide culverts are better than narrow culverts, and culverts with shorter through lengths are better than culverts with longer through lengths. If box or pipe culverts are used, the bottoms should be buried a minimum of 6" (or 20% of the culvert height/pipe diameter, whichever is greater up to a maximum of 2') below the stream bed elevation to allow a natural streambed to form within or under the crossing structure. (Firm)
40. Crossings should: span the entire channel width (a minimum of 1.2 times the bankful width); maintain the natural stream substrate within the structure; have a minimum openness ratio (height x width / length) of 0.25; and have stream depth and water velocities during low-flow conditions that are approximate to those in the natural stream channel. The new structure must not create conditions that are less favorable for wildlife passage under the structure compared to the current conditions. (Firm)
41. Impacts to non-wetland forest under 1 acre should be mitigated at a 1:1 ratio, while impacts to non-wetland forest over 1 acre should be mitigated at a minimum 2:1 ratio. Impacts to wetland and habitat should be mitigated at the appropriate ratio according to the USFWS/IDNR/INDOT MOU. (Firm)
42. Revegetate all bare and disturbed areas within the project area using a mixture of grasses, sedges, wildflowers, shrubs, and trees native to Southern Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion. (Firm)
43. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife. (Firm)
44. Do not cut any trees suitable for Indiana bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark) from April 1 through September 30. (Firm)
45. Do not excavate in the low flow area except for the placement of piers, foundations, and riprap, or removal of the old structure. (Firm)
46. Do not construct any temporary runarounds or causeways. (Optional)
47. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids. (Firm)
48. Plant native hardwood trees along the top of the bank and right-of-way to replace the vegetation destroyed during construction. (Firm)
49. Plant five native trees, at least 2 inches in diameter-at-breast height, for each tree which is

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- removed that is ten inches or greater in diameter-at-breast height. (Firm)
50. The amount of mitigation for stream and wetland impacts cannot be determined until a preferred alternative is selected. If combined mitigation is proposed for the North Vernon bypass and the west U.S. 50 segment, serious consideration should be given to selecting a mitigation site which will benefit wildlife habitat and water quality at Muscatatuck National Wildlife Refuge. Please contact the Refuge staff to discuss appropriate mitigation sites. (Firm)
51. Where bridges are used restrict below low-water work to placement of piers, pilings and/or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap. (Firm)
52. For crossing requiring culverts, culverts should span the active stream channel, should be either embedded or a 3-sided or open-arch culvert, and installed where practicable on an essentially flat slope. When an open-bottomed culvert or arch is used in a stream which has a good natural bottom substrate, such as gravel, cobbles and boulders, the existing substrate should be left undisturbed beneath the culvert to provide natural habitat for the aquatic community. (Optional)
53. Minimize the extent of artificial bank stabilization, using bioengineering methods where feasible. (Optional)
54. If riprap is utilized for bank stabilization, extend it below low-water elevation to provide aquatic habitat. (Firm)
55. Avoid channel work in perennial streams during fish spawning season (April 1 - June 30). (Firm)
56. Evaluate the use of wildlife crossings in appropriate situations. Suitable crossings include flat areas below bridge abutments with suitable ground cover, high water shelves in culverts, amphibian tunnels and diversion fencing. (Optional)

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SECTION K- EARLY COORDINATION

Please list the date coordination was sent and all agencies that were contacted as a part of the development of this Environmental Study. Also, include the date of their response or indicate that no response was received.

Remarks:

An Early Coordination Letter (ECL), briefly describing the proposed improvements and anticipated impacts, was sent to 46 Federal, State, and local agencies to solicit their input. The letter was sent November 3, 2010, with responses requested within 30 calendar days. A sample of the letter, including all attachments is included in Appendix B. Below is a list of the agencies to which letters were sent. Copies of response letters are found in Appendix B.

Agency	Response Received
Indiana Department of Environmental Management, Groundwater Section	11/24/2010
Indiana Department of Environmental Management, Automatic Response	11/25/2010
City of North Vernon, Mayor Harold Campbell	12/07/2010
Indiana Department of Natural Resources-DHPA, James Glass	12/09/2010
Natural Resource Conservation Service, Jane Hardisty	12/09/2010
FPBH, Inc, Brad Bender	12/10/2010
U.S. Fish and Wildlife Service Bloomington Field Office, Scott Pruitt	12/18/2010
U.S. Fish and Wildlife Services – Michael Litwin Supplemental Correspondance	12/22/2010
Indiana Department of Natural Resources, Division of Fish and Wildlife, Christie Stanifer	01/03/2011
U.S. Fish and Wildlife Services – Michael Litwin Supplemental Correspondance	02/17/2011
Natural Resource Conservation Service, Jane Hardisty	05/06/2011
Indiana Department of Natural Resources, Division of Nature Preserves – Ronal Hellmich	06/06/2011
Big Oaks National Wildlife Refuge, Joe Robb	No Response
Camp Atterbury, Larry Fagersten	No Response
Jennings County Comission, Jeff Day	No Response
Friends of the Muscatatuck River, Tom Moore	No Response
Indiana Landmarks, Mark Dollase	No Response
Indiana Landmarks, Laura Renwick	No Response
INDOT - Cultural Resources Section, Staffan Peterson	No Response
Jennings County 911, Dave Gerth	No Response
Jennings County Area Plan, Cheryl Trisler	No Response
Jennings County Board of Commissioners, Richard Schneider	No Response
Jennings County Council, Edward Maschino	No Response
Jennings County E.M.A., Michelle Evans	No Response
Jennings County Farm Bureau, Ralph Manlief	No Response
Jennings County Historical Society, Chris Asher	No Response
Jennings County School Corporation, Michael Bushong	No Response
Jennings County Sheriff's Department, Steve Hoppock	No Response
Jennings NW Regional Utility, Jeff Fish	No Response
Nature Conservancy, Indiana Field Office, Lynn Dennis	No Response

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North Vernon City Council, Dave Shaw	No Response
North Vernon Fire Department, Rick McGill	No Response
North Vernon Municipal Airport, Ryan Curry	No Response
North Vernon Police, James Webster	No Response
North Vernon Utilities, Bill Reichenbach	No Response
Selmier State Forest, Robert McGriff	No Response
Southeast Purdue Agricultural Center, Don Biehle	No Response
Jennings County Historian, Brett Caldwell	No Response
Muscatatuck Urban Training Center, Chris Kelsey	No Response
Indiana Geological Survey, Nancy Hasenmueller	No Response
Indiana Department of Transportation, Kevin Rector	No Response
National Park Service, Midwest Regional Office, Earnest Giaquinta	No Response
Federal Highway Administration	No Response
US Department of Housing & Urban Development, Chicago Regional Office	No Response
Department of the Army Louisville District, Corps of Engineers, Environmental Resources	No Response
Wayne-Hoosier National Forest, US Forest Service	No Response