Summary

For purposes of this chapter, Preferred Alternative 8 that was identified in the Draft Environmental Impact Statement (DEIS) will be referred to as "Alternative 8." The Preferred Alternative for the Final Environmental Impact Statement (FEIS) will be referred to as either "Refined Alternative 8," or "Refined Preferred Alternative 8."

Since the publishing of the DEIS, the following substantive changes have occurred to this chapter:

- FEIS Volume III information (responses to comments on DEIS) was added to **Section S.1**, *Introduction.*
- Added information regarding preparation of a combined FEIS/Record of Decision (ROD) based upon provisions of MAP-21 in **Section S.3**, *Proposed Action – Tier 2 Section 5.*
- Documented updated traffic forecasts since DEIS in **Section S.4.1**, *Traffic Forecasting Tools.*
- Added **Section S.6.3.2**, *Preliminary Mainline Typical Cross Sections* to *Preliminary Alternatives* **Section S.6.3**.
- Added **Section S.6.4.5**, *Refined Preferred Alternative 8*, to describe the Refined Preferred Alternative for the FEIS.
- Updated traffic and crash analysis information due to the availability of updated traffic forecasts since the DEIS in **Section S.5.4.5**, *Purpose and Need Performance Indicators Analysis.*
- Streamlined information in **Section S.7**, *Cost and Impact Analysis.* Updated costs for all alternatives and impacts in **Tables S-3** to **S-9** with Refined Preferred Alternative 8, and included potential impacts to Cave Recharge Areas, Hazardous Material Sites, and Wellhead Protection Areas;
- Updated **Section S.8**, *Preferred Alternative*, to include Refined Preferred Alternative 8 (**Section S.8.1**) and updated information of the Tier 1 versus Tier 2 comparison (**Section S.7.2**).
- Added **Section S.10.2**, *Issues Raised in Comments on the DEIS*; to include public hearing and DEIS comment and response summary information.
- Updated **Section S.11,** *Mitigation,* with mitigation measures and commitments in the FEIS.
- Updated **Section S.12**, *Section 5 Project Development*, with further detail regarding project funding and construction.

- Updated **Section S.13.6**, *Section 106 – Historic and Archaeological Resources*, with updated information regarding the executed Memorandum of Agreement (MOA).

- Updated **Section S.13.7**, *Section 4(f) Resources – de minimis Determinations*, with information regarding the Wapehani Mountain Bike Park MOA and the North Clear Creek Historic District *de minimis* determination for Refined Preferred Alternative 8.

- Updated **Section S.13.8**, *Section 7 – Threatened and Endangered Species*, with new information regarding the amendments to the revised Tier 1 Biological Opinion (BO) and the Section 5 Tier 2 Consultation.

- Updated **Section S.13.9**, *Clean Air Act Compliance*, with information regarding carbon monoxide (CO) and fine particulate matter ($PM_{2.5}$) analysis.

- Updated **Section S.13**, *Remaining Steps – Tier 2 Process,* with the current status of the project.

- Updated definitions in **Section S.14**, *Glossary of Key Terms*.

S.1 Introduction

This Tier 2 FEIS has been prepared by the Federal Highway Administration (FHWA) and the Indiana Department of Transportation (INDOT) for Section 5 of the proposed I-69 Evansville to Indianapolis project. The termini of Section 5, as approved in the Tier 1 ROD for I-69 (dated March 24, 2004), are SR 37 south of Bloomington in Monroe County and SR 39 in Morgan County.

This FEIS consists of three volumes:

Volume I contains the report narration (this volume).

Volume II contains supporting documentation as appendices. The appendices are provided electronically on media accompanying Volume I.

Volume III contains the comments on the DEIS and responses. Part A includes a table listing those who submitted comments on the DEIS and each substantive comment within a submittal is presented individually followed immediately by INDOT's response. Part B includes a copy of each written comment submitted, a transcript of each oral statement made at the public hearing on the DEIS, and a response to that comment. Volume III is provided electronically on media accompanying Volume I.

This summary is organized as follows:

Section S.2, *Tier 1 Study*, is an overview of the Tier 1 study that selected the corridor to be considered for Tier 2 alternatives. It describes the key role of Purpose and Need in the Tier 1

selection, key resource and regulatory considerations, and the determination of sections for Tier 2 studies.

Section S.3, *Proposed Action – Tier 2 Section 5,* describes the proposed federal action in Section 5.

Section S.4, *Important Technical Tools – Tier 2 Studies*, describes important technical tools used in the Tier 2 studies, emphasizing updates to these tools since they were used in the Tier 1 study.

Section S.5, *Tier 1 Re-evaluation,* discusses the Tier 1 Re-evaluation issued in June 2006. This Re-evaluation analyzed the effect of tolling on Tier 1 alternatives, with a view toward consideration of toll financing for I-69 from Evansville to Indianapolis. In November 2006, INDOT informed FHWA that it no longer wished to consider toll financing for this project and that all Tier 2 studies would consider only non-toll alternatives.

Section S.6, *Scoping, Purpose and Need, Preliminary Alternatives, and Alternatives Screening,* describes the scoping, purpose and need, preliminary alternatives considered, and the alternatives screening process used to compare alternatives for Section 5.

Section S.7, *Cost and Impact Analysis*, presents the cost and impact analysis of alternatives in Section 5.

Section S.8, *Preferred Alternative,* summarizes the rationale for the selection of the preferred alternative in Section 5.

Section S.9, *Other Major Governmental Actions in Study Area,* describes other major governmental actions in the study area.

Section S.10, *Major Controversies and Unresolved Issues Raised by Agencies and the Public*, describes major issues raised by agencies and the public.

Section S.11, *Mitigation,* describes measures to mitigate impacts of the project in Section 5.

Section S.12, *Section 5 Project Development,* describes INDOT's proposed construction schedule.

Section S.13, *Regulatory Actions and Approvals Associated with this Project,* enumerates state and federal regulatory actions associated with the project. These include permitting under Section 404 of the federal Clean Water Act (CWA); state permitting requirements for a Section 401 Water Quality Certification; Construction within a Floodway Permit under Indiana's Flood Control Act; state permitting requirements under the National Pollution Discharge Elimination System; obtaining a state Erosion Control permit; permitting for isolated wetlands; consultation under Section 106 of the National Historic Preservation Act; consultation under Section 4(f) of the Department of Transportation Act; consultation under Section 7 of the federal Endangered Species Act; conformity demonstration for the Clean Air Act (CAA); and, permitting requirements for Class V Injection Well permits.

Section S.14, *Remaining Steps–Tier 2 Process*, summarizes the remaining steps in the Tier 2 process for Section 5.

Section S.15, *Glossary of Key Terms*, provides a glossary of key terms used in the Summary. A more comprehensive glossary can be found in **Chapter 13**, along with a list of acronyms and an index.

S.2 Tier 1 Study

The Tier 1 study was initiated on January 5, 2000, when FHWA published a Notice of Intent in the Federal Register to advise that a Tier 1 Environmental Impact Statement (EIS) would be prepared for the I-69, Evansville to Indianapolis project. This study was conducted under Council on Environmental Quality (CEQ) and FHWA regulations, which allow studies under the National Environmental Policy Act (NEPA) to be carried out in a two-stage, "tiered" process. In the Tier 1 portion of the study (which was concluded with a Tier 1 ROD, dated March 24, 2004), the "big picture" issues were addressed on a corridor-wide basis, while taking into account the full range of impacts. The Tier 1 ROD approved a corridor for this project and approved termini for Tier 2 sections. Individual Tier 2 NEPA studies are being conducted to determine an exact alignment for the project in each of the six Tier 2 sections. The Tier 2 NEPA studies have been completed for Sections 1 through 4 of this overall project. This document is the FEIS for Tier 2 Section 5.

The Tier 1 Purpose and Need was guided by a series of policy decisions at both the state and federal level. It also was based on a comprehensive Needs Assessment of the No Build Condition, using both the Indiana Statewide Travel Demand Model (ISTDM) and a state-of-the-practice regional economic forecasting model (Regional Economic Model, Inc. Policy Insight Model). The degree to which alternatives satisfied the Purpose and Need was an important consideration both in the screening of alternatives as well as the selection of a preferred alternative.

The scoping process for the Tier 1 EIS began in February 2000. It included meetings with federal and state resource and regulatory agencies, as well as a series of public information meetings. As a result of the scoping process, a total of 14 route concepts, some with optional routings near Indianapolis, were determined; three of these route concepts were suggested by regulatory agency staff and/or the public. **Figure S-1** on the next page shows these route concepts.

A preliminary screening used performance on the Purpose and Need, as well as preliminary cost estimates, to determine which route concepts should be advanced as alternatives for detailed study. Alternatives were grouped geographically into four groups, and route concepts were evaluated by comparison with others in their geographic groups. After a series of public meetings, as well as meetings with environmental review agencies and Metropolitan Planning Organizations (MPOs), five route concepts were selected as alternatives for detailed study. At least one alternative was selected from each geographic group. Most of these alternatives had optional routings in the northern part of the study area. Including these optional routes, there were a total of 12 different end-to-end corridors represented by these five alternatives: Alternatives 1, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, 4C, 5A, and 5B. **Figure S-2** below shows the alternatives selected for detailed study along with the 26-county Study Area.

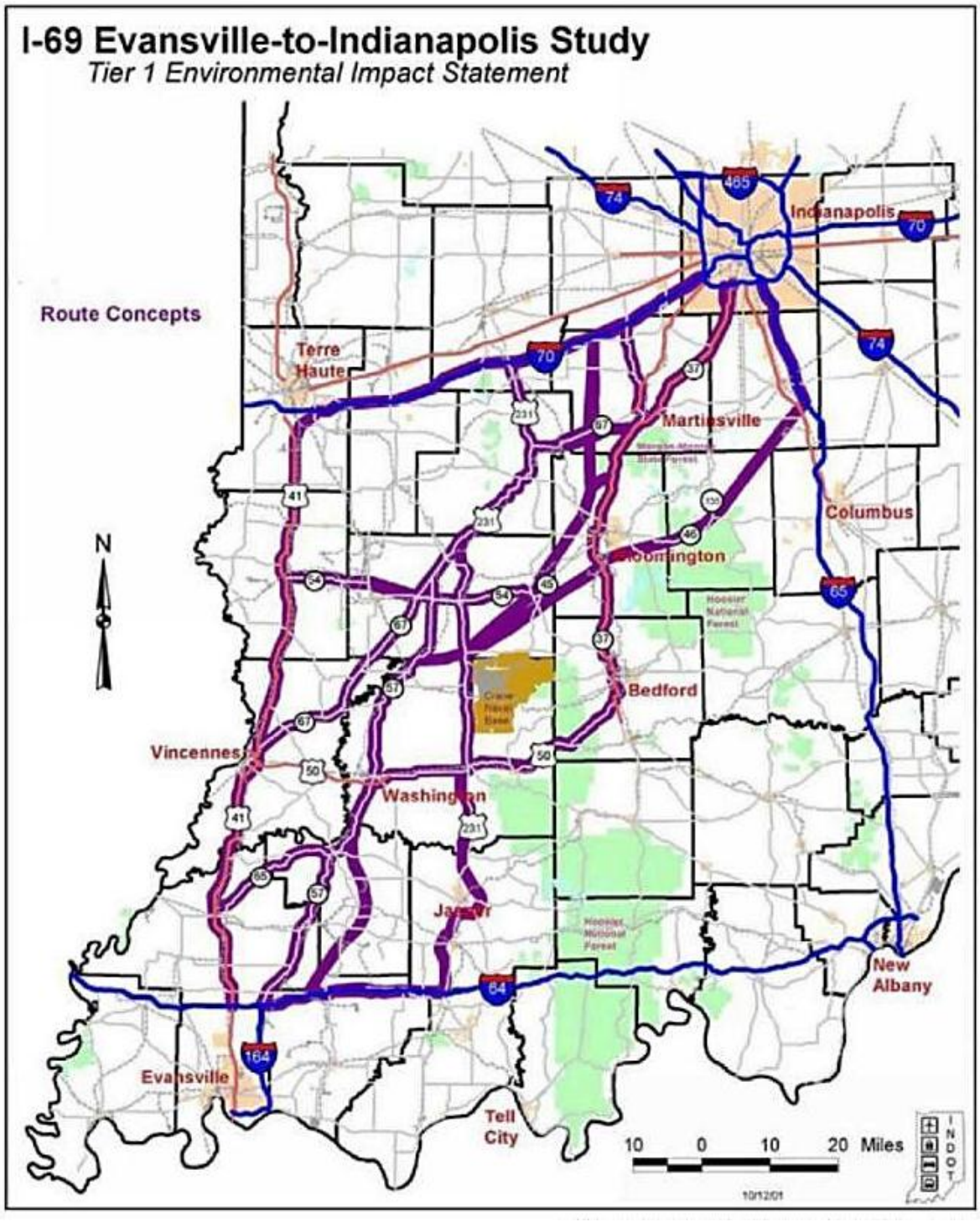

Figure S-1: Tier 1 Route Concepts

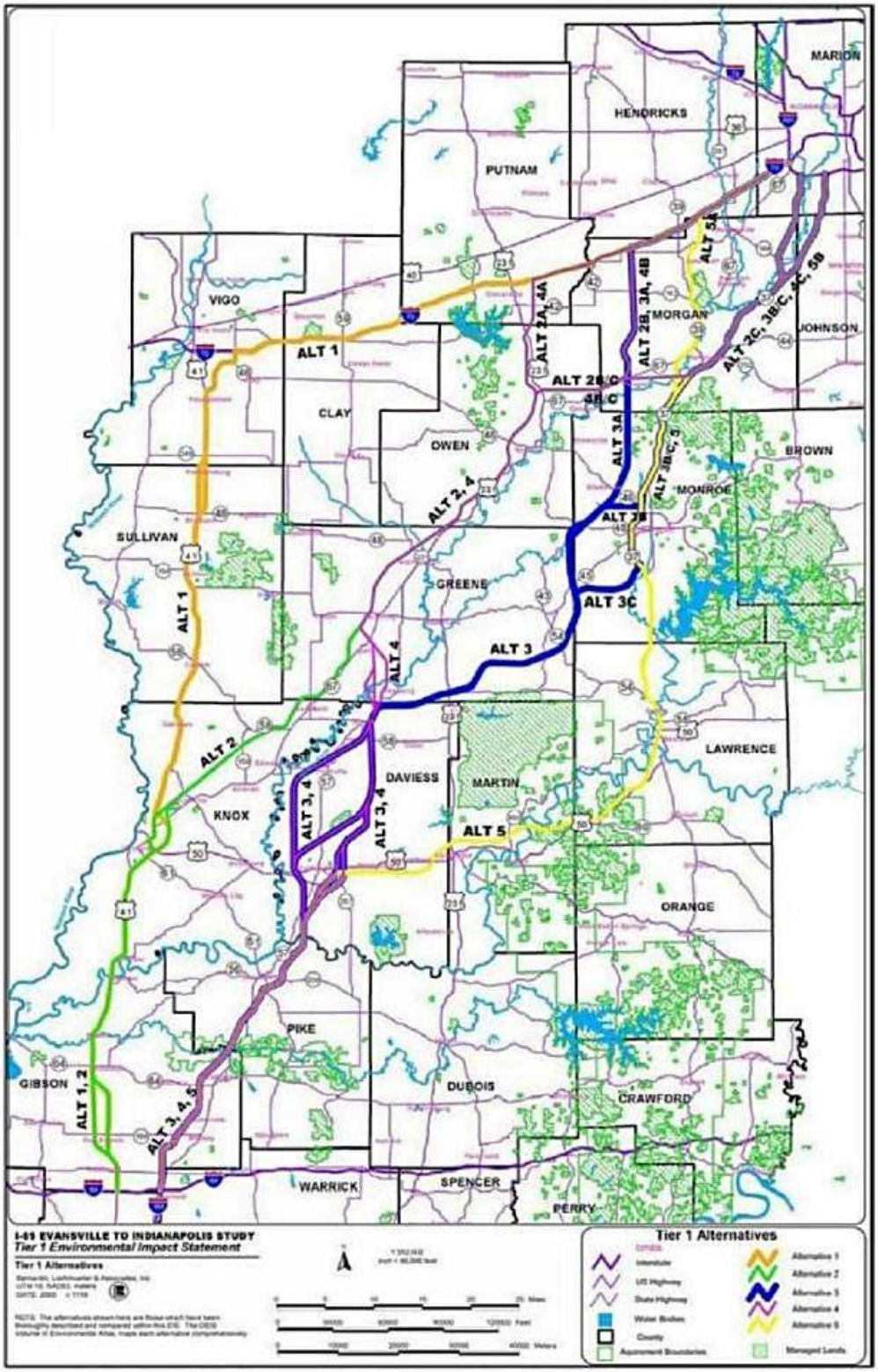

Figure S-2: Tier 1 Alternatives Carried Forward for Detailed Study

Each Tier 1 alternative was specified as a corridor, generally 2,000 feet in width. In some places the corridor was narrowed in order to avoid environmentally-sensitive resources. In other places, it was widened to provide the flexibility to avoid potential impacts to significant resources whose extent was not yet determined. Impacts and costs were estimated by specifying a varying-width working alignment within the corridor for each alternative. These working alignments varied from 240 to 470 feet in width, and took into account topography, the need for local access roads,[1] and the number of lanes required. Interchanges and grade separations also were identified for each alternative. These interchanges and grade separations were preliminary, and were used to compare the costs, impacts and performance of Tier 1 alternatives. The final determination of interchanges, grade separations and access treatments for the selected alternative is being made during Tier 2 studies.

The Tier 1 alternatives were analyzed for their impacts, costs, and performance on project goals, as defined by the Purpose and Need. Based on this analysis, the Tier 1 DEIS designated five of the 12 end-to-end corridors as "preferred," and seven as "non-preferred." Three were designated as non-preferred (Alternatives 3A, 5A, and 5B) for environmental reasons, even though they were among the better performers in terms of achieving the project's Purpose and Need goals. Four were designated as non-preferred (Alternatives 1, 2A, 2B and 4A) due to relatively poor performance in achieving the Purpose and Need goals for the project.

Three public hearings on the Tier 1 DEIS were held in August 2002. In addition, meetings were held with key resource agencies. Over 20,000 comments were received on the DEIS. As a result of this input, a number of major activities occurred after the conclusion of the comment period on the DEIS. Key steps among these major activities were:

- ***Reconsideration of Alternative 1.*** The non-preferred status of Alternative 1 was reconsidered at the request of the United States Environmental Protection Agency (USEPA). Because its performance was substantially inferior to DEIS preferred alternatives, and was neither a low-impact nor low-cost alternative, it was eliminated from further consideration.

- ***Evaluation of Hybrid Alternatives.*** In response to a request by USEPA, two hybrid alternatives were considered. These were studied to determine if critical environmental resources could be avoided while maintaining high levels of performance. Two such alternatives were considered, and it was determined that they did not warrant further study.

[1] In Tier 1, any local access roads were assumed to be located alongside I-69, and part of the typical section for the highway. See Tier 1 FEIS, Appendix E. No access roads other than these were assumed in the Tier 1 analysis.

- ***Shifts to Avoid Sensitive Resources.*** In response to comments on the Tier 1 DEIS, all alternatives were evaluated to determine whether they could be modified to reduce impacts to sensitive resources. Three such shifts, all of which affected several alternatives, including the selected Alternative 3C, were made between the DEIS and FEIS.

- ***Completion of Section 106 Consultation for Tier 1.*** This consultation produced a MOA that identified mitigation measures and other actions to be further examined in Tier 2.

- ***Completion of Section 7 Consultation for Tier 1.*** This formal consultation concluded with the issuance of a Tier 1 BO by the United States Fish and Wildlife Service (USFWS). This BO specified required mitigation measures to be imposed on a project-wide basis and procedures to be followed for Section 7 consultation in the Tier 2 projects. (During this Tier 2 evaluation, formal Tier 1 consultation was re-initiated, which resulted in a revised Tier 1 BO, dated August 24, 2006. Formal Tier 1 consultation was reinitiated again in April, 2011, resulting in an amendment to the revised Tier 1 BO. This amendment was dated May 25, 2011. Formal consultation for Tier 1 was reinitiated a third time on May 20, 2013, and Amendment 2 was issued to the revised Tier 1 BO on July 24, 2013.)

The comment period for the Tier 1 DEIS ended on November 7, 2002. On January 9, 2003, Governor Frank O'Bannon announced the identification of Alternative 3C as INDOT's preferred alternative for the project. Based on this selection, INDOT and FHWA proceeded with the development of mitigation measures for this alternative. The Tier 1 FEIS, dated December 5, 2003, showed Alternative 3C as the preferred corridor. The selection of Alternative 3C was approved by FHWA in a ROD dated March 24, 2004. The ROD also approved termini for sections in Tier 2 studies. **Figure S-3** on the following page shows the approved Alternative 3C, including the sections for Tier 2 studies.

The selection of a single preferred corridor was made from among the five alternatives shown as preferred in the Tier 1 DEIS. A summary of the key considerations regarding these five DEIS preferred alternatives is as follows:

- ***Alternative 3B*** was eliminated due to its environmental impacts, which the USFWS described in its comments on the DEIS as "environmentally unacceptable."

- ***Alternative 4C*** was eliminated primarily due to its high impacts on wetlands, floodplains, and farmland. This alternative would have the highest wetlands impacts of any DEIS preferred alternative.

- ***Alternative 4B*** was eliminated due to its substantially lower performance on project goals (compared with other preferred alternatives). Also, it had greater potential to encourage sprawl between Indianapolis and Bloomington than other DEIS preferred alternatives.

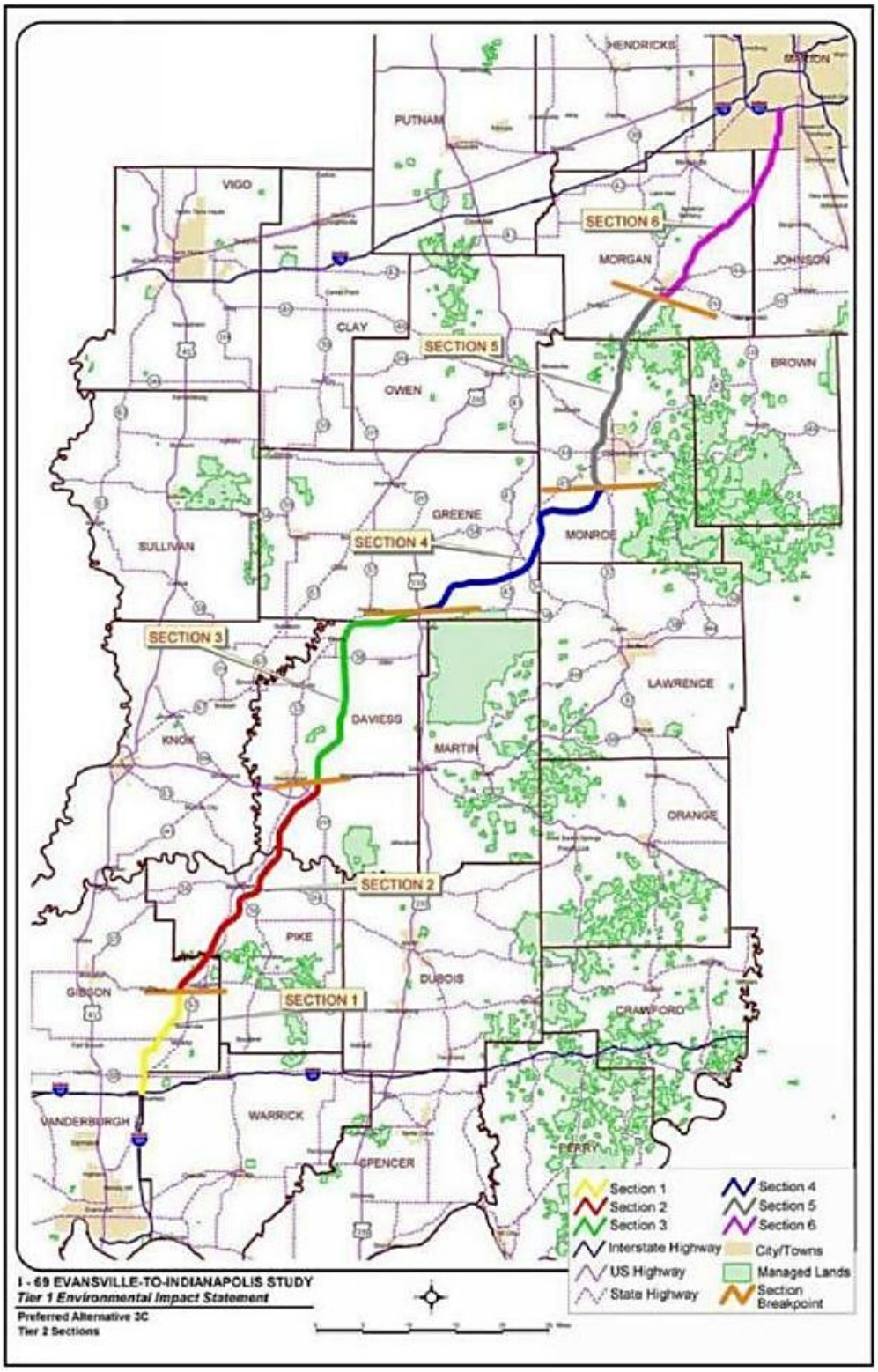

Figure S-3: Tier 1 Preferred Alternative 3C Showing Tier 2 Sections

- ***Alternative 2C*** was eliminated due to its lower travel-time savings between Indianapolis and Evansville. It had the lowest performance of any DEIS preferred alternative on this Tier 1 core goal. Also, it had the second-highest wetlands impact and the highest floodplain impacts among the DEIS preferred alternatives.

- ***Alternative 3C*** best satisfied the project purposes while having an acceptable level of impacts. Its performance was "high" on eight of the nine project goals, including all three core goals. (See Tier 1 FEIS Table 3-35.)

On October 2, 2006, a group of individuals and non-governmental organizations filed a lawsuit in the United States District Court for the Southern District of Indiana, challenging the Tier 1 ROD (approved March 24, 2004) and the revised Tier 1 BO (submitted to FHWA August 24, 2006). The plaintiffs alleged a variety of violations under NEPA and other environmental laws. On December 10, 2007, the District Court issued a decision rejecting all of the plaintiffs' claims (refer to Hoosier Environmental Council, et al. v. U.S. Department of Transportation, et al., S.D. Ind., Civ. No. 1:06-cv-1442, December 10, 2007). Plaintiffs did not file an appeal; therefore, the District Court's decision was final. On April 17, 2007, FHWA issued a "Notice of Final Federal Agency Actions on Proposed Highway in Indiana," which established a 180-day period in which to seek judicial review of decisions made in Tier 1, including both the Tier 1 ROD and revised Tier 1 BO (72 Fed. Reg. 19228 – April 17, 2007). Because the District Court's decision was final, and the time for other judicial challenges to the Tier 1 decisions expired on October 14, 2007, no further legal challenges can be brought against these Tier 1 decisions.

S.3 Proposed Action – Tier 2 Section 5

The proposed action is the completion of an interstate highway within Section 5 of the approved I-69 corridor between Evansville and Indianapolis, Indiana. The termini of Section 5, which were determined in the Tier 1 ROD, are SR 37 south of Bloomington in Monroe County and SR 39 south of Martinsville in Morgan County. This Tier 2 FEIS fully evaluates alternatives that complete I-69 as a fully access-controlled freeway between these termini. The I-69 Section 5 corridor is centered on existing SR 37, which is currently a multi-lane, median-divided arterial highway with partial access control. The project would upgrade existing SR 37 to interstate standards.

Refined Preferred Alternative 8 has been identified as the Preferred Alternative for Section 5. Refined Preferred Alternative 8 would use the existing SR 37 right-of-way, with additional adjacent acreage required based on design requirements and topography. Interchanges are proposed at Fullerton Pike, Tapp Road-SR 45/2nd Street, SR 48/3rd Street, SR 46, Walnut Street, Sample Road, and Liberty Church Road. In addition, overpasses would be located at Rockport Road, Vernal Pike, Arlington Road, Kinser Pike, and Chambers Pike. Local access roads and new connections to existing local roads would be provided in portions of the Section 5 corridor where drives and other roads currently connect to existing SR 37. There is a brief discussion of the alternative development and comparison of alternatives in this summary. For further information refer to **Chapters 3**, *Alternatives*, and **Chapter 6**, *Comparison of Alternatives*, in the FEIS.

The impacts, benefits, and costs of alternatives are fully evaluated, with recognition that these features include facets which are currently attributable to the existing highway facility. This evaluation includes regulatory compliance under applicable laws, including Section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act, Section 404 of the CWA, and Section 4(f) of the Department of Transportation Act.

A Tier 2 ROD is being issued with the FEIS specifying the final Tier 2 alignment for Section 5. The FHWA has prepared a ROD in combination with the Tier 2 Section 5 FEIS, in accordance with Public Law 112-141, the Moving Ahead for Progress in the 21st Century Act (MAP-21), which allows the FEIS and ROD to be combined unless "(1) the FEIS makes substantial changes to the proposed action that are relevant to environmental or safety concerns; or, (2) there are significant new circumstances or information relevant to environmental concerns that bear on the proposed action or the impacts of the proposed action."[2] FHWA determined that neither of these conditions apply to this project, and therefore, the FEIS and ROD are combined for the I-69 Section 5 project.

[2] Refer to Section 1319(b) of MAP-21; and USDOT-FHWA, Interim Guidance on MAP-21 Section 1319: Accelerated Decisionmaking in Environmental Reviews, January 14, 2013.

S.4 Important Technical Tools – Tier 2 Studies

Two technical tools play a central role in the conduct of this study. These tools were used in the Tier 1 Study and have been refined for use in this Tier 2 Study. These are a multi-level traffic forecasting tool and a corridor geographic information system (GIS).

S.4.1 Traffic Forecasting Tools

The selection of a corridor in Tier 1 required an innovative approach to traffic forecasting for Tier 2 alternatives. Because the range of alternative alignments in this Tier 2 Study is limited to the corridor selected in the Tier 1 decision, more detailed modeling tools are needed to evaluate alternatives. The traffic forecasts for this study are provided by a hierarchy of traffic models.

The Tier 1 ROD specified that the following would be key issues for distinguishing alternatives in Tier 2 studies.

- Interchange location and design.
- Access to abutting properties.
- Location of grade separations and intersecting roads.

In preparation for Tier 2 studies, the ISTDM was refined to provide a more detailed highway network throughout Indiana.[3] Beginning in Tier 2 studies, a significant amount of highway network and geographical detail were added to ISTDM Version 3, used in the Tier 1 study, to produce ISTDM Version 4. For this Section 5 Study, an updated version of the ISTDM, Version 6.2, is used.

Both Version 6.2 of the ISTDM and a more detailed I-69 Corridor Model were used for traffic studies for the FEIS. This I-69 Corridor Model was essentially an overlay on the standard ISTDM (Version 6.2) model. The I-69 Corridor Model includes all of the roads that are included in ISTDM Version 6.2, plus additional roads that are considered too minor to be included in the standard version of the statewide model. These additional roads in the vicinity of the I-69 corridor are included.

The level of detail in the corridor model is suitable for evaluating alternative interchange locations, grade separations, or access roads associated with Tier 2 alternatives. **Figure S-4** portrays the highway network in the I-69 Corridor Model.

[3] The Indiana Statewide Travel Demand Model (ISTDM) is regularly updated by INDOT to incorporate the most current data and transportation planning practices. ISTDM Version 3 was used for the Tier 1 Study; and this Tier 2 FEIS Study used ISTDM Version 6.2. Traffic forecasts for ISTDM Version 3 were for a forecast year of 2025; traffic forecasts in ISTDM Version 6.2 are for a forecast year of 2035.

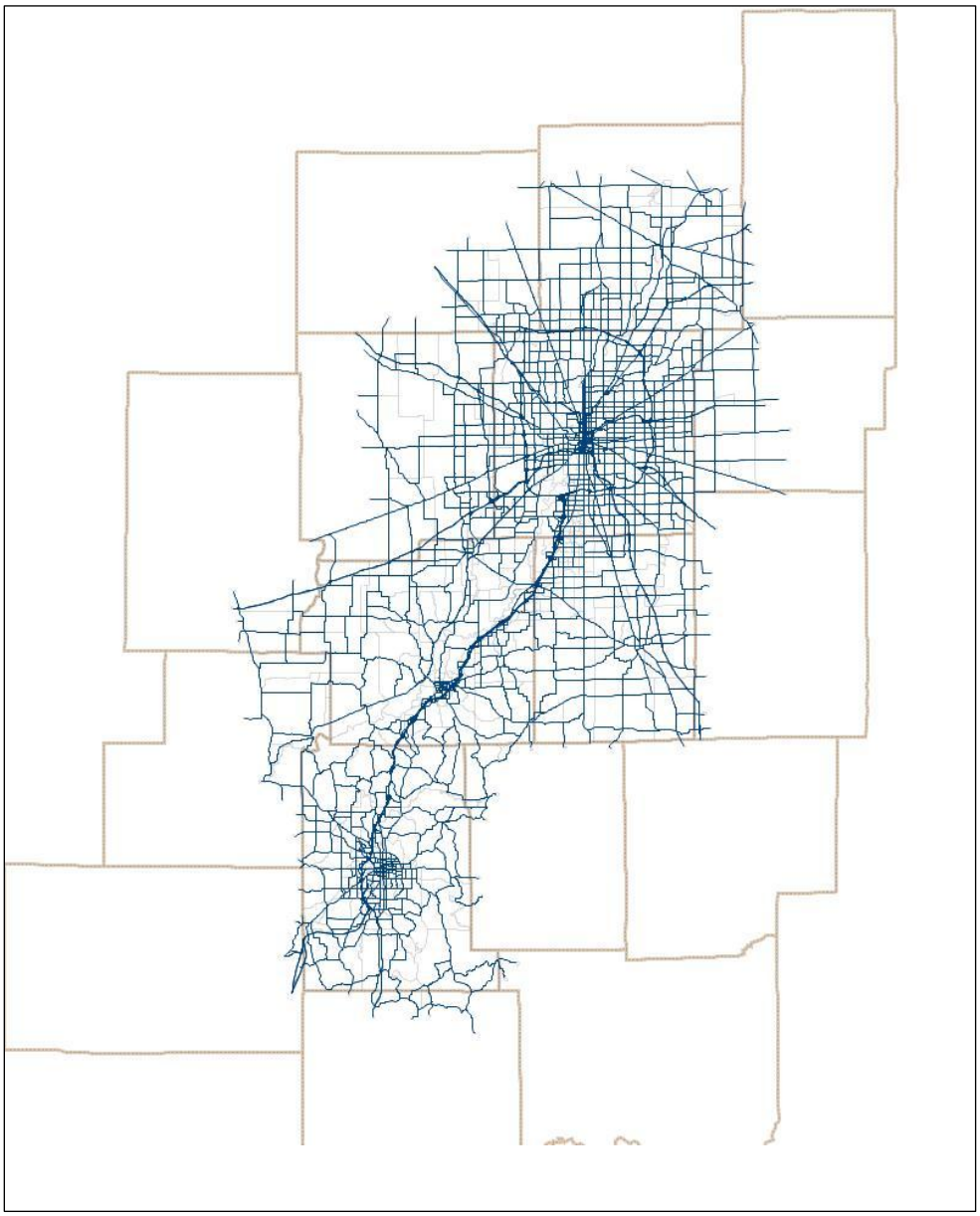

Figure S-4: I-69 Tier 2 Corridor Model Network (Sections 5 and 6)

To provide Tier 2 forecasts, Version 6.2 of the ISTDM was run, and the modeling results were input into the I-69 Corridor Model. The corridor model produced assignments for a typical weekday (24-hour period), as well as AM and PM peak periods, for roadways in the corridor. The information from the I-69 Corridor Model was used to develop the traffic forecasts used in the engineering analysis of alternatives. In addition, the Tier 2 performance measures provided in **Section 3.3.1**, *Transportation Performance Indicators,* are calculated using postprocessors[4] that analyze the traffic assignments provided by the corridor model.

S.4.2 Geographic Information System

The selection of a corridor in Tier 1 (generally 2,000 feet wide) allowed for more detailed mapping and evaluation of resources within the proposed project area. The GIS data used for Tier 2 was developed and/or refined based on high resolution aerial photography that was used to develop planimetric mapping of the corridor. The low altitude aerial photography was flown in the winter of 2003-2004 with an image resolution of 0.5 feet. This mapping was flown with ground control to create digital topographic mapping and generation of Digital Terrain Models (DTM). Additional (publicly available) digital terrain data was flown in the spring of 2010 for Monroe County and included Light Detection and Ranging (LiDAR) based 2-foot topographic contours. This data was used to supplement the original ground modeled DTM surface. In addition to the aerial mapping of the corridor, a complete field reconnaissance of the corridor was conducted to identify any previously unidentified features on the ground, as well as confirm and/or refine all earlier mapping utilizing Global Positioning System (GPS) data collection.

The development of Tier 2 GIS layers included both the replacement of some Tier 1 GIS layers with data derived from the aerial mapping and field reconnaissance, and revision of some Tier 1 GIS layers to update geographic location of features based on more accurate data, and/or update data regarding resources based on more detailed research. As a result of this mapping and field reconnaissance effort, the data layers that compose the GIS used for the Tier 2 analysis are more accurate and contain extensive detail regarding the resources identified within the corridor.

[4] A "postprocessor" is a computer program that analyzes a traffic assignment to compute measures of transportation performance. For example, an accessibility postprocessor may compare the travel times between any number of location pairs in the "no-build" and "build" networks in order to assess the improvement in accessibility provided by a particular alternative.

S.5 Tier 1 Re-evaluation

In August 2005, more than a year after the Tier 1 studies concluded, Congress enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), giving states much more flexibility to combine toll and non-toll funding on interstate highway projects. Prior to enactment of SAFETEA-LU, projects such as I-69 would not have been able to consider funding options that combined toll and non-toll funding. The provisions of SAFETEA-LU provided INDOT with the opportunity to use toll funding for I-69, which had the potential to expedite construction.

In order to determine if the new funding options provided under SAFETEA-LU could be used in the development of the project, INDOT and FHWA decided to prepare a Re-evaluation of the Tier 1 FEIS. The Re-evaluation was not intended to determine whether I-69 would be tolled; rather, it was intended to determine what steps would be necessary to consider tolling as an option in Tier 2 studies.

The Re-evaluation was issued in late June 2006. Four Open House meetings were held June 29, 2006, to receive public input on the Re-evaluation. Comments on the Re-evaluation also were accepted for a comment period extending through July 24, 2006.

On November 9, 2006, then Governor Mitch Daniels announced his decision that the I-69 Evansville to Indianapolis project would be developed as a non-tolled interstate. In a letter to the FHWA Indiana Division Administrator dated November 22, 2006, INDOT Commissioner Thomas Sharp confirmed this decision. He further requested that FHWA not finalize the Tier 1 Re-evaluation, which was issued in June 2006, nor issue a Tier 1 Amended ROD approving the consideration of tolling in the Tier 2 studies.

In a letter dated December 1, 2006, the FHWA acknowledged INDOT's decision to eliminate consideration of toll options for the project. FHWA also requested that INDOT complete a review of comments submitted on the Re-evaluation and address issues raised in those comments as appropriate. These responses to comments were transmitted by INDOT to FHWA on January 26, 2007. FHWA responded in a letter dated February 12, 2007, which stated in part,

> we find that there are no changes in the proposed action that would result in significant environmental impacts that were not adequately evaluated in the Tier 1 Environmental Impact Statement (EIS); and any new information or circumstances relevant to the environmental concerns and bearings on the proposed action or its impacts would not result in significant environmental impacts not adequately evaluated in the Tier 1 EIS.

S.6 Scoping, Purpose and Need, Preliminary Alternatives, and Alternatives Screening

S.6.1 Scoping

The Tier 2 scoping process defined the range of alternatives to be considered and the process to be used to address potential environmental impacts. The Tier 1 ROD limited the range of alternatives to be located generally within the defined 2,000-foot wide corridor, with Section 5 termini at SR 37 and SR 39. The scoping of alternatives included both extensive opportunities for public and agency input, as well as use of innovative design engineering techniques.

FHWA and INDOT provided numerous opportunities for involving the public and government agencies in the scoping process. See **Chapter 11**, *Comments, Coordination, and Public Involvement,* for a detailed description of these opportunities, which included:

- A local project office on the southwest side of Bloomington has been staffed and open to the public during weekday business hours[5] to allow convenient public access to project team members and materials.

- An open house was held at the project office on July 1, 2004. This open house was held to acquaint public officials and the general public with the project office, introduce project staff, provide visitors with project information, and receive input regarding issues of concern.

- Two public information meetings were held to share project information with the public and receive feedback. The first, on July 20, 2005, in Martinsville, was held to present and receive input regarding preliminary alternatives and the draft Purpose and Need Statement. The second, on April 24, 2012, was held in Monroe County to present the screened alternatives and possible interchanges.

- Two separate Community Advisory Committees (CACs) were developed in the fall of 2004 to facilitate communication between project team members and representatives of potentially impacted and key constituent groups in the project area. Originally, there was one CAC for Bloomington/Monroe County and one for Martinsville/Morgan County. However, after the initial Section 5 CAC Meetings held in 2004-2005, INDOT reconvened a single CAC in 2012, which combined the Bloomington/Monroe County CAC and the Martinsville/Morgan County CAC. INDOT and the Project Team have attended CAC meetings to provide information, answer questions, and gather input from the CAC members.

[5] Originally, the project office was open on weekdays from 8 a m. to 5 p.m. On September 26, 2008, the Section 5 project team closed its downtown Bloomington office and moved to the Section 4 office. In October 2008 the weekly office hours were changed to Monday through Thursday, from 9:00 a.m. to 4:00 p m. To accommodate those people unable to visit during regular hours, team members also are available to meet by appointment.

- Expert Land Use Panels (ELUP) were established in all six I-69 Tier 2 sections to assist in forecasting future land use. The Section 5 panel was comprised of local professionals intimately familiar with development activity in the communities served by I-69 and included representatives of city and county planning and zoning departments, public utilities, real estate professionals, appraisers, and economic development groups.. Information from the ELUP was used in the development and refinement of alternatives that would provide optimum access to the areas served while minimizing impacts to future growth patterns.

- INDOT and FHWA extended invitations to Monroe and Morgan counties, the cities of Bloomington and Martinsville, and the Town of Ellettsville to become Participating Agencies for the Section 5 environmental studies. All five organizations accepted and have been afforded an opportunity for early and timely input under this umbrella. Regular monthly meetings are being held during the ongoing environmental studies; the first meeting was held on February 15, 2012.

- Several meetings with environmental review agencies covering all I-69 (Sections 1 through 6) were held, including meetings on August 12, 2004, February 23-24, 2005, August 1-2, 2006, March 1, 2007, April 30, 2009. The development and evaluation of alternatives were discussed.

- On November 11, 2005, Section 5's Purpose and Need and Preliminary Alternatives Package was circulated to review agencies. On December 14, 2005, FHWA and INDOT hosted a webcast meeting to review and receive resource agencies' comments on this package.

- On May 25, 2007, Section 5's Preliminary Alternatives Evaluation and Screening Package was circulated to review agencies. On July 3, 2007, FHWA and INDOT hosted a webcast meeting to review and receive resource agencies' comments on this package.

- On April 6, 2012, Section 5's Revised Preliminary Alternatives Analysis and Screening Package was circulated to review agencies. On April 20, 2012, FHWA and INDOT hosted a webcast meeting to review and receive resource agencies' comments on this package.

- Section 5 potential mitigation sites were reviewed with regulatory agencies on July 24-25, 2012.

S.6.2 Purpose and Need

Transportation performance goals in the Section 5 Study Area include the improvement of accessibility, a reduction in congestion, and improvement in safety. Economic development goals evaluated the role of the transportation system in leading to enhanced economic growth. **Section 2.5**, *Project Goals and Performance Measures,* gives the specific Purpose and Need performance goals and associated performance measures.

S.6.3 Preliminary Alternatives

The preliminary alternatives incorporated information obtained via preliminary studies and public outreach and agency coordination activities. The preliminary alternatives for Section 5 involved the development of mainline alignments using the existing SR 37 right-of-way and the 2,000-foot-wide Section 5 corridor. The typical right-of-way section for preliminary alternatives in Section 5 ranges from about 220 feet to 790 feet wide, depending on the alignment and terrain features. Right-of-way for each alternative includes the existing SR 37 right-of-way. The widest sections occur at interchanges and in limited locations where the existing SR 37 alignment is bifurcated. In addition, there are proposed local access roads at various points throughout the corridor.

S.6.3.1 Preliminary Alternatives

The Tier 1 Preferred Alternative 3C was used to develop Preliminary Alternative 1 for Section 5. In addition, two other preliminary alternatives – Alternatives 2 and 3 – were initially developed by combining the mainline alignments with various combinations of interchanges and grade separations. A series of local access roads parallel to I-69 were developed for each alternative between the interchanges. The local access roads connect individual parcels and roads that would otherwise be disconnected from I-69. **Chapter 3**, *Alternatives* (**Table 3-1**), lists the interchanges and grade separations included with each of these preliminary alternatives. **Figure 3-10** in **Section 3.2.2.3**, *Preliminary Alternatives (Alternative 1 to 3*), illustrates the alignments of preliminary Alternatives 1, 2, and 3.

S.6.3.2 Preliminary Mainline Typical Cross Sections

Tier 1 identified two different typical cross-sections to be used for impact and cost estimates in Section 5. The more rural portions of the project used a six-lane divided section with a grass median and local access roads separated from the mainline by grassed slopes and open ditches. In highly urbanized areas the project used an elevated eight-lane section and paved median with opposing traffic being separated by a concrete median barrier. New local access roads were to be constructed at existing grade, separated from the mainline by a mechanically stabilized earth wall and a paved buffer. During development of the Tier 2 preliminary alternatives, these cross-sections were modified in the following ways to minimize impacts:

- The urban section was revised to use or reconnect to the existing local road network rather than constructing new local access roads parallel to the mainline.

- The horizontal alignment for the urban section was maintained within the existing SR 37 corridor and generally maintained the existing SR 37 elevations.

S.6.3.3 Preliminary Interchange Options

Because the alignment in Section 5 follows the existing SR 37 alignment, the most variable features of the alternatives are the access options (e.g., interchanges and local access roads). Currently there are approximately 76 streets, ramps, roads, or driveways with access to existing

SR 37 in Section 5. Direct access to I-69 will be via traffic interchanges only; no existing direct access points will remain. Any crossings of I-69 will be provided via grade separations. Intersections of the local road network with SR 37 will be converted to either interchanges or grade separations; be provided access to a local access road; or, the local road intersection will be closed. Road closures may require some relocations and/or acquisitions of landlocked parcels.

Existing SR 37 interchanges were afforded preference due to the substantial disruption to local travel patterns, increased impacts and costs if excluded from the Section 5 alternatives. These include the SR 45/2nd Street, SR 48/3rd Street, SR 46, and Walnut Street (partial). Alternatives were considered which modified the configurations of these existing interchanges. Tapp Road, Vernal Pike, Chambers Pike, and Liberty Church Road are examples of such alternative interchange locations considered.

The analysis presented in **Section 3.2.2.4**, *Preliminary Alternatives 1, 2, and 3 Screening Process*, was used to evaluate an each major feature listed in **Table 3-2** (e.g., Tapp Road intersection, Fullerton Pike intersection, mainline shifts, etc.) of SR 37 that would need to be assessed in the potential SR 37 upgrade action (e.g., overpass, underpass, interchange, access road, etc.) of each of the three preliminary alternatives (Alternatives 1 to 3, shown in **Figure 3-10**). Criteria used in this evaluation included traffic volumes from the I-69 corridor model; input from the participating agencies, ELUP, and CACs; and planned and programmed improvements to the local roadway network. Interchanges were maintained at the four existing locations during the alternatives analysis, although an alternative was considered that moved access provided by the Walnut Street interchange out of the Beanblossom Creek floodplain to Kinser Pike.

Multiple interchange types were considered, and interchange types were chosen based on surrounding land uses, INDOT design guidance, and traffic operations. **Figure 3-9** shows examples of these interchange types. In rural areas, a wide diamond interchange was developed for each interchange providing 1,320 feet or greater distance between ramp termini where possible.[6] In urban areas, tight diamonds and single-point interchanges were considered with much tighter ramp termini spacing (400 feet or less). Because of safety concerns, loop ramps were not permitted unless necessary to avoid railroads or rivers or other environmentally sensitive areas, or to improve traffic operations at system interchanges. While preliminary interchange types were identified, various interchange layout options were considered at I-69 access locations as the environmental impact studies progressed, and will be further evaluated during final design.

With regards to economic development indicators, the interchange options would have essentially equal performance in improving travel distances and times to the interstate system from the communities and employment centers in the Study Area. The relative ability to satisfy

[6] A "wide diamond" allows for sufficient space to add loop ramps within the existing interchange right-of-way, should traffic volumes warrant it in the future.

local Purpose and Need was an important basis of the recommendations of the number and location of interchanges for the preferred alternative.

At each grade separation, an overpass and an underpass of I-69 were considered. However, due to the existing SR 37 grade and the presence of karst features within the corridor, overpasses of I-69 would typically be less expensive and create fewer drainage concerns than underpasses.

S.6.4 Preliminary Alternatives Screening

Preliminary Alternatives 1, 2, and 3 were presented to INDOT and FHWA for review at a meeting on June 30, 2005. Based on comments from INDOT and FHWA, minor changes were made to the alternatives. The three alternatives were then presented at a CAC meeting on July 19, 2005, and subsequently at a Public Information Meeting on July 20, 2005. Participants commented on proposed road closures, overpass recommendations, locations of interchanges, and connector roads. Additional information about the development of the preliminary alternatives, including key resources that were considered, is included in **Section 3.2.2.3**, *Preliminary Alternatives (Alternatives 1 to 3)*. Through this process some of the features composing Alternative 1 to 3 were retained, while others were eliminated, modified, or replaced. The features that were retained, modified, or replaced resulted in the development of two new alternatives – Alternatives 4 and 5.

S.6.4.1 2007 Alternatives (Alternatives 4 and 5)

During the 2007 alternative screening, the elements that remained under consideration after the screening of preliminary Alternatives 1, 2, and 3 were grouped into two alternatives (Alternatives 4 and 5), which were included for detailed study. The access, grade separation, and access options developed for Alternatives 4 and 5 illustrate *possible combinations* of the various desirable elements of Alternatives 1, 2, and 3; refer to **Section 3.2.2.5**, *Development of Alternative 4 and 5*. Following further traffic modeling and level of service (LOS) evaluations conducted during the Tier 2 studies, it was determined that traffic levels permitted a reduction in the number of lanes for both the rural and urban areas from those assumed in Tier 1. Illustrations of typical urban and rural sections with lane widths, shoulders, medians, clear zones, and features to be used where needed (such as truck climbing and auxiliary lanes, landscape berms, and local access roads) are shown in **Figure 3-7** (located at the end of Chapter 3). These typical sections were used for the two alternatives (Alternatives 4 and 5) identified in the May 2007 Preliminary Screening of Alternatives. For Alternatives 4 and 5, the following mainline shifts were incorporated to avoid key constraints:

- **Shift to avoid Monroe Hospital.** The mainline alignment was shifted to the east at Fullerton Pike to avoid impacting the Monroe Hospital and to minimize impacts to karst features in the immediate area.

- **Shift to avoid Wapehani Mountain Bike Park.** The mainline alignments were shifted to the west to avoid or minimize impacts to Wapehani Mountain Bike Park, a resource protected under Section 4(f) of the U. S. Department of Transportation Act.

- **Shift to avoid Maple Grove Road Rural Historic District.** The mainline alignment was shifted to the east at Acuff Road to avoid impacting the Maple Grove Road Rural Historic District boundary.

- **Shift to avoid Carlton/Huff/Kendrick Cemetery.** The mainline alignment was shifted to the west between Sample Road and Chambers Pike to avoid the Carlton/Huff/Kendrick Cemetery. (Note: all cemeteries were considered constraints and avoided.)

- **Shift within Morgan-Monroe State Forest.** The bifurcation of SR 37 through the Morgan-Monroe State Forest was maintained in the mainline alignments.

S.6.4.2 Minimal Impact Alternatives 6 and 7

Following the development of Alternatives 4 and 5 in 2007, design features were considered that could lessen impacts to the natural and human environment. This review recognized the significant existing development along SR 37 and sought opportunities to optimize use of existing pavement, grade, structures, and right-of-way where possible. The minimal impact alternative development process focused on reducing environmental impacts, right-of-way needs, construction costs, as well as community impacts by:

- reducing interchange size and location (based on traffic needs and impacts);

- reducing the number of mainline lanes based upon refined traffic modeling and LOS evaluations;

- using existing interchange access points;

- locating local access roads closer to the I-69 mainline to reduce new impacts;

- reducing the length of local access roads;

- relocating access roads to reduce farm and parcel splits;

- evaluating whether it would be less costly and cause fewer environmental impacts to acquire property that would be landlocked by Section 5 or provide new access roads to the landlocked property;

- incorporating input from local governments, emergency service providers, CACs, utility representatives, and public comments; and,

- identifying potential conservation and mitigation areas.

INDOT and FHWA agreed the development of alternatives may include median barriers, retaining walls, guardrails, and (in specific locations) engineering design exceptions. Consideration will be given during the final design phase for use of design refinements as a measure to reduce direct impacts and/or construction costs (see **Section 5.1**, *Introduction and*

Methodology). Formal approval of design refinements would not occur until after the Tier 2 studies are completed and final design is underway.

Using these elements, two minimal impact alternatives (Alternatives 6 and 7) were developed for detailed study. The access characteristics of these alternatives (interchanges and grade separations) generally incorporate elements of Alternatives 4 and 5. Alternatives 6 and 7 include a mainline with either a median barrier (urban), guardrail (suburban) or a grassy median (rural), either a barrier or setback separation from parallel local access roads, and generally are within the existing SR 37 right-of-way, with the exception of two shifts. With Alternative 6, the mainline shifts to the west between SR 45/2nd Street and Tapp Road to avoid the Wapehani Mountain Bike Park, a Section 4(f) resource. Alternative 7 would remain on the existing SR 37 right-of-way, impacting the edge of the Park. For both Alternatives 6 and 7, the mainline alignment shifts between Sample Road and Chambers Pike, to allow for the re-use of existing SR 37 pavement for an eastern local access road and the I-69 northbound lanes.

The interchange access and grade separation options for minimal impact Alternatives 6 and 7 are not as interchangeable as elements in Alternatives 4 and 5 because a decision in one portion of Section 5 could affect other decision options. For certain potential interchange locations (e.g., Fullerton Pike, Tapp Road, SR 45/2nd Street, SR 48/3rd Street, Kinser Pike, and Walnut Street), multiple interchange types were considered. Types were chosen based on surrounding land uses, INDOT design guidance, and traffic operations.

S.6.4.3 Interchange Options for Alternatives

This section summarizes the interchange options for alternatives under evaluation in the DEIS (see **Figures 3-11 and 3-12** for summary maps of Alternatives 4, 5, 6, and 7). Interchange options that advanced were identified based upon a review of several factors. These were the results of the performance measures analyses, interchange spacing policies, predicted interchange use, potential environmental impacts, and input from environmental resource agencies and the public.

- **That Road Overpass/Rockport Road Overpass:** Providing access to I-69 from the northeast for the proposed project was considered at the SR 37 interchange with I-69 (in Section 4) and at That Road. It was determined that the SR 37 interchange would become too complex to add a fourth (northeasterly) leg, and an interchange at That Road would be too close to the SR 37 interchange per FHWA interchange spacing guidance. Alternatives 4, 5, 6, and 7 include an overpass at Rockport Road, with an access road between That Road and Rockport Road on the east side of I-69. That Road would include a cul-de-sac on the west side of I-69.

- **Fullerton Pike Interchange/Realignment and Fullerton Pike Extensions:** An interchange was proposed at Fullerton Pike to provide access to the southern areas of Bloomington to integrate with the Monroe County Thoroughfare Plan. An interchange at Fullerton Pike would also provide access to the Monroe Hospital as well as the Fullerton Tax Increment Fund (TIF) District. Alternatives 4, 5, 6, and 7 include an interchange at Fullerton Pike and no widening/extension to Leonard Springs Road or Gordon Pike.

While Alternatives 4 and 5 include a mainline shift to the east of SR 37, the minimal impact Alternatives 6 and 7 generally stay within the existing SR 37 right-of-way, in the vicinity of the Fullerton Pike interchange. Alternative 7 includes a southern shift of Fullerton Pike to the east of SR 37.

- **Tapp Road Interchange and the Collector Distributor (CD) System:** Based upon input from the City of Bloomington, the ELUP, and Monroe County, an option for access at Tapp Road was incorporated into the Preliminary Alternatives at the existing Tapp Road and SR 37 signalized intersection included an interchange or an overpass at Tapp Road. Providing a full interchange would require collector distributor (CD) roads on I-69 through the urban section of Bloomington, due to traffic merging and FHWA interchange spacing guidelines. Alternatives 4 and 6 propose an overpass at Tapp Road, while Alternatives 5 and 7 propose a split-diamond interchange between Tapp Road and SR 45/2nd Street. The split-diamond interchange maintains the development potential on eastern Tapp Road with access to I-69, spreads traffic loads with additional access to southwest Bloomington, and reduces traffic volumes on Leonard Springs Road and Tapp Road west of I-69. The split-diamond interchange should also reduce travel through western neighborhoods and add an additional access point to reduce traffic volumes on SR 45/2nd Street.

- **SR 45/2nd Street Interchange Designs:** Because SR 45/2nd Street is a state highway with significant traffic volumes, an interchange was maintained at this location. Alternative 4 includes a tight diamond interchange at SR 45/2nd Street, Alternative 6 uses the existing interchange, and Alternatives 5 and 7 includes a split-diamond interchange between Tapp Road and SR 45/2nd Street.

- **SR 48/3rd Street Interchange Designs:** Because SR 48/3rd Street is a state highway with significant traffic volumes, an interchange was maintained at this location. Alternative 4 includes a tight diamond interchange, Alternative 5 includes a single-point interchange, and Alternatives 6 and 7 include reusing the existing interchange with potential additional turning ramps, depending on traffic projections.

- **Vernal Pike/17th Street Overpass or Underpass:** Monroe County stated a preference for interchange access at Vernal Pike. However, a Vernal Pike interchange would exceed the FHWA minimum interstate interchange spacing guidelines relative to the SR 46 interchange. In order to address this spacing, a CD system and reconstruction of the SR 46 interchange (to accommodate the CD roads) would be required to meet the Monroe County recommendation for an interchange at Vernal Pike. Therefore, an interchange at Vernal Pike is not included in the alternatives addressed in the EIS. If an interchange were not included, then both the City of Bloomington and Monroe County recommended that a grade separation with I-69 be considered at this location. While this would eliminate the existing SR 37 signalized intersection at Vernal Pike, a grade separation would maintain community connectivity and maintain access to the industrial areas west of I-69. Alternatives 4, 5, 6 and 7 propose elimination of access at Vernal Pike and providing a grade separation underpass at 17th Street (Alternatives 4, 5, and 6), or an overpass (Alternative 7). In addition, the alternatives propose straightening and

extending Hensonburg Road south to Industrial Drive and north to form an off-set intersection with Packing House Road.

- **SR 46 Interchange:** Because SR 46 is a state highway with significant traffic volumes, an interchange was maintained at this location. The use of the existing folded-diamond interchange reduces impacts to adjoining historic districts, forest, streams, forest, infrastructure and a local Superfund site. The existing interchange can remain with minor improvements to ramp termini.

- **Acuff Road Overpass and Access Road Connection to Kinser Pike:** Alternatives 4, 5, 6, and 7 recommend elimination of access at Acuff Road, with no connecting access roads.

- **Kinser Pike Interchange/Overpass and Western Extension:** An interchange was considered at this location as an alternative to an interchange at Walnut Street. A Kinser Pike interchange would include construction of an extension from the existing SR 37 and Kinser Pike intersection to the Walnut Street and Bayles Road intersection. During initial coordination, the City of Bloomington indicated their preference for a Kinser Pike interchange in support of their TIF district but has since withdrawn this support in favor of other locations. While a Kinser Pike interchange would reduce impacts in the Beanblossom Valley, the Kinser Pike location is along a karst terrain ridge that would overlook the Maple Grove Road Rural Historic District to the west of SR 37. Both the neighborhood association and the State Historic Preservation Officer (SHPO) commented on potentially increased noise and visual impacts to the district, related to both the interchange itself and the increased potential for induce growth to the west of existing SR 37. Alternative 4 includes an interchange at Kinser Pike, Alternatives 5 and 7 include an overpass at Kinser Pike, and Alternative 6 has neither an interchange nor an overpass at Kinser Pike.

- **Walnut Street Interchange/Overpass:** An interchange at this location is based upon the listing in the Tier 1 ROD, historically the gateway to Bloomington, and reuse of the historic Monroe County Bridge No. 913, and as part of a local access road across Beanblossom Valley. While there is an existing interchange at SR 37 and Walnut Street, it is a "partial" interchange with only a southbound exit ramp and bridge and a northbound entrance ramp. Either an interchange or overpass was included in all of the alternatives at Walnut Street. Alternatives 4 and 6 include an overpass at Walnut Street, Alternative 5 includes a new interchange at Walnut Street with redesigned structures/approaches to reduce the skew and avoid impacts to historic Monroe County Bridge No. 913, and Alternative 7 uses the existing partial interchange.

- **Western Access Road across Beanblossom Valley:** Alternatives 4 and 5 include a partial western access road from Sample Road to the Griffith Cemetery while Alternatives 6 and 7 retain a western access road across the valley. In addition, Alternative 6 would use existing southbound SR 37 lanes to further reduce potential cost and impacts but would require a design exception for maintaining the existing 5% grade.

- **Eastern Access Road across Beanblossom Valley:** Alternatives 4 and 5 include an eastern access road curving east around Hoosier Energy, while Alternatives 6 and 7 include an eastern access road continuously adjacent to I-69 to Sample Road. In addition, Alternative 6 would use existing northbound SR 37 lanes to further reduce potential cost and impacts but require a design exception for maintaining the existing 5% grade.

- **Sample Road/Chambers Pike Interchange/Overpass:** An interchange at this location is based upon the listing in the Tier 1 ROD, topographic and cemetery avoidance constraints, and to provide access to a cluster of churches, residences, and commercial parcels between Beanblossom Valley and the Morgan-Monroe State Forest. An interchange at the SR 37 and Sample Road intersection was included in all except one of the preliminary alternatives. Alternatives 4, 5, and 6 include elimination of a Chambers Pike interchange in favor of an interchange at Sample Road and a Chambers Pike overpass. Alternative 7 provides an interchange at Sample Road, but no interchange or overpass at Chambers Pike. It also recommended that the Sample Road interchange structure be shifted north to align with existing Sample Road and a proposed county road west of I-69, and that interchange layout options include a folded diamond or narrow/urban diamond to reduce significant fill and impacts in the southwest quadrant.

- **Morgan-Monroe State Forest Access Road:** The eastern access road through the Morgan-Monroe State Forest was eliminated in Alternatives 4, 5, 6, and 7 in favor of maintaining the existing bifurcation. In addition, Alternative 6 would use existing SR 37 lanes to further reduce potential cost and impacts, but would require a design exception for maintaining the existing 5% grade.

- **Bryant's Creek Road Overpass/Access Road:** While Alternative 7 includes an overpass at Bryant's Creek Road, Alternatives 4, 5 and 6 do not include an overpass. There would be an access on the west side of the mainline with Alternatives 4, 5, and 6, but there would be no eastern access road provided at Bryant's Creek Road; rather, landlocked parcels would be acquired.

- **Paragon Road/Liberty Church Road Interchange/Overpass:** A potential interchange at Paragon Road was included in Tier 1 and was retained as an access to the nearby Morgan-Monroe State Forest. An alternative interchange location at Liberty Church Road was included based upon support of Morgan County and Martinsville and local economic development, utilities, and City expansion plans. Indiana Department of Natural Resources (IDNR) has indicated that access via the Liberty Church location was preferable to Paragon Road due to the reduced impacts to the Morgan-Monroe State Forest. Alternative 4 includes an interchange at Paragon Road, with a Liberty Church Road overpass. Alternative 5 includes a Liberty Church Road interchange and Paragon Road overpass, and Alternatives 6 and 7 include only a Liberty Church Road interchange and eliminate both a Paragon Road interchange and overpass. All four alternatives include eastern and western access roads.

- **Access Roads between Liberty Church Road and SR 39:** Alternatives 4, 5, 6, and 7 include reducing the western access road to end at the Legendary Hills access point.

S.6.4.4 Development of Hybrid Alternative 8

INDOT and its project engineers conducted additional analyses on minimal impact Alternatives 6 and 7 in an attempt to optimize reuse of existing SR 37, reduce impacts and project costs. The result of those additional analyses was the development of a hybrid alternative. Designated as Alternative 8, this alternative is composed of desirable features of Alternatives 5, 6, and 7, taking into consideration the previously-considered Level 1 and Level 2 design exceptions. Alternative 8 was further refined, where possible, to minimize impacts, costs, and incorporate engineering and safety design considerations.

Alternative 8 has the same mainline typical rural and urban configurations as Alternatives 6 and 7. In some areas, Alternative 8 is identical to either Alternative 6 or Alternative 7; or, uses design features from Alternative 5; or, in some cases introduces new design features not present in the other alternatives. Based on costs and impact comparisons, Alternative 8 was designated as the Preferred Alternative in the DEIS. With Alternative 8, two options were included for the Walnut Street interchange: construction of a new full interchange (Option A); or, the use of the existing partial interchange (Option B). This provided flexibility in case the FHWA decided not to approve the use of the existing partial interchange at this location.

S.6.4.5 Refined Preferred Alternative 8

Comments on the DEIS generally supported Alternative 8 and offered recommendations to be considered in further refining this alternative to avoid or further reduce impacts and/or cost. This FEIS presents refinements to Alternative 8 that have been made since the issuance of the DEIS. Modifications reduce environmental impacts, improve local access, make minor modifications to the project design, reflect additional engineering and environmental analysis, and reduce project costs. These modifications are based on comments received on the DEIS; information received from CAC members, participating agencies and other local public officials; and additional engineering and environmental studies. The product of these efforts is Refined Preferred Alternative 8. The impacts associated with Refined Preferred Alternative 8 are presented in **Chapter 5**, *Environmental Consequences*, and compared herein to the impacts for Alternatives 4, 5, 6, 7, and 8 in **Chapter 6**, *Comparison of Alternatives*.

As discussed in **Section 6.4**, *Selection of the Preferred Alternative*, Refined Preferred Alternative 8 is essentially the same as Alternative 8, except with the following alignment modifications:

- **West Fullerton Pike**: Alternative 8 was tapered in this area on the west end of Fullerton Pike to tie into the existing Fullerton Pike alignment. This modification would also straighten the curve on West Fullerton Pike and shift it slightly to the north, avoiding two office buildings on the south side of West Fullerton Pike.

- **Access to the Hickory Heights Mobile Home Park via Barger Lane**: This mobile home park currently has access from Tapp Road via Barger Lane. With Alternative 8, access to the mobile home park was provided via West Maple Leaf Drive, through neighborhoods north of the mobile home park. In the Refined Preferred Alternative 8, access has been revised to connect with South Danlyn Road to the west of the mobile

home park, provide for shorter access between Tapp Road and the mobile home park and reduce the change to existing access. This revision reduces the distance of travel through neighborhoods in order to access I-69.

- **Wapehani Mountain Bike Park:** With Alternative 8, the park was avoided. Modifications in Refined Preferred Alternative 8 encroach into the edge of the park and use the same right-of-way limits along the east side of SR 37 as Alternative 7, and further reduce displacement impacts along the west side of SR 37 south of the park.

- **Sam's Club:** New access was added from eastbound 2nd Street to Sam's Club to provide right in/right out movement between the ramp intersections and Liberty Drive.

- **SR 45/2nd Street Interchange:** The existing bridge at SR 45/2nd Street will remain in place with some modifications to accommodate bicycle/pedestrian traffic across the bridge. The interchange ramps will be reconfigured for the split diamond interchange between SR 45/2nd Street and Tapp Road.

- **SR 48/3rd Street Interchange:** The existing interchange layout will remain in place with additional capacity added to the exit ramps. The left turn lanes on SR 48/3rd Street to the entrance ramps will be extended and the existing bridge will be widened to provide bicycle/pedestrian facilities.

- **N. Walnut Street Interchange Selection:** The use of the existing partial interchange was approved by FHWA and will be used at this location, consistent with Alternative 8 (Option B).

- **Eastern Local Access Road Removal:** The eastern local access road connecting Walnut Street to Connaught Road was removed due to the low volumes of traffic on the roadway, as well as the environmental impacts and costs associated with constructing the roadway.

- **Liberty Church Road Interchange Revision:** The interchange at Liberty Church Road was shifted north to minimize impacts to floodplains located in the southwest corner of the interchange.

In addition to these modifications, further refinements were made to the right-of-way along the alignment to minimize impacts to resources, reduce the number of displacements, as well as address access changes and roadway design revisions or corrections. Some bridges were also modified to allow for bicycle/pedestrian use.

Table S-1 summarizes the Section 5 Alternatives for Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8. The yellow shading in this table indicates the common features among the alternatives.

Table S-1: Summary of Section 5 Alternatives by Major Feature for Alternatives 4, 5, 6, 7, 8 and Refined Preferred Alternative 8

Major Feature Name	Existing Condition	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8 (Options A and B)	Refined Preferred Alternative 8
I-69 and SR 37	Not Applicable	Section 4 Interchange		Section 4 Interchange		Section 4 Interchange	
That Road	Intersection Free Flow SR 37	No I-69 Access; East Access Rd		No I-69 Access; East Access Rd		No I-69 Access; East Access Rd	
Rockport Road	Intersection Free Flow SR 37	Overpass		Overpass		Overpass	
Mainline (That Rd. to Fullerton Pike)	SR 37; Grass Median	Shift to East; Grass Median		Use SR 37 Pavement and Right-of-way; Median Barrier		Use SR 37 Pavement and Right-of-way; Median Barrier	
Fullerton Pike	Signalized Intersection	Folded Diamond Interchange		Double Folded Interchange	Double Folded Interchange; E. Fullerton Pk. Shift to South	Double Folded Interchange	
Mainline	SR 37; Grass Median	SR 37 Centered; Grass Median		Use SR 37 Pavement / Right-of-way		Use SR 37 Pavement/Right-of-way	
(Fullerton Pike to Arlington Rd.)				Median Barrier		Median Barrier	
(Arlington Rd. to Sample Rd.)				Shift West Guardrail	Guardrail	Shift West Guardrail	
Tapp Road	Signalized Intersection	Overpass; West turn lane	Split-Diamond Interchange (Controlled Access Roads)	Overpass	Split-Diamond Interchange (Controlled Access Roads and Barriers) w/ No Mainline Shift	Split-Diamond Interchange (Controlled Access Roads and Barriers) w/ Mainline Shift to the west	Split-Diamond Interchange (Controlled Access Roads and Barriers) w/ No Mainline Shift
SR 45/2nd Street	Existing Interchange	Tight Diamond Inter-change		Use Existing Interchange			
SR 48/3rd Street	Existing Interchange	Tight Diamond Interchange	Single Point Interchange	Use Existing Interchange; Potential for additional turning lanes		Use Existing Interchange; Potential additional turning lanes	
Vernal Pike	Signalized Intersection	Underpass		Underpass	Overpass	Overpass	
SR 46 Interchange	Existing Interchange	Use Existing Interchange		Use Existing Interchange		Use Existing Interchange	
Arlington Rd	Overpass	Overpass		Overpass		Overpass	
Acuff Rd	Intersection Free Flow SR 37	No I-69 Access		No I-69 Access		No I-69 Access	
Kinser Pike	Intersection Free Flow SR 37	Rural Diamond Interchange	Overpass	No I-69 Access; W. Access Road	Overpass	Overpass	
Mainline South Beanblossom Valley	SR 37 Grass Median; 5% Grade, SB Truck Lane	4% Cut/Fill and SB Truck Climbing Lane		Use Existing 5% Grade and SB Truck Lane	4% Cut/Fill and SB Truck Climbing Lane	Use Existing 5% Grade and SB Truck Lane	
N. Walnut Street	Existing Partial Interchange	Overpass	Single-Point or Rural Diamond Interchange	Overpass	Existing Partial Interchange	Option A: Single-Point or Rural Diamond Interchange Option B: Use Existing Partial Interchange	Existing Partial Interchange

Table S-1: Summary of Section 5 Alternatives by Major Feature for Alternatives 4, 5, 6, 7, 8 and Refined Preferred Alternative 8

Major Feature Name	Existing Condition	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8 (Options A and B)	Refined Preferred Alternative 8
Mainline North Beanblossom Valley	SR 37 Grass Median; 5% Grade, NB Truck Lane	4% Cut/Fill and NB Truck Climbing Lane		Use Existing 5% with NB Truck Lane	4% Cut/Fill and NB Truck Lane	Use Existing 5% with NB Truck Lane	
Sample Road	Intersection Free Flow SR 37	Rural Diamond Interchange		Folded Urban Interchange	Urban Diamond Interchange	Folded Urban Interchange	
Mainline Shift (Sample Rd. to Chambers Pike)	SR 37; Grass Median	Shift to West; Wide Grass Median; NB SR 37 as Access Rd		Use SR 37, Right-of-way, Grass Median; New SB Right-of-way E Access Rd w/ median	Use SR 37 Right-of-way; Median Barrier; Use SR 37 Right-of-way for E Access Rd w/ Barrier	Use SR 37, Right-of-way, Grass Median; New SB Right-of-way E Access Rd w/ median	
Chambers Pike	Intersection Free Flow SR 37	Overpass		Overpass	No I-69 Access; E/W access Rds	Overpass	
Mainline Shift (Chambers Pike to Bryant's Creek Rd.)	SR 37; Grass Median	3 lanes each side; 4% Cut/Fill		2 lanes; Use Existing 5% Grade; (SB Truck Ln)	2 lanes; 4% Cut/Fill; (SB Truck Ln)	2 lanes; Use Existing 5% Grade; (SB Truck Ln)	
Mainline (Bifurcation)	NB SR 37 Shoulder Guardrail	Medium width Shoulder/ Clear Zone (NB Guardrail)		NB Use SR 37 Shoulder Guardrail	NB Shoulder widening Guardrail	NB Use SR 37 Shoulder Guardrail	
	SB SR 37 Shoulder/ Clear Zone			SB Use SR 37 Shoulder/ Clear Zone Truck Lane		SB Use SR 37 Shoulder/ Clear Zone Truck Lane	
Bryant's Creek Rd	Intersection Free Flow SR 37	No I-69 Access; Eastside Property Acquisition; W Access Rd		No I-69 Access; E Acquisition W Access Rd	Overpass	No I-69 Access; E Acquisition; W Access Rd	
Mainline (Bryant's Crk Rd to Section 6)	SR 37; Grass Median	SR 37 Centered; Wide Grass Median		Use Existing SR 37 Pavement, Right-of-way, and Grass Median		Use Existing SR 37 Pavement, Right-of-way, and Grass Median	
Paragon Rd./ Pine Blvd.	Intersection Free Flow SR 37	Rural Diamond Interchange	Overpass	No I-69 Access; W Access Rd; Use existing E Access Rd		No I-69 Access; W Access Rd; Use existing E Access Rd	
Liberty Church Road	Intersection Free Flow SR 37	Overpass	Rural Diamond Interchange	Urban Diamond Interchange	Folded Diamond Interchange	Urban Diamond Interchange	
SR37 N of Legendary Hills Rd.	Intersection Free Flow SR 37	No I-69 Access; East Access Rd		No I-69 Access; East Access Rd		No I-69 Access; East Access Rd	
I-69 and SR 39	Existing Interchange	Section 6 Interchange		Section 6 Interchange		Section 6 Interchange	

Notes - Access roads generally parallel I-69 on either the E – east side, W- west side, or E/W - both sides of I-69 Mainline; Descriptive terms such as wide, rural, urban medium, tight, and narrow provide relative comparatives only and are not indicative of specific dimensions. See ***Figure 3-9****.*

Yellow shaded items share the same treatment.

S.6.4.6 Purpose and Need Performance Indicators Analysis

Alternatives 4 through 8 were analyzed using the purpose and need performance measures. Transportation performance goals in the Section 5 Study Area include improving accessibility, reducing congestion, and improving safety. Economic development measures evaluated access between key locations in the Section 5 project area. The results of the analysis indicate how well the build alternatives meet these stated goals (compared to the no build scenario). The effectiveness of each alternative in meeting these transportation performance and economic performance measures is addressed in **Section 3.3**, *Screening of Alternatives,* and **Section 5.5**, *Economic Impacts,* respectively.

All performance measures were calculated for a forecast year of 2035. All calculations assume that I-69 is completed from Evansville to Indianapolis. Transportation performance measures evaluated each alternative in its ability to reduce congestion and improve safety. All of the Section 5 build alternatives, as represented by Alternatives 4 through 8, provide significant benefits on performance measures addressing the Tier 2 local purpose and need goals (see **Section 2.5**, *Project Goals and Performance Measures*). All Build Alternatives provide substantial benefits on performance measures regarding local purpose and need goals related to congestion and safety measures (see **Section 3.3.1,** *Transportation Performance Indicators*, **Table 3-7** through **Table 3-9**). The following summarizes the results from the transportation performance analysis:

- **Total Congested Vehicle Miles Traveled (VMT):** The daily total congested VMT under the No Build Alternative would be reduced under all Build Alternatives. Alternative 4 shows the greatest reduction in congested vehicle miles traveled (86,014), while Alternative 6 shows the least reduction (51,978).

- **Total Congested Vehicle Hours Traveled (VHT)**: All Build Alternatives show a reduction in congested vehicle hours traveled when compared to the No Build Alternative. The greatest reduction in congested VHT is shown for Alternative 4 (2,398), and Alternative 6 shows the least reduction in congested VHT (1,003).

- **Safety**: The total numbers of crashes in the study area are expected to decrease for all Build Alternatives when compared to the No Build Alternative. Alternative 8 and Refined Preferred Alternative 8 are anticipated to have the greatest reduction in crashes (261), and Alternative 4 is expected to have the least reduction (228).

The following summarizes the results from the economic performance analysis.

- All of the Build Alternatives offer a similar level of increased accessibility between key local travel points of economic significance.

- All Build Alternatives would improve accessibility by reducing travel time to regional destinations – particularly Indianapolis and Evansville. With any of the Build

Alternatives, there would be a six to seven minute reduction in end-to-end travel time through the 21-mile Section 5 corridor when compared to the No Build Alternative.

- Improved access means better access to regional employment centers, business markets, and more efficient distribution of commercial goods.

S.7 Cost and Impact Analysis

The typical "comparison of alternatives" evaluates end-to-end alignment alternatives. For Section 5, this involves comparing alternatives extending the approximately 21 miles from just north of the intersection of SR 37 and Victor Pike, south of Bloomington, and continuing northward to just south of the existing interchange of SR 37 and SR 39 in Martinsville. This end-to-end comparison is appropriate for evaluating alternatives for which purpose and need is an evaluation criterion.

All alternatives in Section 5 have the same beginning and ending points and are approximately the same length. While the mainline of the alternatives are similar in that they follow SR 37, lane configurations, interchanges and interchange types, overpasses/underpasses, and access roads vary among the alternatives. **Table S-2** identifies the combination of interchanges and overpasses that are proposed for each alternative. These alternatives are the subject of the detailed impact analyses presented in **Chapter 5**, *Environmental Consequences*.

Table S-2: Section 5 Alternative Interchange and Roadway Overpass/Underpass Locations (South to North)

Alternative	Interchange Locations (interchange types)	Roadway Overpass/ Underpass Locations
Existing SR 37	• SR 45/2nd St. (double-loop diamond) • SR 48/3rd St. (urban diamond) • SR 46 (double folded diamond) • N. Walnut St.(partial)	• Arlington Rd.
Alternative 4	• Fullerton Pike (folded diamond) • SR 45/2nd St. (tight diamond) • SR 48/3rd St. (tight diamond) • SR 46 (double folded diamond) • Kinser Pike (rural diamond) • Sample Rd. (rural diamond) • Paragon Rd./Pine Blvd.(rural diamond)	• Rockport Rd. • Tapp Rd. • Vernal Pike • Arlington Rd. • N. Walnut St. • Chambers Pike • Liberty Church Rd.
Alternative 5	• Fullerton Pike (folded diamond) • Tapp Rd./SR 45/2nd St.(split diamond) • SR 48/3rd St. (single-point) • SR 46 (double folded diamond) • N. Walnut St. (single-point diamond) • Sample Rd. (rural diamond) • Liberty Church Rd. (rural diamond)	• Rockport Rd. • Vernal Pike • Arlington Rd. • Kinser Pike • Chambers Pike • Paragon Rd./ Pine Blvd.

Table S-2: Section 5 Alternative Interchange and Roadway Overpass/Underpass Locations (South to North)

Alternative	Interchange Locations (interchange types)	Roadway Overpass/ Underpass Locations
Alternative 6	• Fullerton Pike (double folded diamond) • SR 45/2nd St. (double-loop diamond) • SR 48/3rd St. (urban diamond) • SR 46 (double folded diamond) • Sample Rd. (folded diamond) • Liberty Church Rd. (urban diamond)	• Rockport Rd. • Tapp Rd. • Vernal Pike • Arlington Rd. • N. Walnut St. • Chambers Pike
Alternative 7	• Fullerton Pike (double folded diamond) • Tapp Rd./SR 45/2nd St.(split diamond) • SR 48/3rd St. (urban diamond) • SR 46 (double folded diamond) • N. Walnut St. (partial interchange) • Sample Rd.(urban diamond) • Liberty Church Rd. (folded diamond)	• Rockport Rd. • Vernal Pike • Arlington Rd. • Kinser Pike • Bryant's Creek Rd.
Alternative 8	• Fullerton Pike (double folded diamond) • Tapp Rd./SR 45/2nd St. (split diamond) • SR 48/3rd St. (urban diamond) • SR 46 (double folded diamond) • N. Walnut St. (partial interchange or single-point diamond) • Sample Rd. (folded diamond) • Liberty Church Rd.(urban diamond)	• Rockport Rd. • Vernal Pike • Arlington Rd. • Kinser Pike • Chambers Pike

The Section 5 corridor passes through a diverse environment with many different land uses, ranging from the typical urban/suburban environment in Bloomington to the rural environment south of Martinsville. Due to this diverse environment, it was appropriate to evaluate the alternatives within similar settings, as opposed to an end-to-end comparison. Thus, the alternatives for the Section 5 corridor were evaluated by subsection.

Six subsections, 5A through 5F, were delineated by identifying areas along the current SR 37 with similar planning, transportation, development and environmental features, refer to **Figure S-5**. This was done to provide a more detailed comparison of the features of each alternative, as well as to provide participating agencies and the public a way to evaluate how the alternatives would impact their specific areas. It should be noted that these subsection comparisons were not used to "piece together" the preferred alternative alignment by subsection. Rather, these subsection comparisons were used as part of determining the overall preferred alternative for the Section 5 corridor.

One advantage of upgrading the existing SR 37 alignment is the potential for re-use of the existing grade and pavement, with minimal rehabilitation. As part of the FEIS development, a

detailed evaluation of the existing pavement conditions was performed for I-69 Section 5. A Life Cycle Cost Analysis[7] was prepared for several pavement alternatives and is available by request through INDOT. The recommended pavement treatment details finalized for Refined Preferred Alternative 8 are summarized in **Appendix KK**, *Pavement Recommendations*, based on the data collected. Construction costs presented in this chapter reflect the savings that are realized by being able to re-use the existing SR 37 pavement, where warranted. For comparison purposes, these savings are also reflected in Alternative 8 (the DEIS Preferred Alternative) where it follows the same alignment.

Costs for Alternatives 4 through 8 decreased from those shown in the DEIS. These reductions occurred for the following reasons:

- Design and construction administration costs were reduced for all alternatives. These reduced costs are consistent with expected economies for the innovative financing and delivery of this project.

- As described for each subsection in **Section 6.3.4**, *Detailed Alternative Evaluation*, pavement re-use (using overlays on existing SR 37 pavement) provided additional savings for Alternative 8 and Refined Preferred Alternative 8. If such an approach were applied to Alternative 6, comparable savings in pavement costs could be realized. Pavement re-use would provide pavement cost reductions for Alternative 7, but these would be less than for Alternatives 6, 8 and Refined Preferred Alternative 8. Alternative 7 reconstructs some existing earthwork, such that pavement re-use would be less extensive than for these other alternatives. Pavement re-use is not possible for Alternatives 4 and 5, as these alternatives do not use existing SR 37 lane lines.

The following sections summarize the main features of the alternatives and compare the costs and impacts for each alternative within the same corridor subsection. For detailed information about the alternative alignments in each subsection, please refer to **Section 6.3.4**, *Detailed Alternative Evaluation*. The alternatives evaluated in the FEIS, as well as the human and environmental resource constraints, are presented in the tabbed alternative map sets located in **Chapter 3**, *Alternatives*. The alternatives and associated figures include:

- Alternatives 4 and 5, **Figure 3-11**.

- Alternatives 6 and 7, **Figure 3-12**.

- Alternative 8 and Refined Preferred Alternative 8, **Figure 3-13** and **Figure 3-14**.

[7] Indiana Department of Transportation, I-69, Section 5 FEIS Life Cycle Cost Analysis (Milepost 97.1 to Milepost 118.2), Morgan and Monroe Counties, IN. March 2013.

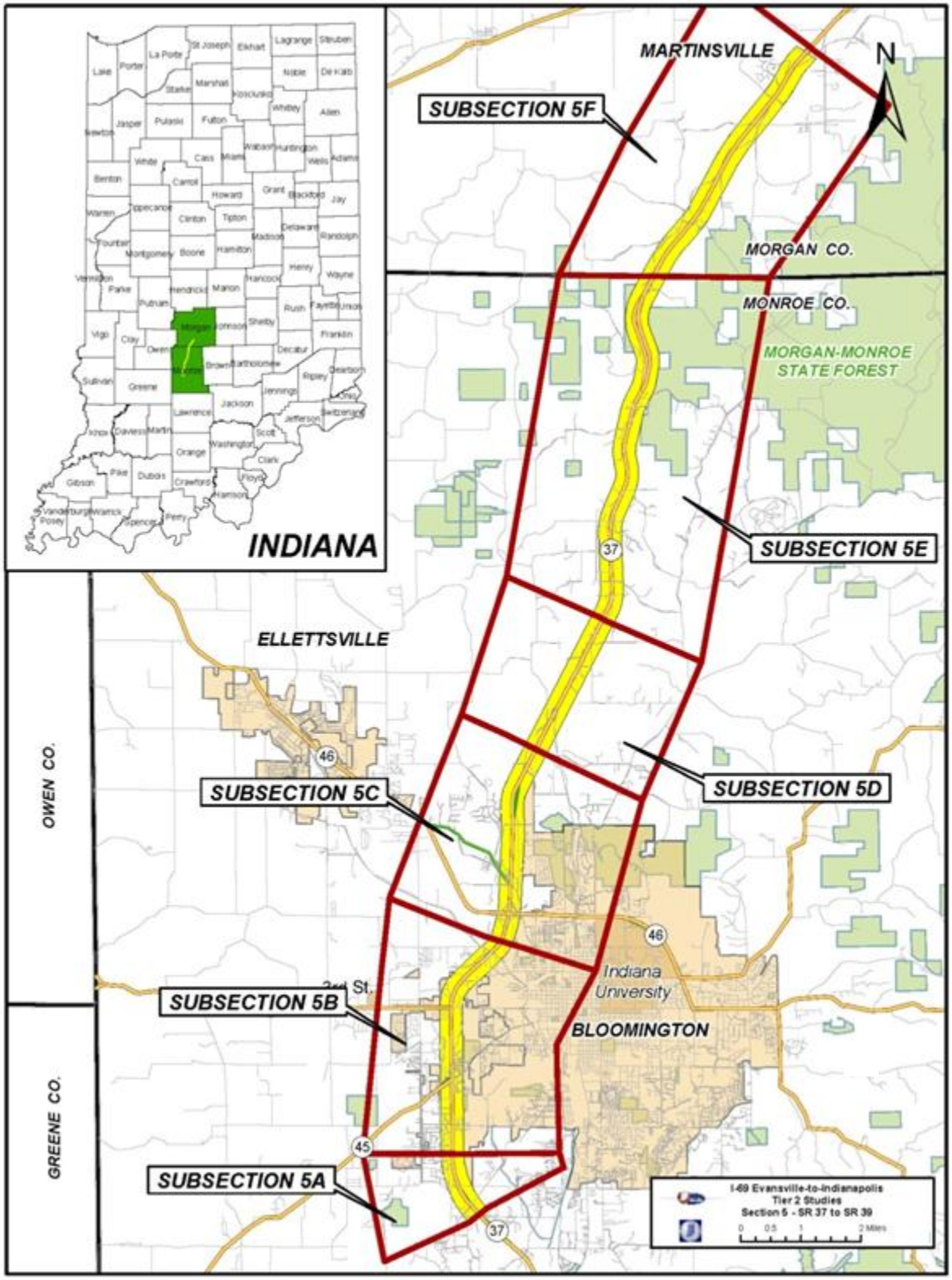

Figure S-5: Section 5 Subsection Study Areas

S.7.1 Subsection 5A

Subsection 5A begins at the intersection of SR 37/I-69 and That Road, and extends north/northwest along existing SR 37 approximately 1.1 miles, ending at a point approximately 0.55-mile north of Fullerton Pike and 0.45-mile south of Tapp Road (refer to **Figure S-5**). Because of its proximity to the SR 37/I-69 interchange, That Road would be closed. Rockport Road would be converted to an overpass for all the alternatives.

Alternatives 4 and 5 would shift the mainline to the east of the existing SR 37 alignment from just south of That Road to north of Fullerton Pike. Alternatives 4 and 5 use a folded diamond interchange at Fullerton Pike. On the east side of the mainline, Alternatives 4 and 5 would shift Fullerton Pike north of the existing alignment and acquire part of the North Clear Creek Historic Landscape District, a NRHP-eligible, Section 4(f) resource. In addition, a new local access road would be constructed on the southwest corner of the historic landscape district to provide access to an approximately 92-acre parcel. On the west side of the mainline, Alternatives 4 and 5 would be centered on the existing Fullerton Pike alignment.

Alternatives 6, 7, 8, and Refined Preferred Alternative 8 remain within the existing SR 37 right-of-way. Alternatives 6, 7, 8, and Refined Preferred Alternative 8 use a double folded interchange. Alternative 7 would shift Fullerton Pike south of its existing alignment on the east side of SR 37/I-69, avoiding the North Clear Creek Historic Landscape District, while Alternatives 6, 8, and Refined Preferred Alternative 8 would retain the existing Fullerton Pike alignment and would acquire a minor strip of right-of-way from the North Clear Creek Historic Landscape District, resulting in a No Adverse Effect determination and Section 4(f) *de minimis* impact. On the west side of the mainline, Fullerton Pike would remain on the existing alignment with Alternatives 6, 7, and 8, but be shifted slightly to the north with Refined Preferred Alternative 8. **Table S-3** provides a summary of cost and impacts for Subsection 5A by alternative.

Table S-3: Impacts for Subsection 5A

Alignment Alternatives	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Impacts/Design Criteria						
Costs (2015 dollars)*						
Right-of-Way Costs ($M)**	13.91M	13.47M	11.08M	11.80M	11.28M	8.08M
Construction/Design/Utility/ Admin Cost ($M)	47.30M	47.22M	36.01M	36.00M	31.61M	31.54M
Total Cost ($M, not including mitigation costs)	**61.21M**	**60.69M**	**47.09M**	**47.80M**	**42.89M**	**39.62M**
Right-of-Way (ac)	144.55	143.03	94.72	94.92	93.10	94.20
Displacements (#)						
Residential	22	21	20	25	20	16
Institutional	1	1	1	1	1	1
Business	14	14	12	11	12	4
Total Displacements	**37**	**36**	**33**	**37**	**33**	**21**
Noise Impacts (#)	13	12	25	25	29	23
Section 4(f)						
Park	No	No	No	No	No	No
Historic	Yes (Adverse)	Yes (Adverse)	*de minimis*	No (No Adverse)	*de minimis*	*de minimis*
Total Wetland (ac)						
Aquatic Bed Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Emergent Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Forested Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Scrub/Shrub Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Total Wetland Impacts	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Streams (lf)						
Ephemeral	5,255	5,270	2,696	2,508	2,701	2,678
Intermittent	550	547	552	559	552	551
Perennial	0	0	0	0	0	0
Total Stream Impacts	**5,805**	**5,817**	**3,248**	**3,067**	**3,253**	**3,229**
Total Natural Stream Impacts* **	**3,420**	**3,435**	**861**	**712**	**866**	**843**
Stream Relocations (lf)	**5,131**	**5,146**	**2,278**	**2,154**	**2,286**	**2,264**
Floodplain (ac)	0	0	0	0	0	0
Karst Features (#)	29	28	23	26	23	23
Karst Features (ac)	119.2	118.2	81.4	81.4	79.9	79.5
Cave Recharge Areas (#)	1	1	1	1	1	1
Wellhead Protection Areas (#)	0	0	0	0	0	0
Hazardous Material Sites (#)	1	1	1	0	1	1
Farmland (ac)	28.2	27.6	7.3	6.3	7.0	6.6
Managed Land (ac)	0.85	0.65	0.35	0.37	0.33	1.03
Upland Forest (ac)	37.35	36.98	18.14	17.33	17.17	16.73
Core Forest (ac)	0.00	0.00	0.00	0.00	0.00	0.00

** 2015 Dollars, excluding mitigation costs, $M = million dollars, ac = acres, lf = linear feet*

*** Right-of-way costs developed using criteria found in **Appendix D**, Cost Estimation Methodology, and include costs for acreage and improvements required for actual construction, relocation costs, costs for acquiring structures and improvements due to lost access, and administrative fees.*

**** Total Natural Stream Impacts are total streams minus concrete gutters, culverts, dump rock gutters, and roadside ditches.*

Note: All impacts are by preliminary right-of-way, and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

Alternatives 4 and 5 in Subsection 5A have the highest costs, require the most right-of-way acquisition, and have the highest impacts to most resources shown in **Table S-3**, due to a wider mainline footprint than Alternatives 6, 7, 8, and Refined Preferred Alternative 8, which incorporate the minimal impact design criteria.

SHPO concurred that Alternatives 4 and 5 would have an Adverse Effect on the setting of the North Clear Creek Historic Landscape District, an NRHP-eligible, Section 4(f) resource. Alternative 7 would avoid the resource and have No Adverse Effect on the historic district. Alternatives 6, 8, and Refined Preferred Alternative 8 would have a minor encroachment on the edge of the property, which was determined to be No Adverse Effect on the resource. The SHPO and Advisory Council on Historic Preservation (ACHP) have concurred with this No Adverse Effect finding, and that the minor right-of-way acquisition would be a *de minimis* impact to the Section 4(f) resource.

Staying within the existing Fullerton Pike alignment was important on the east side of the mainline, both to conform with local transportation plans and to be consistent with proposed local roadway improvements in the vicinity of Fullerton Pike. In addition, using the existing alignment reduced the number of residential displacements on the east side of the mainline. Alternatives 6, 8, and Refined Alternative 8 use the existing Fullerton Pike alignment and would be consistent with local transportation plans.

On the west side the mainline, Refined Preferred Alternative 8 would shift slightly to the north of the existing Fullerton Pike alignment. This shift avoided two office buildings, thus avoiding eight businesses displacements (refer to **Table S-3**). In addition, it straightened the curvature of the roadway, improved sight distances for safety, and allowed an increase in the design speed on Fullerton Pike.

S.7.2 Subsection 5B

Subsection 5B begins approximately 0.47-mile south of Tapp Road at the northern terminus of subsection 5A and extends north along SR 37 approximately 3.8 miles to a point approximately 0.38-mile north of the existing intersection of SR 37 and Vernal Pike (see to **Figure S-5**). This subsection includes the intersections/interchanges at Tapp Road, SR 45/2nd Street, SR 48/3rd Street, and Vernal Pike. SR 37 has two grade-separated crossings with railroad lines within this subsection. This subsection has relatively dense commercial and residential development, and the Wapehani Mountain Bike Park (a Section 4(f) resource) is located adjacent to existing SR 37.

With Alternative 4, the mainline would be shifted slightly to the west of the current SR 37 alignment in Subsection 5B, avoiding the Wapehani Mountain Bike Park. There would be an overpass at Tapp Road, and Tapp Road would be widened to provide an additional turning lane from SR 37 west to Leonard Springs Road. A new diamond interchange would be constructed to replace the current SR 45/2nd Street interchange and SR 48/3rd Street interchange, and an underpass would be constructed at Vernal Pike.

Alternative 5 would be shift the mainline west of the current SR 37 footprint, and would have two CD limited-access lanes for carrying traffic from Tapp Road to SR 45/2nd Street on each side

of the mainline. The alignment of Alternative 5 would have a minor right-of-way impact to the Wapehani Mountain Bike Park due to the CD lanes. With Alternative 5, a split-diamond interchange at Tapp Road and SR 45/2nd Street, a single-point interchange at SR 48/3rd Street, and an underpass at Vernal Pike are proposed.

Alternative 6 consists of three mainline travel lanes in each direction shifted slightly to the west of current SR 37's footprint. There would be an overpass at Tapp Road, and Alternative 6 would use the existing SR 45/2nd Street double-folded interchange, and the existing SR 48/3rd Street interchange. An underpass would be constructed at Vernal Pike. Because the mainline footprint of Alternative 6 is narrower than Alternatives 4 and 5, access would be maintained from Tapp Road to Yonkers Street. Alternatives 4, 5, 7, 8 and Refined Preferred Alternative 8 would eliminate the Tapp Road to Yonkers Street connection.

The mainline for Alternative 7 would stay on the current SR 37 alignment and would have CD lanes on each side of the mainline for carrying traffic between Tapp Road and SR 45/2nd Street. Alternative 7 would encroach upon the western boundary of the Wapehani Mountain Bike Park. A split-diamond interchange would be constructed between Tapp Road and SR 45/2nd Street and the existing SR 48/3rd Street interchange would be used. An overpass would be constructed at Vernal Pike.

Alternative 8 consists of the mainline travel lanes and two outside separate lanes for CD distributor lanes on each side of the mainline. The mainline would be shifted slightly west of the existing SR 37 alignment to avoid the Wapehani Mountain Bike Park. A split-diamond interchange would be constructed between Tapp Road and SR 45/2nd Street. Alternative 8 would use the existing SR 48/3rd Street interchange, and provide an overpass at Vernal Pike.

Refined Preferred Alternative 8 would have the same general features as Alternative 7, with modifications and refinements to further reduce impacts. Right-of-way was narrowed, where possible, to minimize impacts to residences, business properties and the Wapehani Mountain Bike Park. **Table S-4** provides a summary of cost and impacts for Subsection 5B by alternative.

Table S-4: Impacts for Subsection 5B

Alignment Alternatives	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Impacts/Design Criteria						
Costs (2015 dollars)*						
Right-of-Way Costs ($M)**	94.34M	76.77M	12.24M	15.79M	17.85M	14.33M
Construction/Design/Utility/ Admin Cost ($M)	114.59M	121.44M	74.93M	82.25M	71.79M	73.52M
Total Cost ($M, not including mitigation costs)	**208.93M**	**198.21M**	**87.17M**	**98.04M**	**89.64M**	**87.85M**
Right-of-Way (ac)	295.72	299.01	232.25	253.57	257.44	260.15
Displacements (#)						
Residential	87	85	36	40	49	38
Institutional	0	0	0	0	0	0
Business	38	35	5	5	4	3
Total Displacements	**125**	**120**	**41**	**45**	**53**	**41**
Noise Impacts (#)	230	221	369	332	318	292
Section 4(f)						
Park	No	*de minimis*	No	*de minimis*	No	*de minimis*
Historic	No	No	No	No	No	No
Total Wetland (ac)						
Aquatic Bed Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Emergent Wetland	0.03	0.06	0.01	0.01	0.01	0.01
Forested Wetland	0.06	0.23	0.00	0.11	0.07	0.07
Scrub/Shrub Wetland	0.01	0.01	0.00	0.00	0.00	0.00
Total Wetland Impacts	**0.10**	**0.30**	**0.01**	**0.12**	**0.08**	**0.08**
Total Streams (lf)						
Ephemeral	9,182	9,654	8,156	8,964	9,121	9,086
Intermittent	382	439	184	321	326	359
Perennial	0	0	0	0	0	0
Total Stream Impacts	**9,564**	**10,093**	**8,340**	**9,285**	**9,447**	**9,445**
Total Natural Stream Impacts* **	**1,822**	**2,267**	**732**	**1,407**	**1,527**	**1,476**
Stream Relocations (lf)	**6,358**	**6,643**	**5,365**	**5,828**	**5,941**	**5,847**
Floodplain (ac)	0.00	0.00	0.00	0.00	0.00	0.00
Karst Features (#)	32	35	31	33	32	33
Karst Features (ac)	161.70	160.00	124.00	130.90	131.00	134.50
Cave Recharge Areas (#)	0	0	0	0	0	0
Wellhead Protection Areas (#)	0	0	0	0	0	0
Hazardous Material Sites (#)	7	7	5	6	6	6
Farmland (ac)	0.0	0.0	0.0	0.0	0.0	0.0
Managed Land (ac)	1.51	3.54	0.61	3.28	1.11	3.23
Upland Forest (ac)	21.24	29.11	14.65	23.63	21.82	24.06
Core Forest (ac)	2.09	2.21	0.47	0.47	0.47	0.47

** 2015 Dollars, excluding mitigation costs, $M = million dollars, ac = acres, LF = linear feet*

*** Right-of-way costs developed using criteria found in **Appendix D**, Cost Estimation Methodology, and include costs for acreage and improvements required for actual construction, relocation costs, costs for acquiring structures and improvements due to lost access, and administrative fees.*

**** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches.*

Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

Alternatives 4 and 5 would have greater impacts to resource categories in Subsection 5B when compared to the minimal impact Alternatives 6, 7, 8 and Refined Preferred Alternative 8 due to the wider mainline footprint of Alternatives 4 and 5. Because of this wider footprint, additional right-of-way would be required with Alternatives 4 and 5, resulting in greater resource impacts and costs.

Wapehani Mountain Bike Park is a Section 4(f) resource located adjacent to and east of existing SR 37. Alternatives 4, 6, and 8 avoid the park by shifting the mainline to the west. However Alternatives 4, 6, and 8 have increased impacts on existing homes and commercial properties and would need to relocate major utilities such as natural gas and electric transmission lines. These alternatives would also require a new bridge structure at SR 45/2nd Street, increasing both project cost and resulting in travel detours/congestion during construction of a new overpass.

While Alternative 5 has less impact (1.10 acres) on the park than Alternative 7 (1.73 acres); it displaces an additional four residences west of I-69. The park owner/manager (City of Bloomington), INDOT and FHWA, agree that the Refined Preferred Alternative 8 has a *de minimis* impact and mitigation measures are being implemented as part of this agreement. For further information, refer to **Chapter 8**, *Section 4(f)*, and **Appendix QQ**, *Wapehani MOA*.

To maintain the existing alignment on SR 37 north of Wapehani Mountain Bike Park, Alternative 7 and Refined Preferred Alternative 8 would use a retaining wall along the western boundary of the Wapehani Hills and Oakdale Square Apartment Complexes to avoid additional displacements.

Alternative 6 would have an overpass at Tapp Road and use the existing SR 45/2nd Street interchange, while Alternatives 7 and 8 would provide a split-diamond interchange between Tapp Road and SR 45/2nd Street.

The split-diamond interchange at Tapp Road and SR 45/2nd Street allows Alternative 7 and 8 to provide an additional access point. This reduces traffic volumes on historically congested SR 45/2nd Street. A Tapp Road interchange supports recent infrastructure investments by the City of Bloomington, including upgrades on Tapp Road east of SR 37 and long-range plans for planned improvements in southern Bloomington (West Airport Road, West Tapp Road, West Country Club Drive/East Winslow Road/East Rogers Road).

Alternative 6 would not provide direct access from the interstate to the Tapp Road area (currently, Tapp Road has a signalized intersection with SR 37). In addition, the overpass at Tapp Road would not support the City of Bloomington and Monroe County's plans, as described in the previous paragraph.

Alternatives 4, 5, and 6 have an underpass of Vernal Pike/West 17th Street, while Alternatives 7, 8, and Refined Preferred Alternative 8 include an overpass at that location. Traffic analyses determined that an overpass was optimal in this area because it would provide better maintenance of traffic in this area during construction of the grade separation, and would not require the closure of North Crescent Road. Travelers could still access West 17th Street. In addition, the USEPA was concerned that an underpass would affect groundwater conditions and

monitoring at the Illinois Central Spring Recharge Area (ILCS) and Lemon Lane Landfill Superfund Site.[8] Therefore, an overpass is preferred at Vernal Pike.

S.7.3 Subsection 5C

Subsection 5C encompasses the portion of the project north of the intersection of SR 37 and Vernal Pike, traversing north approximately 3.3 miles north along SR 37 to a point approximately 0.38-mile north of Kinser Pike. This subsection includes the current interchanges/intersections at SR 46, Arlington Road, Acuff Road and Kinser Pike. The Maple Grove Road Rural Historic District is located west of SR 37 in this area. All alternatives used the existing SR 37 right-of-way boundary on the west side to avoid impacts to the historic district.

For all alternatives, the existing SR 46 interchange and Arlington Road overpass would remain in its current location. With Alternatives 4 and 5, the existing overpass at Arlington Road would be raised. Alternatives 6, 7, 8, and Refined Preferred Alternative 8 would reuse the existing overpass at Arlington Road by lowering mainline I-69 elevations to reduce traffic disruptions and maintain east/west connectivity. Access would be closed on each side of the mainline at Acuff Road with all alternatives, with traffic re-routed to either Kinser Pike or Maple Grove Road. Alternative 4 would have a rural diamond interchange at Kinser Pike. Alternative 6 would not include an interchange or overpass at Kinser Pike, but would provide an access road connection from the Walnut Street to properties on the west side of SR 37 with upgrades to West Kinser Pike /Bottom Road. Alternatives 5, 7, 8, and Refined Preferred Alternative 8 would have an overpass of Kinser Pike, and Kinser Pike on the west side of I-69 would be used to access the Walnut Street interchange. **Table S-5** shows the impacts from the Build Alternatives in Subsection 5C.

[8] Refer to USEPA comment letter regarding Draft Karst Reports for Sections 4 and 5, dated June 27, 2008.

Table S-5: Impacts for Subsection 5C

Alignment Alternatives	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Impacts/Design Criteria						
Costs (2015 dollars)*						
Right-of-Way Costs ($M)**	7.31M	4.62M	1.13M	1.46M	1.49M	0.98M
Construction/Design/Utility/ Admin Cost ($M)	82.80M	63.97M	34.54M	38.69M	29.69M	32.46M
Total Cost ($M, not including mitigation costs)	**90.11M**	**68.59M**	**35.67M**	**40.15M**	**31.18M**	**33.44M**
Right-of-Way (ac)	282.58	221.37	191.57	195.64	195.14	194.62
Displacements (#)						
Residential	20	13	2	3	3	2
Institutional	0	0	0	0	0	0
Business	5	4	0	0	0	0
Total Displacements	**25**	**17**	**2**	**3**	**3**	**2**
Noise Impacts (#)	17	20	25	26	26	17
Section 4(f)						
Park	No	No	No	No	No	No
Historic	No	No	No	No	No	No
Total Wetland (ac)						
Aquatic Bed Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Emergent Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Forested Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Scrub/Shrub Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Total Wetland Impacts	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Streams (lf)						
Ephemeral	8,091	6,392	5,680	5,696	5,692	5,610
Intermittent	0	0	0	0	0	0
Perennial	411	0	0	0	0	0
Total Stream Impacts	**8,502**	**6,392**	**5,680**	**5,696**	**5,692**	**5,610**
Total Natural Stream Impacts* **	**3,623**	**1,576**	**930**	**946**	**942**	**860**
Stream Relocations (lf)	**3,744**	**2,676**	**2,063**	**2,079**	**2,083**	**2,066**
Floodplain (ac)	10.04	0.00	0.00	0.00	0.00	0.00
Karst Features (#)	41	33	24	24	24	23
Karst Features (ac)	121.80	115.70	107.30	107.40	107.30	107.30
Cave Recharge Areas (#)	0	0	0	0	0	0
Wellhead Protection Areas (#)	0	0	0	0	0	0
Hazardous Material Sites (#)	0	0	0	0	0	0
Farmland (ac)	42.1	10.5	1.0	1.4	1.3	1.3
Managed Land (ac)	0.60	0.00	0.00	0.00	0.00	0.00
Upland Forest (ac)	30.74	16.50	11.15	12.65	12.22	12.17
Core Forest (ac)	2.64	2.59	2.44	2.44	2.44	2.44

** 2015 Dollars, excluding mitigation costs, $M = million dollars, ac = acres, LF = linear feet*

*** Right-of-way costs developed using criteria found in **Appendix D**, Cost Estimation Methodology, and include costs for acreage and improvements required for actual construction, relocation costs, costs for acquiring structures and improvements due to lost access, and administrative fees.*

**** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches.*

Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

Alternative 4 would have the greatest resource impacts of all the alternatives in this Subsection due to the added interchange at Kinser Pike. Monroe County and the City of Bloomington both support an interchange at Walnut Street rather than Kinser Pike. The partial interchange at Walnut Street is viewed as a gateway to Bloomington, and diverts traffic to downtown Bloomington from other interchanges farther south on I-69 such as SR 46.

Alternatives 5, 7, 8, and Refined Preferred Alternative include an overpass of Kinser Pike over the mainline, and West Kinser Pike would be used to access the interchange at Walnut Street. Alternative 5 would require more new right-of-way than Alternatives 7, 8 and Refined Preferred Alternative 8, and has 14 to 15 additional displacements when compared to these alternatives (refer to **Table S-5**).

Alternative 6 would not have access or an overpass Kinser Pike and would replace the existing partial interchange at Walnut with an overpass. An overpass or interchange at Kinser Pike maintains connectivity and access in the area, and it would provide access to Bloomington High School North, three places of worship, a business center, and a medical facility off of Prow Road. In addition, the Bloomington Wastewater Treatment Plant is located on the west side of the SR 37, and without an overpass or interchange at Kinser Pike it would be more difficult to access this facility. Without an overpass or interchange, access to these places on each side of the mainline would be limited because access at Acuff Road would be closed across I-69 with all the Build Alternatives. Even though Alternative 6 would have the fewest impacts among all the alternatives, it would not provide the connectivity needed to access facilities on the eastern and western side of the mainline.

S.7.4 Subsection 5D

Subsection 5D begins at the northern terminus of Subsection 5C at a point approximately 0.38-mile north of Kinser Pike and traverses north along SR 37/I-69 about 2.4 miles before ending approximately 0.63-mile south of the existing intersection of SR 37/I-69 and Sample Road. This subsection includes the existing partial Walnut Street interchange. This area is located in the Beanblossom Valley, which has large amounts of floodplains, streams, and wetlands, as well as karst features. The historic Monroe County Bridge No. 913 is located to the east of SR 37 in the vicinity of the Walnut Street interchange. Griffith Cemetery is located to the west side of SR 37 off Griffith Cemetery Road. All alternatives avoid this cemetery.

The mainline for all the alignments generally is centered on the existing SR 37 alignment through Subsection 5D.

Alternatives 4 and 6 would remove the existing partial interchange at Walnut Street, and provide an overpass. Alternative 5 and Alternative 8 – Option A would upgrade the existing partial interchange at Walnut Street to a full single point or rural diamond interchange. Alternatives 7, 8 – Option B, and Refined Preferred Alternative 8 would reuse the existing partial interchange at Walnut Street. (*Note: both the full and partial interchanges were considered as part of the DEIS. Prior to issuing the DEIS, the FHWA had not approved the use of the partial interchange. In February 2013, the FHWA approved the use of the partial interchange, and this design element has been incorporated into the Refined Preferred Alternative 8.)*

Local access roads would be constructed to provide access residences and businesses. Alternatives 6, 7, and 8 (Option A or B) would have an eastern local access road that would extend from north of Bridge No. 913 and parallel to SR 37/I-69 north toward the Sample Road interchange. With Alternatives 4 and 5 this access road would go to the east of the Hoosier Energy facility. At the same location, a west side local access road starts where the east side access road turns east around Hoosier Energy. The west access road and parallels SR 37/I-69 north toward the Sample Road interchange. This west side local access road has a small shift to the west to avoid the Griffith Cemetery. Refined Preferred Alternative 8 would not have the portion of the eastern local access road from Walnut Street to Connaught Road. **Table S-6** lists the impacts to resources for the alternatives in Subsection 5D.

Table S-6: Impacts for Subsection 5D

Alignment Alternatives	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8 Option A	Alt. 8 Option B	Refined Preferred Alt. 8
Impacts/Design Criteria							
Costs (2015 dollars)*							
Right-of-Way Costs ($M)**	7.99M	9.10M	6.82M	4.27M	6.14M	5.51M	4.75M
Construction/Design/Utility/ Admin Cost ($M)	84.68M	115.87M	80.04M	68.87M	93.72M	55.90M	45.35M
Total Cost ($M, not including mitigation costs)	**92.67M**	**124.97M**	**86.86M**	**73.14M**	**99.86M**	**61.41M**	**50.10M**
Right-of-Way (ac)	190.19	218.40	176.73	147.12	176.12	148.44	129.13
Displacements (#)							
Residential	29	31	17	10	17	16	13
Institutional	0	0	0	0	0	0	0
Business	1	1	0	0	0	0	0
Total Displacements	**30**	**32**	**17**	**10**	**17**	**16**	**13**
Noise Impacts (#)	1	1	2	7	3	3	8
Section 4(f)							
Park	No	No	No	No	No	No	No
Historic	No	No	No	No	No	No	No
Total Wetland (ac)							
Aquatic Bed Wetland	0.20	0.40	0.17	0.00	0.14	0.13	0.02
Emergent Wetland	2.73	4.36	3.63	2.17	3.19	2.31	1.47
Forested Wetland	6.18	8.57	5.76	1.31	4.99	1.55	0.31
Scrub/Shrub Wetland	0.07	0.07	0.09	0.08	0.07	0.07	0.04
Total Wetland Impacts	**9.18**	**13.40**	**9.65**	**3.56**	**8.39**	**4.06**	**1.84**
Total Streams (lf)							
Ephemeral	13,249	14,553	11,802	10,813	11,979	11,146	9,279
Intermittent	0	0	0	0	0	0	0
Perennial	1,861	2,308	2,198	2,086	2,204	1,932	1,656
Total Stream Impacts	15,110	16,861	14,000	12,899	14,183	13,078	10,935
Total Natural Stream Impacts* **	**8,351**	**8,910**	**6,223**	**5,701**	**6,541**	**6,143**	**4,197**
Stream Relocations (lf)	10,310	11,466	9,635	8,665	9,847	9,155	7,464
Floodplain (ac)	77.04	102.68	87.05	65.96	88.09	61.86	47.77
Karst Features (#)	4	4	3	3	3	3	2
Karst Features (ac)	0.80	0.80	0.20	0.20	0.20	0.20	0.10
Cave Recharge Areas (#)	0	0	0	0	0	0	0
Wellhead Protection Areas (#)	0	0	0	0	0	0	0
Hazardous Material Sites (#)	1	1	1	1	1	1	1
Farmland (ac)	10.1	17.3	11.3	6.7	13.2	2.3	0.6
Managed Land (ac)	0.06	0.18	0.00	0.06	0.01	0.01	0.00
Upland Forest (ac)	56.42	63.11	40.03	32.62	42.53	38.78	26.76
Core Forest (ac)	1.82	2.33	1.53	0.82	1.21	1.32	0.04

** 2015 Dollars, excluding mitigation costs, $M = million dollars, ac = acres, LF = linear feet*

*** Right-of-way costs developed using criteria found in **Appendix D**, Cost Estimation Methodology, and include costs for acreage and improvements required for actual construction, relocation costs, costs for acquiring structures and improvements due to lost access, and administrative fees.*

**** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches.*

Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

Alternatives 4 and 5 in Subsection 5D have wider mainlines and local access road setback distances and require the most right-of-way acquisition and displacements, and have the highest impacts to resources shown in **Table S-6**, with the exception of noise impacts. The noise impacts are reduced in Alternatives 4 and 5 since their increased displacements have removed receptors that are impacted under Alternatives 6, 7, 8, and Refined Preferred Alternative 8. Among all the alternatives, the Refined Preferred Alternative 8 would have the lowest impacts. The use of the existing partial interchange and removal of a portion of the eastern local access road between Walnut Street and Connaught Road resulted in reductions to most resources, particularly, wetlands, streams, floodplains, and uplands forests.

Alternatives 5 and 8 – Option A would provide a full interchange at Walnut Street, which did not require the approval of the FHWA and was initially supported by both the City of Bloomington and Monroe County. However, there are large wetland complexes and floodplains in the vicinity of this interchange, which limits the potential for development. The City and County stated it would be supportive of maintaining the existing interchange if needed to reduce resource impacts. The FHWA approved the use of the existing partial interchange at Walnut Street in February 2013. The use of the existing partial interchange reduces costs, impacts, and continues to provide access to downtown Bloomington from SR 37/I-69.

S.7.5 Subsection 5E

Subsection 5E begins at the northern terminus of Subsection 5D at a point approximately 0.63-mile south of the existing intersection of SR 37 and Sample Road and proceeds north along SR 37 for approximately 5.9 miles, ending at the Monroe/Morgan County line. This subsection includes the intersections of Sample Road, Chambers Pike, Bryant's Creek Road, and Old SR 37. It passes through the Morgan-Monroe State Forest. There is also scattered residential and business development along the existing roadway.

The mainline of Alternatives 4 and 5 both would shift slightly to the west of the existing SR 37 from the beginning of Section 5E north to Chambers Pike, then shift back to the existing SR 37 alignment. Alternatives 6, 7, 8, and Refined Preferred Alternative 8 would stay centered mostly on the existing SR 37 alignment. Alternatives 6, 8, and Refined Preferred Alternative 8 re-use the existing pavement and grade of SR 37 through this Subsection. For further details, please see **Section 6.3.4.5,** *Subsection 5E*.

At Sample Road, all alternatives would have an interchange. Alternatives 4 and 5 would have a rural diamond interchange; Alternatives 6, 8, and Refined Preferred Alternative 8 would have a folded urban interchange; and, Alternative 7 would have an urban diamond interchange. An overpass would be constructed with Alternatives 4, 5, 6, 8, and Refined Preferred Alternative 8 at Chambers Pike, and there would be no access to I-69 at Bryant's Creek Road. Instead, there would be an access road on the west side of I-69, and landlocked parcels would be acquired on the east side of I-69. Alternative 7 would have local access roads on the eastern and western side of Chambers Pike, and would provide an overpass on Bryant's Creek Road, connecting it to Turkey Track Road on the west side of I-69. Local access roads would be constructed on both sides of the mainline from Sample Road to Chambers Pike. **Table S-7** summarizes the impacts for Subsection 5E.

Table S-7: Impacts for Subsection 5E

Alignment Alternatives	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Impacts/Design Criteria						
Costs (2015 dollars)*						
Right-of-Way Costs ($M)**	28.19M	27.00M	18.45M	12.92M	17.74M	14.01M
Construction/Design/Utility/ Admin Cost ($M)	110.64M	110.24M	92.21M	88.44M	78.57M	81.60M
Total Cost ($M, not including mitigation costs)	**138.83M**	**137.24M**	**110.66M**	**101.36M**	**96.31M**	**95.61M**
Right-of-Way (ac)	490.66	486.94	370.52	338.33	366.94	364.55
Displacements (#)						
Residential	48	49	36	23	36	28
Institutional	1	1	0	0	0	0
Business	13	13	10	5	10	8
Total Displacements	**62**	**63**	**46**	**28**	**46**	**36**
Noise Impacts (#)	19	15	27	34	24	33
Section 4(f)						
Park	No	No	No	No	No	No
Historic	No	No	No	No	No	No
Total Wetland (ac)***						
Aquatic Bed Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Emergent Wetland	0.14	0.14	0.14	0.09	0.14	0.14
Forested Wetland	0.32	0.32	0.00	0.22	0.21	0.21
Scrub/Shrub Wetland	0.88	0.88	0.88	0.88	0.88	0.88
Total Wetland Impacts	**1.34**	**1.34**	**1.02**	**1.19**	**1.23**	**1.23**
Total Streams (lf)***						
Ephemeral	29,326	29,171	24,376	23,020	24,255	23,573
Intermittent	9,678	9,632	7,515	8,188	7,518	7,443
Perennial	480	534	455	639	447	447
Total Stream Impacts	39,484	39,337	32,346	31,847	32,220	31,463
Total Natural Stream Impacts**	**22,475**	**22,329**	**15,425**	**14,961**	**15,244**	**14,487**
Stream Relocations (lf)***	28,243	28,095	21,033	20,963	21,092	20,570
Floodplain (ac)	6.61	6.64	5.90	6.94	5.88	5.88
Karst Features (#)	38	38	28	27	28	29
Karst Features (ac)	36.20	35.50	25.60	20.40	25.30	25.90
Cave Recharge Areas (#)	0	0	0	0	0	0
Wellhead Protection Areas (#)	0	0	0	0	0	0
Hazardous Material Sites (#)	1	1	1	1	1	1
Farmland (ac)	16.6	16.3	7.1	8.6	7.1	7.1
Managed Land (ac)	15.90	13.95	2.68	0.36	1.55	1.55
Upland Forest (ac)***	187.48	185.13	111.85	102.16	110.49	107.49
Core Forest (ac)	59.14	57.85	32.20	31.47	31.44	29.64

** 2015 Dollars, excluding mitigation costs, $M = million dollars, ac = acres, LF = linear feet*

*** Right-of-way costs developed using criteria found in **Appendix D**, Cost Estimation Methodology, and include costs for acreage and improvements required for actual construction, relocation costs, costs for acquiring structures and improvements due to lost access, and administrative fees.*

**** Calculations include bifurcation area in Subsection 5E.*

***** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches.*

Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

Because of the slight shift off of the current SR 37 alignment, the rural diamond interchange, and the larger typical section footprint, Alternatives 4 and 5 would have the highest amount of impacts to most resources, including wetlands, streams, farmlands, managed lands, upland forest, and core forests, as well as the highest costs.

Alternative 7 has an urban diamond interchange at Sample Road that would have more impacts to natural resources than Alternatives 6, 8, and Refined Preferred Alternative 8, which have a double folded diamond interchange that would avoid some resources in the southwest quadrant of the interchange. In addition, Alternative 7 requires reconstructing the mainline to change the current SR 37 grade of five percent to four percent, and would not re-use the existing pavement, increasing construction costs compared to Alternatives 6, 8, and Refined Preferred Alternative 8.

Alternative 7 provides an overpass at Bryant's Creek Road. Alternatives 4, 5, 6, 8, and Refined Preferred Alternative 8 all have an overpass at Chambers Pike, which was requested by Hoosier Energy, emergency service providers, and local residents to maintain connectivity in the area. In addition, Chambers Pike carries more traffic than Bryant's Creek Road, so an overpass would provide better traffic flow throughout the area.

Alternative 7 in Subsection 5E would include several design features (more closely-spaced lanes with a barrier separation between I-69 and local access roads) which have a narrower typical section. However, these affect the setting and feel of the area, have safety ramifications, and restrict access. This design is more in keeping with an urban setting than a rural setting.

S.7.6 Subsection 5F

Subsection 5F begins at the northern terminus of Subsection 5E at the Monroe/Morgan county line and follows SR 37 approximately for 4.6 miles north, ending at the southern end of the bridge carrying SR 37 over Indian Creek. This subsection includes the major intersections of Paragon Road/Pine Boulevard and Liberty Church Road. All of the alternatives would be centered on the existing SR 37 alignment.

Alternative 4 has a rural diamond interchange at Paragon Road/Pine Boulevard, and an overpass on Liberty Church Road. All the other alternatives have an overpass at Paragon Road/Pine Boulevard. Alternative 5 would have a rural diamond interchange shifted north of the existing Liberty Church Road/Godsey Road intersection with SR 37. Alternatives 6 and 8 would have a medium (urban) diamond interchange centered on the existing Liberty Church Road/Godsey Road intersection. Alternative 7 would have a folded diamond interchange, and Refined Preferred Alternative 8 would have an urban diamond interchange, both shifted slightly north of the existing Liberty Church Road/Godsey Road intersection.

All alternatives close access to Cooksey Lane/Petro Road; landlocked properties would be acquired. Alternative 6 would provide a new local access road connecting Turkey Track Road north to the Liberty Church Road interchange. New local access roads would be constructed on both sides of the mainline from Paragon Road/Pine Boulevard and extend north to connect to the Liberty Church Road interchange. The local access road on the west side would continue past the

Liberty Church Road interchange to Legendary Hills Drive, while the east side local access would continue beyond the Liberty Church Road interchange to provide access to Old SR 37 by the Hillview Motel. The east side local access road would shift around the Stitt-Maxwell cemetery. **Table S-8** presents the impacts for Subsection 5F by alternative.

Table S-8: Impacts for Subsection 5F

Alignment Alternatives	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Impacts/Design Criteria						
Costs (2015 dollars)*						
Right-of-Way Costs ($M)**	15.23M	14.59M	10.77M	9.62M	10.57M	8.06M
Construction/Design/Utility/ Admin Cost ($M)	105.61M	116.70M	78.11M	77.96M	65.94M	62.97M
Total Cost ($M, not including mitigation costs)	**120.84M**	**131.30M**	**88.88M**	**87.58M**	**76.51M**	**71.03M**
Right-of-Way (ac)	364.40	360.63	254.36	262.12	257.31	257.00
Displacements (#)						
Residential	43	36	27	22	26	22
Institutional	1	1	0	0	0	0
Business	6	4	6	6	6	2
Total Displacements	**50**	**41**	**33**	**28**	**32**	**24**
Noise Impacts (#)	16	34	28	28	30	45
Section 4(f)						
Park	No	No	No	No	No	No
Historic	No	No	No	No	No	No
Total Wetland (ac)						
Aquatic Bed Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Emergent Wetland	0.71	0.64	0.16	0.16	0.14	0.16
Forested Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Scrub/Shrub Wetland	0.37	0.38	0.12	0.15	0.12	0.12
Total Wetland Impacts	**1.08**	**1.02**	**0.28**	**0.31**	**0.26**	**0.28**
Total Streams (lf)						
Ephemeral	22,329	18,755	15,704	15,803	15,758	15,466
Intermittent	4,374	4,198	4,664	3,568	4,671	3,509
Perennial	1,277	1,712	1,210	1,126	1,180	925
Total Stream Impacts	27,980	24,665	21,578	20,497	21,609	19,900
Total Natural Stream Impacts* **	12,149	9,119	6,225	5,131	6,256	4,526
Stream Relocations (lf)	19,677	14,649	15,183	13,671	15,231	13,418
Floodplain (ac)	31.86	36.18	34.03	26.79	34.55	21.50
Karst Features (#)	0	0	0	0	0	0
Karst Features (ac)	0.00	0.00	0.00	0.00	0.00	0.00
Cave Recharge Areas (#)	0	0	0	0	0	0
Wellhead Protection Areas (#)	0	0	0	0	0	0
Hazardous Material Sites (#)	1	1	1	1	1	1
Farmland (ac)	52.4	88.5	38.7	47.4	38.8	44.3
Managed Land (ac)	7.40	7.77	2.49	2.42	2.48	2.48
Upland Forest (ac)	99.93	64.84	42.79	44.55	45.09	40.45
Core Forest (ac)	21.54	11.84	9.24	9.32	9.30	9.25

** 2015 Dollars, excluding mitigation costs, $M = million dollars, ac = acres, LF = linear feet*

*** Right-of-way costs developed using criteria found in **Appendix D**, Cost Estimation Methodology, and include costs for acreage and improvements required for actual construction, relocation costs, costs for acquiring structures and improvements due to lost access, and administrative fees.*

**** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches.*

Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

Due to the wider mainline footprint and the interchange/overpass combination at either Paragon Boulevard or Liberty Church Road (as described earlier), Alternatives 4 and 5 would result in greater impacts to resources due to the additional right-of-way needed when compared to minimal impact Alternatives 6, 7, 8, and Refined Preferred Alternative 8.

Alternative 7 and Refined Preferred Alternative 8 would shift the Liberty Church Road interchange slightly north, avoiding streams and floodplains located in the southwest quadrant of the existing intersection between Liberty Church Road and SR 37. Stream impacts are less than those associated with Alternatives 6 and 8. However, farmland impacts are increased with Alternative 7 and Refined Preferred Alternative 8, by approximately 6 to 9 acres. Overall, Refined Preferred Alternative 8 has the least amount of impacts to displacements, streams, floodplains, and upland forests compared to the other minimal impact alternatives.

The City of Martinsville has development plans in the vicinity of Liberty Church Road. The City has extended utilities and is in the process of annexing areas east of existing SR 37. The area west of SR 37 at Liberty Church Road/Godsey Road has limited development potential given the floodplains nearby. Alternative 4 would not provide interstate access at Liberty Church Road, and is inconsistent with the development plans of Martinsville. IDNR also indicated a preference for interstate access at Liberty Church Road rather than at Paragon Road/Pine Boulevard due to the proximity to the Morgan-Monroe State Forest and the potential for induced development if an interchange were located at Paragon Road/Pine Boulevard. In addition, Liberty Church Road has higher traffic volumes than Paragon Road/Pine Boulevard.

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8 all provide interchange access at Liberty Church Road. While Alternatives 6 and 8 center the new interchange at the existing Liberty Church Road/Godsey Road intersection with SR 37, the new interchange for Refined Preferred Alternative 8 would be shifted approximately 700 feet north of the existing intersection to minimize floodplain and stream impacts.

S.7.7 Overall Impacts by Alternative

Table S-9 provides a summary of the overall impacts by alternative.

Table S-9: Alternatives Impact Summary of all Subsections

Alignment Alternatives	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8 Option A	Alt. 8 Option B	Refined Preferred Alt. 8
Impacts/Design Criteria							
Costs (2015 dollars)*							
Construction ($M)	454.16M	480.64M	328.35M	324.86M	309.66M	277.02M	271.29M
Design ($M)	33.72M	35.52M	24.50M	24.29M	22.89M	20.59M	20.24M
Construction Agency Administration ($M)	21.63M	22.89M	15.64M	15.47M	14.74M	13.19M	12.91M
Right-of-Way Costs ($M)**	166.97M	145.56M	60.49M	55.86M	65.08M	64.44M	50.21M
Utility Relocation ($M)	36.11M	36.39M	27.35M	27.59M	24.02M	22.70M	23.00M
Mitigation ($M)	29.16M	27.95M	17.36M	16.68M	17.88M	17.02M	16.09M
Total Cost ($M)	**741.75M**	**748.95M**	**473.69M**	**464.75M**	**454.27M**	**414.96M**	**393.74M**
Right-of-Way (ac)	1768.10	1729.38	1320.15	1291.70	1346.05	1318.37	1299.65
Displacements (#)							
Residential	249	235	138	123	151	150	119
Institutional	3	3	1	1	1	1	1
Business	77	71	33	27	32	32	17
Total Displacements	329	309	172	151	184	183	137
Noise Impacts (#)	296	303	476	452	430	430	418
Section 4(f)							
Park	No	*de minimis*	No	*de minimis*	No	No	*de minimis*
Historic	Yes (Adverse)	Yes (Adverse)	*de minimis*	No (No Adverse)	*de minimis*	*de minimis*	*de minimis*
Total Wetland (ac)***							
Aquatic Bed Wetland	0.20	0.40	0.17	0.00	0.14	0.13	0.02
Emergent Wetland	3.61	5.20	3.94	2.43	3.48	2.60	1.78
Forested Wetland	6.56	9.12	5.76	1.64	5.27	1.83	0.59
Scrub/Shrub Wetland	1.33	1.34	1.09	1.11	1.07	1.07	1.04
Total Wetland Impacts	11.70	16.06	10.96	5.18	9.96	5.63	3.43
Total Streams (lf)***							
Ephemeral	87,432	83,795	68,414	66,804	69,506	68,673	65,692
Intermittent	14,984	14,816	12,915	12,636	13,067	13,067	11,862
Perennial	4,029	4,554	3,863	3,851	3,831	3,559	3,028
Total Stream Impacts	106,445	103,165	85,192	83,291	86,404	85,299	80,582
Total Natural Stream Impacts (lf)**	51,840	47,636	30,396	28,858	31,376	30,978	26,389
Stream Relocations (lf)***	73,463	68,675	55,557	53,360	56,480	55,788	51,629

Table S-9: Alternatives Impact Summary of all Subsections

Alignment Alternatives	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8 Option A	Alt. 8 Option B	Refined Preferred Alt. 8
Floodplain (ac)	125.55	145.50	126.98	99.69	128.52	102.29	75.15
Karst Features (#)	144	138	109	113	110	110	110
Karst Features (ac)	439.70	430.20	338.50	340.30	343.70	343.70	347.30
Cave Recharge Areas (#)	1	1	1	1	1	1	1
Wellhead Protection Areas (#)	1	1	1	1	1	1	1
Hazardous Material Sites (#)	9	9	7	7	8	8	8
Farmland (ac)	149.4	160.2	65.4	70.4	67.4	56.5	59.9
Managed Land (ac)	26.32	26.09	6.13	6.49	5.48	5.48	8.29
Upland Forest (ac)***	433.16	395.67	238.61	232.94	249.32	245.57	227.66
Core Forest (ac)	87.23	76.82	45.88	44.52	44.86	44.97	41.84

** 2015 Dollars, excluding mitigation costs, $M = million dollars, ac = acres, LF = linear feet*

*** Right-of-way costs developed using criteria found in **Appendix D**, Cost Estimation Methodology, and include costs for acreage and improvements required for actual construction, relocation costs, costs for acquiring structures and improvements due to lost access, and administrative fees.*

**** Calculations include bifurcation area in Subsection 5E.*

***** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches.*

Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

S.8 Preferred Alternative

S.8.1 Selection of a Preferred Alternative

Alternative 8 was the DEIS Preferred Alternative for Section 5 as a complete terminus-to-terminus system based on the information considered in **Section 6.3.4**, *Detailed Alternative Evaluation*. Comments on the DEIS generally supported this selection and offered recommendations to be considered in further refine this alternative to avoid or further reduce impacts and/or cost. This FEIS presents refinements to Alternative 8 that have occurred since the issuance of the DEIS. These modifications are based on comments received on the DEIS; information received from CAC members, participating agencies and other local public officials; and additional engineering and environmental studies. These modifications are reflected in Refined Preferred Alternative 8, which is the Preferred Alternative in this FEIS. **Table S-10** summarizes the differences between the DEIS Preferred Alternative 8 and Refined Preferred Alternative 8.

Table S-10: Differences Between DEIS Preferred Alternative 8 and Refined Preferred Alternative 8

Feature Area	DEIS Preferred Alternative 8	Refined Preferred Alternative 8	Advantages/Benefits of Refined Preferred Alternative 8
Entire Alternative	Consistent application of side gradient slopes.	Incorporation of alternate side slopes and/or retaining walls at select locations.	Overall reduction in the right-of-way which reduces environmental impacts and the number of relocations.
West Fullerton Pike	Aligned along existing Fullerton Pike.	Shifted slightly to the north and use of a straighter curve for the Fullerton Pike reconstruction.	Improve safety; allow for higher design speed; avoid two office buildings which avoids 8 business relocations.
Access to Hickory Heights via Barger Lane	Access to Hickory Heights Mobile Home Park to connect to West Maple Leaf Drive to the north.	Access revised to tie into South Danlyn Road to the west.	Shorter access between mobile home park and Tapp Road, less through traffic on residential roads.
Wapehani Mountain Bike Park	Avoided park's boundary.	Shifts into edge of park, acquiring right-of-way along edge of park.	Reduce residential displacements and commercial property impacts, eliminate bridge replacement; reduce costs; reduce traffic delays and/or detours during construction.
Sam's Club	Access to Sam's Club at South Hickory Leaf Drive only.	Adds right-in/right-out access to Sam's Club from eastbound SR 45/2nd Street.	Better traffic flow; closer to existing commercial access; reduce traffic on partially residential South Hickory Leaf Drive.
SR 45/2nd Street Interchange	Existing bridge and ramp configuration.	Bridge will be modified for bicycle/pedestrian uses.	Improve bicycle/pedestrian accommodations.
SR 48/3rd Street Interchange	Existing bridge and ramp configuration.	Bridge will be widened for bicycle/pedestrian uses. Additional lanes on exit ramps.	Improve bicycle/pedestrian accommodations. Better traffic management for exiting highway.

Table S-10: Differences Between DEIS Preferred Alternative 8 and Refined Preferred Alternative 8

Feature Area	DEIS Preferred Alternative 8	Refined Preferred Alternative 8	Advantages/Benefits of Refined Preferred Alternative 8
North Walnut Street Interchange	Construct a new full interchange (Option A) or use the existing partial interchange (Option B).	Approval to use the existing partial interchange.	Reduction of natural resource impacts (floodplains, wetlands, streams); reduce costs; maintains existing traffic patterns and use of Historic Monroe County Bridge No. 913.
Eastern Local Access Road Removal in Beanblossom Valley	Eastern local access road from North Walnut Street north to Connaught Road.	Removal of eastern local access road from North Walnut Street north to Connaught Road.	Reduce natural resource impacts (floodplains, wetlands, streams); reduce costs; maintains existing traffic patterns.
Liberty Church Road Interchange	Interchange centered on existing Liberty Church Road/Godsey Road intersection.	Interchange shifted approximately 700 feet north of existing Liberty Church Road/Godsey Road intersection.	Reduction in natural resource impacts (floodplains and streams).

Refined Preferred Alternative 8 would provide interchanges at Fullerton Pike, Tapp Road/SR 45/2nd Street, SR 48/3rd Street, SR 46, Walnut Street, Sample Road, and Liberty Church Road. While the interchange types for Refined Preferred Alternative 8 are identified for the Preferred Alternative for this project, the specific interchange type for each location will be determined during final design for the final alignment, but will stay within the right-of-way footprint for the Refined Preferred Alternative 8. In addition, overpasses would be located at Rockport Road, Vernal Pike, Arlington Road, Kinser Pike, and Chambers Pike. Below is a description of the design features of Refined Preferred Alternative 8 by Subsection.

In Subsection 5A, the mainline of Refined Preferred Alternative 8 stays on the existing SR 37 alignment, using an urban typical section (see **Figure 3-8**) with three 12-foot wide travel lanes in each direction of the mainline, separated by a 26.5-foot wide median with a concrete barrier. There would be a 12-foot wide shoulder and a 30-foot wide clear zone on each side of the mainline (see **Figure 3-8**). Due to the close proximity to the SR 37/I-69 interchange in Section 4, the Refined Preferred Alternative 8 also closes That Road and includes a new local access road to connect That Road to Rockport Road on the east side of SR 37/I-69. Rockport Road has an overpass to maintain connectivity. Refined Preferred Alternative 8 includes a double-folded diamond interchange at Fullerton Pike; various interchange design types could be considered to meet the traffic demand needs within the proposed right-of-way.

Refined Preferred Alternative 8 widens the existing Fullerton Pike alignment on the east side of SR 37/I-69 to allow straight flow of through traffic without speed reduction or curve modifications. This is especially important given the existing rolling terrain and proximity to the ramp termini from the Fullerton Pike interchange. The right-of-way is narrower than other alternatives to reduce displacements along Fullerton Pike; minimize impacts to the NRHP-eligible North Clear Creek Historic Landscape District; and, to integrate with local planned

projects in the Fullerton Pike area. In addition, the Alternative 8 Fullerton Pike alignment west of the I-69 mainline was shifted north in Refined Preferred Alternative 8 by straightening the roadway curvature to avoid impacts to two multi-unit office buildings, avoiding eight business displacements. Additionally, by reducing the Alternative 8 of right-of-way along Rockport Road, Refined Preferred Alternative 8 avoids four residential relocations. In consultation with Monroe County, Refined Preferred Alternative 8 includes bicycle/pedestrian accommodations on Rockport Road and Fullerton Pike within the proposed right-of-way.

In Subsection 5B, the mainline of Refined Preferred Alternative 8 is centered on the existing SR 37 alignment (similar to Alternative 7) to reduce impacts along the western side of SR37/I-69. The minimal impact criteria footprint would have three travel lanes in each direction of the mainline, separated by a 26.5-foot wide median with a concrete barrier. There would be a 12-foot wide shoulder and a 30-foot wide clear zone on each side of the mainline (see **Figure 3-8**).

Like Alternative 7, the Refined Preferred Alternative 8 incorporates the use of 1.73 acres from the Wapehani Mountain Bike Park to avoid residential and construction impacts, as well as additional costs. DEIS comments pertaining to this resource and potential for mitigation and other measures that may minimize harm to the park have been considered. Eleven residential displacements in Hickory Heights and Van Buren neighborhoods are avoided by not shifting the mainline to avoid the park. The City of Bloomington, INDOT, and FHWA, agree that this is a *de minimis* impact and mitigation measures are being implemented as part of this agreement (see **Appendix QQ**, *Wapehani MOA*). To maintain the existing alignment on SR 37 north of Wapehani Mountain Bike Park, Refined Preferred Alternative 8 would use a retaining wall along the western boundary of the Wapehani Hills and Oakdale Square Apartment Complexes to avoid additional multi-family displacements.

Tapp Road and SR 45/2nd Street will have a split-diamond interchange, with CD lanes on the outside of the mainline for ingress/egress of traffic. The split-diamond interchange will support the recent infrastructure improvements on Tapp Road and several long-range local transportation improvements (from West Airport Road/West Tapp Road/West Country Club Drive/East Winslow Road/East Rogers Road). The split-diamond interchange will provide access to I-69 at both SR 45/2nd Street and Tapp Road. The Refined Preferred Alternative 8 added a local access road for right-in/right-out access from eastbound 2nd Street to Sam's Club, and reduced the distance for Tapp Road access to Barger Lane by replacing the West Maple Leaf Drive north connection (Alterative 8) with a new connection that ties into South Danlyn Road to the west.

Refined Preferred Alternative 8 would continue to make use of the existing SR 48/3rd Street interchange with additional storage capacity added to the exit ramps. Refined Preferred Alternative 8 would have an overpass at Vernal Pike/17th Street and intersection improvements or North Crescent Road and 17th Street. The overpass would maintain traffic on the east side of the roadway by avoiding closure of North Crescent Road and reduce maintenance of traffic disruptions during construction. In addition, the overpass would avoid the potential for groundwater resource impacts associated with the Lemon Lane Landfill Superfund Site and ILCS, a concern raised by the USEPA and IDEM. In consultation with Bloomington and Monroe County, the Refined Preferred Alternative 8 includes bicycle and pedestrian accommodations

provided at Tapp Road, SR 45/2nd Street, SR 48/3rd Street, and the Vernal Pike/West 17th Street overpass. These accommodations would increase the proposed right-of-way to Liberty Drive on SR 45/2nd Street and from South Franklin Road to North Gates Drive on SR 48/3rd Street.

In Subsection 5C, Refined Preferred Alternative 8 would use the suburban typical section shown in **Figure 3-8** consisting of three travel lanes in each direction for the mainline. There would be a 36-foot wide median containing 12-foot wide paved shoulders to the inside of the travel lanes along the median, a center concrete barrier to Arlington Road, and a center guardrail barrier from Arlington Road north to Sample Road. To the outside of the travel lanes, there are 12-foot wide paved shoulders within the minimum 30-foot wide clear zones. The mainline follows existing SR 37 alignment, and maintains the grade of existing SR 37, thereby reducing the amount of earthwork needed during construction, and minimizing impacts. Refined Preferred Alternative 8 uses a guardrail and a grass median to reduce visual impacts by avoiding the use of a concrete barrier wall. This is consistent with the context sensitive solutions proposed by the CAC and participating agencies.

The existing SR 46 interchange would remain, and the existing overpass at Arlington Road would be raised and remain in its current location. Acuff Road would be closed, and re-routed to either Kinser Pike or Maple Grove Road. An overpass is provided at Kinser Pike to maintain connectivity and access to either the Walnut Street interchange (Subsection 5D) or Sample Road interchange (Subsection 5E).

In Subsection 5D, the Refined Preferred Alternative 8 would use the suburban typical section shown in **Figure 3-8** consisting of three travel lanes in each direction for the mainline with added truck climbing lanes in each direction. Using the minimal impact criteria, there would be a 36-foot wide median containing 12-foot wide shoulders to the inside of the travel lanes and a center guardrail barrier. To the outside of the travel lanes, there would be 12-foot wide shoulders within the minimum 30-foot wide clear zones. The mainline would be centered on the existing SR 37 alignment and grade which reduced construction costs, earthwork, and associated impacts. Two modifications with the Refined Preferred Alternative 8, as described in the following paragraphs, greatly reduced impacts to natural resources (wetlands, streams, and floodplains).

The eastern local access road from Whisnand Road/Walnut Road north to Connaught Road was removed in the Refined Preferred Alternative 8 to reduce floodplain and wetland impacts. Forecasted traffic levels are low on this road segment (less than 100 ADT in the 2035 design year). The western local access road also starts across from Connaught Road and does not cross the Beanblossom Valley. These roads have a grass median between them and the mainline, with the exception of one barrier wall along the outside shoulder located at Hoosier Energy. This median avoids undesirable features which have design and safety implications such as oncoming headlights from opposing traffic, reduced turning radii on access roads, reduced snow storage, and reduced maneuverability on local access roads during emergency situations. Visual impacts will be reduced by avoiding use of the concrete barrier wall to maintain the rural feeling on the Subsection 5D area.

At Walnut Street, the Refined Preferred Alternative 8 re-uses the existing partial interchange to minimize impacts to wetlands, streams, floodplains, and construction costs. While the existing

partial interchange differs from the current FHWA guidelines,[9] the FHWA has approved its use (refer to **Appendix RR**, *Walnut Street Interchange Selection Report*). The existing Walnut Street interchange serves two of four traffic movements to and from Bloomington via existing Walnut Street. Development to the north and west (which would be served by a new interchange serving all movements) is unlikely to occur. That area is within the Beanblossom Valley floodplain, and has limited development potential.

In Subsection 5E, Refined Preferred Alternative 8 has three mainline travel lanes in each direction from the Kinser Pike/Walnut Street area to Sample Road. From Sample Road north to Bryant's Creek Road, it has two lanes, with an additional truck climbing lane in the southbound direction between Sample Road and Bryant's Creek Road. Refined Preferred Alternative 8 uses the existing pavement of SR 37. It uses the northbound SR 37 lanes as the east side access road and converts the existing SR 37 southbound lanes into northbound travel lanes for I-69. New southbound travel lanes will be constructed to the west.

At Sample Road, Refined Preferred Alternative 8 has a folded urban interchange to minimize impacts to resources in the southwest quadrant of the interchange location. Refined Preferred Alternative 8 has an overpass on Chambers Pike, which has been supported in requests from utilities, emergency service providers, and local residents. In addition, Chambers Pike carries relatively high traffic volumes compared to other area roads, and provides for better maintenance of traffic patterns in the area. Refined Preferred Alternative 8 uses an outside shoulder and guardrail between the mainline and access road. This avoided the need for a barrier wall between the mainline and access road.

In Subsection 5F, Refined Preferred Alternative 8 uses the rural typical section shown in **Figure 3-8**, which incorporates the minimal impact design criteria. There would be two 12-foot wide travel lanes in each direction, separated by a 60-foot wide grass median with 4-foot wide shoulders to the inside of the travel lanes. To the outside of the mainline, there would be a 12-foot wide shoulder and 30-foot wide clear zone to each side.

Existing and new local access roads connect the Paragon Road/Pine Boulevard area north to Liberty Church Road. Refined Preferred Alternative 8 has a medium (urban) diamond interchange at Liberty Church Road that is shifted north of the existing Liberty Church Road intersection with SR 37 by about 700 hundred feet, to minimize impacts to floodplains and streams. An interchange at Liberty Church Road supports the future development goals of Martinsville and Morgan County. North of Liberty Church Road, a western local access road would be constructed to connect to Legendary Hills Drive, while an eastern local access road would be constructed to connect to Old SR 37 by the Hillview Motel.

[9] *Access to the Interstate System*, U.S. Department of Transportation (USDOT), FHWA, 74 FR 165, August 27, 2009. Considerations and requirements state that interchanges provide for all traffic movements. Less than ''full interchanges'' may be considered on a case-by-case basis. The existing North Walnut Street interchange on SR 37 serves only southbound exiting and northbound entering traffic.

As described in the previous subsection comparisons, Refined Preferred Alternative 8 provides the best balance of meeting the purpose and need goals, accessibility and connectivity, and integration into existing SR 37 infrastructure while minimizing impacts and costs.

Figure 3-13 and **Figure 3-14** show the alignment of Alternative 8 and Refined Preferred Alternative 8 within the Section 5 corridor. Alternatives 4 and 5 are shown in **Figure 3-12** and Alternatives 6 and 7 are shown in **Figure 3-11**. These figures are the tabbed maps that follow Chapter 3.

The designation of Refined Preferred Alternative 8 as the FEIS Preferred Alternative followed a period of review and consideration of public and regulatory agency comments on the DEIS (see **Chapter 3**, *Alternatives*, and **Chapter 11**, *Comments, Coordination, and Public Involvement*).

Six alternatives representing end-to-end Build Conditions for the mainline alignment with various interchange and overpass/underpass options were studied in detail. The six alternatives were evaluated for potential impacts on the natural and human environment (see **Chapter 5**, *Environmental Consequences*), and costs (**Section 6.2**). As shown in **Chapter 3**, *Alternatives*, each of these alternatives provide significant benefits in satisfying the local Purpose and Need goals of traffic congestion reduction and accident reduction. Therefore, Refined Preferred Alternative 8 was selected primarily based upon the ability to reuse existing infrastructure, local economic development, provision of access/connectivity, consideration of impacts, and cost. As discussed in **Section 6.3**, interchange recommendations were based primarily on the ability of the interchanges to meet Purpose and Need including increased accessibility, reduced travel time for regional destinations, congestion relief, and safety benefits. As previously discussed, while the interchange types for Refined Preferred Alternative 8 are identified, the specific interchange type for each location will be determined during final design for the final alignment, but will stay within the right-of-way footprint for the Refined Preferred Alternative 8.

S.8.2 Preferred Alternative Costs and Impacts Compared with Tier 1 Estimates

The Tier 1 FEIS presented tables that included estimates of cost and major impacts for each Section of the proposed I-69 preferred alternative. **Table 6-30** of that document presented the estimates for Section 5 (Tier 1 FEIS, page 6-62). The differences in the impacts shown in **Table S-11** are primarily due to the level of detail in the Tier 1 and Tier 2 analyses. The Tier 1 analyses relied upon data available from existing literature, mapping, and aerial photography for a 26-county area. Tier 2 studies included detailed field surveys and research to determine current conditions within a much smaller study area. As an example, forest cover in Tier 1 was determined using satellite photography that could not accurately define small collections of trees, while the Tier 2 field surveys identified all wooded areas. The Tier 2 studies were also based on a more precise location of the proposed alignments whereas the Tier 1 studies assumed a general right-of-way width within a broad corridor. Where the Tier 1 studies made general assumptions about the location and quantity of resources that would be affected by the proposed roadway, the Tier 2 studies identified and quantified the resources that would be affected by the project after the alignments and their associated improvements (i.e., local access roads, overpasses, and

interchanges) were accurately located. As shown in **Table S-11**, most resource impacts were reduced from the Tier 1 to Tier 2 studies, as were project costs.

Table S-11: Comparison of Tier 1 FEIS Costs and Impacts to Tier 2 Refined Preferred Alternative 8

Data and Resources	Tier 1	Tier 2 Refined Preferred Alternative 8
Length (miles)	22.3	21.1
Project Cost ($ million)*	438M to 474M	394M
Area of New Right-of-Way (acres)	585	327
Farmland (acres)	385	60
Upland Forest (acres)	90	228
Wetlands (acres)	5	3.4
Floodplain (acres)	100	75
Residential Displacements	146	119
Business Relocations	22	17

** Cost estimates are for the year 2015. Tier 1 estimates have been adjusted to account for inflation so that an accurate comparison can be made between estimated Tier 1 and Tier 2 costs. Tier 1 estimate does not include the cost for construction administration, utility relocation or mitigation. Tier 2 cost estimates include construction administration, utility relocation and mitigation.*

Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits.

S.9 Other Major Governmental Actions in Study Area

Other major governmental projects in the area in addition to I-69 Section 5 include the following

I-69 From Evansville to Indianapolis: Section 4 and 6—FHWA's March 2004, Tier 1 ROD for the Evansville to Indianapolis section of I-69 selected a corridor for I-69 between Evansville and Indianapolis. In addition, the Tier 1 ROD divided the Evansville to Indianapolis project into six separate sections for more detailed Tier 2 studies. As previously discussed, Section 5 begins at SR 37 near Bloomington in Monroe County and proceeds northward approximately 21 miles to SR 39 near Martinsville in Morgan County, and runs between Section 4 and Section 6. Section 4 begins at the terminus of Section 3 in Greene County at US 231 and proceeds eastward approximately 27 miles to its terminus at SR 37 south of Bloomington in Monroe County. The ROD for Section 4 was approved on September 8, 2011; Section 4 currently is under construction. Section 6 begins at SR 39 near Martinsville and proceeds along SR 37 approximately 26 miles to I-465 in Indianapolis. It is important to note that all traffic modeling conducted for Section 5 takes into account that Sections 1 through 4 are constructed and open to traffic.

Fullerton Pike Corridor Improvements – While the 2035 No Build Alternative includes planned and approved projects such as local transportation improvements, one project of note is the Fullerton Pike Corridor Improvements. This project would extend from SR 37 to the east to South Sare Road, and will utilize portions of the existing West Fullerton Pike, West Gordon Pike, and East Rhorer Road for approximately three miles. The final engineering assessment was completed in June 2012 for this project. The extent and type of resources potentially affected have not been determined, but will be documented in an Environmental Assessment for the project.

S.10 Major Controversies and Unresolved Issues Raised by Agencies and the Public

FHWA and INDOT have provided opportunities for government agency and public involvement throughout the Tier 2 Study in Section 5. The project newsletter, hotline, website, outreach meetings, and other means were used to solicit input. In addition, a local project office on the southwest side of Bloomington has been staffed and open to the public to allow convenient public access to project team members and materials. Public agency input was also sought at key milestones in this Tier 2 Study. These opportunities are listed in **Section S.6.1**, *Scoping*. Other significant opportunities for agency and public input included:

S.10.1 Issues Raised Prior to the DEIS

The major issues raised by the public and resource agencies prior to the DEIS were as follows. For a more detailed discussion of these scoping issues, see **Chapter 11**, *Comments, Coordination, and Public Involvement*. **Section S.10.2** summarizes issues raised in comments on the DEIS and how they have been resolved.

- Local Access and Public Road Connectivity
- Bicycle/Pedestrian Accommodations
- Farmland Impacts
- Interchange Areas

Local Access and Public Road Connectivity – Because SR 37 would be upgraded to interstate standards with fully-controlled access, many driveways and intersections would be closed, requiring motorists to change familiar routes and find new routes to familiar destinations. This could be a significant adjustment for communities in the project area. Emergency responders, school transportation services, area residents, business owners, local government officials, local farmers and others have expressed concerns about road closings and their opinions about which roads should remain open. Grade separations and road closures proposed in the preliminary planning stages were shown to the public to elicit comment and advice.

Bicycle/Pedestrian Accommodations – One of the top priorities expressed by the City of Bloomington and Monroe County, as well as representatives of the Bloomington Bicycle Club was the need to provide accommodations for bicycle and pedestrian movements at crossings of I-69. The *I-69/SR 37 Alternative Transportation Corridor Study* was prepared for the Monroe County Planning Department and the City of Bloomington Planning Department in June 2007. The study "takes into account the need to cross the SR 37 corridor through alternative transportation methods, whether or not it is upgraded to an interstate. Some of the alternative transportation methods taken into account were pedestrian traffic, bicycles, rollerblades, and even horseback in some instances. All of these methods are important to provide future connectivity between the alternative transportation systems of Monroe County and the City of Bloomington. Coordination has been ongoing with the City of Bloomington and Monroe County regarding bicycle and pedestrian accommodations.

Farmland Impacts – Farming is an important local industry. One of the top priorities expressed by the local farming community regarding the development of Section 5 alternatives was to avoid where possible, or minimize where unavoidable, the creation of farmland severances and uneconomic remnants. Another major concern echoed by most of the farming community has been the need to have access to fields, many of which are not contiguous to the farmstead but are scattered through the project area. While direct impacts on farmland will result from the acquisition of farmland for right-of-way needed for road construction (see **Section 5.4**, *Farmland Impacts*), extensive efforts have been made to avoid or minimize severances, and to facilitate access to farm fields via overpasses that are conveniently located and spaced, and wide enough to accommodate large farming equipment.

Interchange Areas – Throughout the Tier 2 Section 5 public involvement process, accessibility has been one of the topics most often raised by local residents. Access for local residents and communities has been highlighted as a key factor to be considered in choosing the final Section 5 alignment. Sixteen potential interchange locations were identified based upon input from the ELUP, CACs, participating agencies, and the public.

S.10.2 Issues Raised in Comments on the DEIS

A public hearing was held on December 6, 2012, to present and receive input on the DEIS and the preferred alternative identified therein. The comment period for the DEIS began on October 26, 2012, and concluded on January 2, 2013. Comments were received from state and federal agencies, local government entities and government officials, non-governmental organizations, and the public. Responses are provided to substantive comments that were made during the comment period for the DEIS, including oral comments made during the public hearing. The comments and responses can be found in **Volume III** of this FEIS.

Comments received during the DEIS comment period and at the public hearing addressed primarily local access and public road connectivity, bicycle/pedestrian accommodations, interchange locations and design layout, minimizing impacts to sensitive resources, funding and costs, and property owner questions and concerns. Comments were received on the DEIS from the following federal and state agencies:

- U.S. Department of Interior, Office of Environmental Policy and Compliance
- USEPA, Region 5, Office of Enforcement and Compliance Assurance
- IDEM, Office of Land Quality
- IDEM, Office of Water Quality
- IDNR, Division of Fish and Wildlife
- IDNR, Division of Historic Preservation and Archaeology (DHPA)
- IDNR, Division of Forestry, Yellowwood and Morgan-Monroe State Forest

A total of 18 comments were received from representatives of local government units; 127 comments were received from public individuals; and 19 comments were received from public organizations. Major issues raised during the comment period are summarized in the following paragraphs. *Under each heading, the text in italics summarizes the current status of these issues, including responses provided in Volume III Part A of this FEIS.*

Bicycle and Pedestrian Accommodations

Individuals, public organizations, and local governments requested the inclusion of various bicycle and pedestrian accommodations, with Tapp Road, 2nd Street, and 3rd Street bridges being the primary areas of concern. There was overall support to maximize bicycle and pedestrian access across I-69 as much as reasonable, and a dedicated bike/pedestrian bridge between 2nd and 3rd Street was viewed by some as the safest option. Several local plans were cited to stress the importance of multi-modal transportation for the region. ***Table S-12*** *outlines bicycle and pedestrian accommodations included in the Refined Preferred Alternative. A stand-alone bicycle/pedestrian facility between SR 45/2nd Street and SR 48/3rd Street is not included but could be discussed as a separate project once connecting public bike/pedestrian paths are identified on either side of SR 37/I-69 for a free-standing facility to serve.*

Table S-12: Refined Preferred Alternative 8 - Bicycle / Pedestrian Accommodations

Overpass	Existing Facility	Request By Local Government	Proposed Facility							
			North Side of Road				South Side of Road			
			Bench Width*	Sidewalk/ Multi-Use Path Width	Curb (Y/N)	Bike / Shldr Width	Bike / Shldr Width	Curb (Y/N)	Sidewalk/ Multi-Use Path Width	Bench Width*
That Road	NONE Uncurbed No Shoulder No Sidewalk	**Monroe Co:** On-street 5' bike lane adjacent to roadway.	0'	0'	N	5'	5'	N	0'	0'
Rockport Road	NONE Uncurbed No Shoulder No Sidewalk	**Monroe Co:** On-street 5' bike lane adjacent to roadway.	10'	0'	Y	5' (plus 2' gutter)	5' (plus 2' gutter)	Y	0'	10'
Fullerton Pike	NONE Uncurbed No Shoulder No Sidewalk	**Monroe Co:** South - 5' Sidewalk with grass setback from curb; North - 10' Multi-use path.	15'	10'	Y	N/A	N/A	Y	5'	10'
Tapp Road	**West of SR37** Uncurbed Sidewalk on South Side **East of SR37** Curbed Wide Outside Lane 10' Bench with 5' Sidewalk Both Sides	**Monroe Co:** South - 5' Sidewalk with grass setback from curb; North - 10' Multi-use path. **City of Bloomington:** South - 5' Sidewalk with grass setback from curb; North - 10' Multi-use path.	15'	10'	Y	N/A	N/A	Y	5'	10'
SR 45 / 2nd Street**	Curbed 10' Shoulder across bridge No Shoulder beyond bridge No Sidewalk	**Monroe Co:** South - 5' Sidewalk with grass setback from curb; North - 10' Multi-use path. **City of Bloomington:** South - 5' Sidewalk with grass setback from curb; North - 10' Multi-use path. Facilities should extend from W. of Basswood Dr. to W. of Liberty Dr.	10'	10'	Y	N/A	N/A	Y	5'	10'
SR 48 / 3rd Street***	Curbed 10' Shoulder across bridge No Shoulder beyond bridge **West of SR37** North No Sidewalk South 11' Bench with 5' Sidewalk **East of SR 37** No Sidewalk	**Monroe Co:** Same request as City. **City of Bloomington:** South - 10' Multi-use path with 6" curb and 5' Shoulder; North - 10' Multi-use path with 6" curb and 5' Shoulder. Facilities should extend from W. of Franklin Dr. to W. of Liberty Dr.	10'	10'	Y	5' (includes 2' gutter)	5' (includes 2' gutter)	Y	10'	10'

Table S-12: Refined Preferred Alternative 8 - Bicycle / Pedestrian Accommodations

Overpass	Existing Facility	Request By Local Government	Proposed Facility							
			North Side of Road				South Side of Road			
			Bench Width*	Sidewalk/ Multi-Use Path Width	Curb (Y/N)	Bike / Shldr Width	Bike / Shldr Width	Curb (Y/N)	Sidewalk/ Multi-Use Path Width	Bench Width*
Vernal Pike/17th Street**	**Vernal Pike** North 10' Bench South 20' Bench with 5' Sidewalk **17th Street** 10' Bench with 5' Sidewalk both sides	**Monroe Co:** North - 8' Multi-use Path; South - 5' Sidewalk. **City of Bloomington:** South - 6" curb with 10' Bench and 5' Sidewalk; North - 6" curb with 13' Bench and 8' Multi-use Path.	13'	8'	Y	N/A	N/A	Y	5'	20'
SR 46	10' Shoulder No Sidewalk	**Monroe Co:** No comment.	No Change to Existing Facility							
Arlington Road	5' Shoulder No Sidewalk	**Monroe Co:** No comment.	No Change to Existing Facility							
Kinser Pike	NONE No Shoulder No Sidewalk	**Monroe Co:** On-road 5' bike lane adjacent to roadway.	0'	0'	N	5'	5'	N	0'	0'
Walnut Street	**North** 4' Shoulder No Sidewalk **South** 8' Shoulder No Sidewalk	**Monroe Co:** No comment.	No Change to Existing Facility							
Sample Road	NONE No Shoulder No Sidewalk	**Monroe Co:** On-road 5' bike lane adjacent to roadway.	0'	0'	N	8'	8'	N	0'	0'
Chambers Pike	NONE No Shoulder No Sidewalk	**Monroe Co:** On-road 5' bike lane adjacent to roadway.	0'	0'	N	8'	8'	N	0'	0'
Liberty Church Road	NONE No Shoulder No Sidewalk	**Morgan County:** No DEIS comment. Requested 8' shoulders across bridge as part of participating agency meetings to allow width for future expansion.	0'	0'	N	8'	8'	N	0'	0'

Notes:

** Bench width includes the sidewalk/multi-use path width.*

*** Lane configuration across bridge will need to be modified. In southeast quadrant of interchange, 2:1 slopes should be used to avoid impacts to adjacent access road for apartment complex. Handrail along sidewalk will be necessary in this area.*

**** Existing bridge widened on both sides to accommodate requested facilities. Project limits along 3rd Street extend from Gates Drive to Franklin Road; therefore, INDOT will only build bike/pedestrian facility within this area (local officials requested extension to Liberty Drive). Bike/pedestrian facilities will be constructed from Franklin Road, extending to Gates Drive on south side of 3rd Street, and extending to just west of Gates Drive and connecting into existing sidewalk on the north side of 3rd Street.*

***** Resting platforms may be necessary for sidewalk to comply with ADA requirements; maximum grade of sidewalk should not exceed 5%.*

Rockport Road / Fullerton Pike

Comments included suggestions for a new or different location of this interchange. *The selected interchange location minimizes costs and impacts to resources. There are significant karst features in this area that are avoided by keeping the alignment on existing Fullerton Pike.*

Several concerns were expressed regarding Monroe County's Fullerton Pike project stating that it would increase the number of cars and trucks through Eagleview and Clear Creek neighborhoods, past Batchelor Middle School and Jackson Creek Middle School, and over two rails to trails. *The Fullerton Pike project under development by Monroe County is in the BMCMPO's Long Range Plan. This local road project is being evaluated with a separate but coordinated environmental study. INDOT met with Monroe County on February 4, 2013 as part of the ongoing coordination between the two projects.*

Comments related to Fullerton Pike west of I-69 included suggestions to lower the mainline surface or bridge height to reduce impact on the west side of Fullerton Pike. *As part of the Refined Preferred Alternative, the alignment to connect to West Fullerton Pike was shifted north to reduce business impacts at this location. Further engineering solutions as part of final design may be needed to avoid the relocation of the Monroe Hospital Administration and Billing building. Final decisions about property acquisition will be made in the design phase.*

Improvements to the Fullerton Pike and Leonard Springs intersection were also recommended because the intersection is on a curve and would experience increased traffic. *No improvements are proposed for this intersection as part of the I-69 project; this intersection is outside of the project area.*

A concern was expressed about the approach to the Rockport Road overpass and being able to pull in and out of the driveway safely. *The overpass will be designed according to the Indiana Design Manual. The posted speed limit of Rockport Road is currently 35 mph and will be 40 mph after construction of I-69, Section 5.*

Wapehani Mountain Bike Park and North Clear Creek Historic Landscape District – Section 4(f) Considerations

At Wapehani Mountain Bike Park, comments were generally supportive of "no shift" of the SR 37 (similar to Alternative 7). Residents expressed concerns about displacements and cost of shifting mainline to avoid Wapehani Mountain Bike Park, with a few comments about delays from bridge construction and impacts to major utilities. A resident that would have been displaced by Alternative 8 noted a preference to stay in her home and expressed a desire that the city allow the use of the park land. A suggestion was made that lanes along the west side of the park be separated by 12-foot concrete barriers to ensure pedestrian separation, reduce noise in the natural area, and reduce the visual obstruction of the roads from the park. Comments in support of the mainline "shift" noted the desire to avoid impacting a trail in the park, while others remarked that the trail could be rerouted and saw this as an opportunity to enhance the park. U. S. Department of Interior (USDOI) noted that required concurrence on this issue was pending. *Since the DEIS was published, FHWA, INDOT, and the City of Bloomington have*

entered into an MOA that allows for the use of the park property and outlines mitigative measures. As such, the Refined Preferred Alternative reduces impacts west of I-69 and has a Section 4(f) de minimis impact to Wapehani Mountain Bike Park.

USDOI also noted that required SHPO concurrence regarding the Section 4(f) *de minimis* impact to North Clear Creek Landscape District was pending. *SHPO and ACHP have since concurred with FHWA's determination of No Adverse Effect and de minimis impact in regards to the North Clear Creek Landscape District (see* ***Appendix N****, Section 106 Documentation).*

USFWS asked for clarification in regards to Managed Lands. *Additional detail has been added in* ***Section 5.22****, Managed Lands, to clarify that no USFWS owned or funded properties are impacted.*

Tapp Road and SR 45/2nd Street Interchange

The City of Bloomington recently improved Tapp Road and comments noted the importance of interchange access at this location. Some comments also suggested other routes outside the corridor with an overpass at Tapp Road. Concerns included traffic flow, signal delays, congestion during peak hours, displacements due to the split diamond interchange, pedestrian accommodations, and traffic increases through the Leonard Springs neighborhood related to the proposed new entrance to Hickory Heights Mobile Home Park, and on Hickory Leaf Drive to access west entrance of Sam's Club. *The existing bridge at SR 45/2nd Street will remain in place with some modifications to accommodate bicycle/pedestrian traffic across the bridge. The interchange ramps will be reconfigured for the split diamond interchange between SR 45/2nd Street and Tapp Road. With the Refined Preferred Alternative, new access was added from eastbound 2nd Street to Sam's Club to provide right-in/right-out movement between the ramp intersections and Liberty Drive. Hickory Heights currently has access from Tapp Road via Barger Lane. Barger Lane would be closed at Tapp Road. With the Refined Preferred Alternative 8, access has been revised to tie into South Danlyn Road to the west.*

Comments were in support of a noise barrier along Judd Avenue and Van Buren neighborhood, as well as a cul-de-sac of Yonkers Street because of safety (poor visibility eastbound) and to slow down traffic in the neighborhood. *The cul-de-sac of Yonkers Drive at Tapp Road is included in Refined Preferred Alternative 8. A preliminary noise barrier was found to be both reasonable and feasible according to the INDOT Traffic Noise Analysis Procedure manual. Barrier lengths, heights, and offsets are analyzed in detail as part of the FEIS. Barrier reasonableness and feasibility has also been updated during this process. In this area, the barrier is proposed to be placed along I-69 between Fullerton Pike and Tapp Road, and would follow the southbound on-ramp from Tapp Road to I-69. Final placement of the barrier, and confirmation that it remains both feasible and reasonable, will be made in final design.*

With Judd Avenue traffic being detoured, a question was asked about improving Sharon Drive and Sim Drive. *No improvements are proposed for Sharon Drive or Sim Drive as part of the I-69 project.*

SR 48/3rd Street Interchange

Comments at this interchange expressed concern that there is already peak hour congestion caused by closely-spaced traffic signals, with recommendations that the bridge should be rebuilt or retro-fitted, including bicycle and pedestrian accommodations. *The existing SR 48/3rd Street interchange layout will remain in place with additional capacity added to the exit ramps. The left turn lanes on SR 48/3rd Street to the entrance ramps will be extended and the existing bridge will be widened to provide bicycle/pedestrian facilities.*

SR 46

Comments noted that SR 46 interchange is likely to see the most change over time because of increased traffic to Indiana University, a future hospital complex, and residential growth around Ellettsville. Concern was expressed that none of the current alternatives upgrade the intersection to provide free flow for left turns south or north from SR 46 and it was suggested to provide those opportunities now in this area already planned for major economic development activities. *While none of the interchanges provided in Refined Preferred Alternative 8 include a free-flow left turn movement onto I-69, all interchanges operate at an acceptable LOS up to and through the design year (2035). These designs are typical of urban freeway interchanges throughout Indiana; interchanges which allow for free-flow designs such as those described in the comment are atypical, and generally provided where there are location-specific issues related to interchange capacity and its relationship to turning movement. During the final design, signal timing and the potential for synchronizing the interchange signals with adjacent signals on state and local facilities will be reviewed to provide the most efficient network possible.*

Whitehall Crossing / Gates Drive / Industrial Boulevard

Several businesses in this area provided suggestions for improving local connectivity and emergency response times west of I-69. For example, SR 37 access to the Whitehall Crossing shopping center could be replaced with a direct connection of Gates Drive to Industrial Boulevard and improved free flow movement from SR 37/I-69 to Gates Drive along 3rd Street. An access road of off the SR 46 southbound on-ramp that lets motorists merge with Industrial Park Dr. would allow greater entry into the various the businesses located on Industrial Park Dr. Some businesses also opposed a cul-de-sac of Hensonburg Road. *The SR 37 West Frontage Road from SR 48 to SR 46 is included in the LRP as a Monroe County/Town of Ellettsville project. As noted in the LRP, this and other listed "major transportation investments are essential in addressing such issues as alleviation of traffic congestion, improvements to street connectivity, upgrades to roadway safety, and improvements for bicycle and pedestrian accessibility and commuting." INDOT is discussing participation with the County on the requested improvements as a local project but it would be conducted as a separate local project from I-69. The FEIS microsimulation traffic analysis showed acceptable operations at the Gates Drive location on SR 48/3rd Street and the requested improvements are outside of the I-69 project study area.*

Vernal Pike / 17th Street / Crescent Road

Several conceptual drawings were received from area businesses recommending ideas on how to improve access, similar to those presented in the Whitehall Crossing / Gates Drive / Industrial Boulevard discussion above to reduce out of direction travel, especially for large trucks. Comments also stated that the Vernal Pike / SR 37 intersection is among the highest accident intersections in Monroe County and noted safety concerns in regards to Section 4 traffic using this at-grade intersection until Section 5 is constructed. Other community concerns in this area primarily related to increased truck traffic on both 17th Street and Crescent Road, lowering the grade, and EMS access. The City of Bloomington requested assistance with improvements to 17th Street to the Arlington Road intersection, as well as improvements at 17th Street and Crescent Road. *The Refined Preferred Alternative 8 does not include additional work between the 17th Street/Crescent Road intersection and the 17th Street/Arlington Road roundabout. Under the Refined Preferred Alternative 8, 1NDOT construction work for I-69 Section 5 will terminate with improvements to the intersection at 17th Street and Crescent Road. Like the area west of I-69 between SR 48 and SR 46 (discussed in the previous paragraph), INDOT is discussing participation with the City on improvements to 17th Street east of Crescent Road as a separate local project. The improvements requested are included as a project in the BMCMPO's Long Range Transportation Plan. Coordination between the two entities will continue regarding funding opportunities for this local project.*

Acuff Road / Prow Road

Northside Christian Church noted a recent survey of its congregation showed a majority of attendees are concerned with the extra hardship of getting to church. Its comments and others noted that with Acuff Road closed, getting to businesses and schools in the area will take additional time and effort, as will providing EMS services to this area. Alternate ways to get to this area are narrow two lane, curvy and hilly roads (Arlington Road, Kinser Pike, Acuff Road). *Further evaluation of estimated travel times and EMS services has been added to the FEIS. Coordination between INDOT and local agencies will be ongoing with decisions regarding improvements to local facilities as part of those discussions. It is likely that any commitments that come out of the coordination will be in the form of an MOA between the local agency and INDOT with improvements being proposed as a local project.*

Kinser Pike

Comments noted that Kinser Pike is a favored bicycle route leading into the Beanblossom Bottoms and northwestern Monroe County, with development potential more on the east side than west. This is due to terrain and the Maple Grove Road Rural Historic District to the west across Stouts Creek. A question asked how access would be provided to the INDOT Bloomington Subdistrict and why improvements for the west approach to the Kinser Pike overpass extend over 1/4 mile, displacing two additional residences. Other comments recommended minor alignments changes to minimize property impacts. *In the Refined Preferred Alternative, access to the INDOT Bloomington Subdistrict will be from Prow Road. The additional impacts along Kinser Pike are needed to allow it to serve as a local access road with adequate geometric features.*

Walnut Street Interchange / Eastern Local Access Road to Connaught Road

The DEIS Preferred Alternative 8 had two interchange options at this location. Resource agencies, local governments, and individuals provided comments in regards to these options and USEPA also questioned why the entire length of the eastern access road in this area was needed. Resource agencies requested that alternative evaluations consider ways to further avoid sensitive resources in the Beanblossom Valley. The Bloomington Township Fire Department expressed preference for a full interchange to allow access to emergency incidents on I-69 and points west in the county along Bottom Road. The Greater Bloomington Chamber of Commerce supported the partial interchange to limit environmental and cost impacts. Monroe County and the City of Bloomington support the partial interchange subject to additional local road improvements (extension of Lawson Road from the Sample Road interchange) to satisfy concerns regarding alternative access to I-69 for residents of Ellettsville and northwest Monroe County. USDOI, USEPA, and IDEM support the reuse of the partial interchange because it would minimize impacts to wetlands, streams and associated floodplain areas in the Beanblossom Creek area. Individual comments had varying preferences. *The reuse of the existing partial interchange was approved by FHWA and will be used at this location to minimize impacts and reduce costs. The eastern local access road connecting Walnut Street to Connaught Road was also removed due to the low volumes of traffic on the roadway compared to the environmental impacts and costs associated with constructing the roadway. Right-of-way was narrowed, where possible, to minimize impacts to resources through Beanblossom Valley. Additional local road improvements in regards to the Sample Road interchange area are discussed below.*

Northern Monroe County / Sample Road / Simpson Chapel Road / Wayport Road / Chambers Pike

Comments in these areas requested consideration of altering grades of the new road in relation to existing SR 37 to provide a natural sound barrier and minimizing the grade of the ridge. Requests were made for an attractive sound barrier, or trees and other plants where houses are located to serve as a minimal sound barrier to nearby neighborhoods such Simpson Chapel Road and Windsor Private, as well as Oliver Winery. *The profile of the roadway is planned to be at the existing roadway elevation, or slightly higher, since the Refined Preferred Alternative 8 makes use of the existing roadway. This results in significant cost savings and impact avoidance. The noise analysis was conducted in accordance with the INDOT Traffic Noise Analysis procedure and FHWA regulations. The only areas that met INDOT's noise abatement criteria were within the urban area of Bloomington. Landscaping will not be evaluated since FHWA does not consider landscaping as a viable noise abatement measure ("Highway Traffic Noise: Analysis and Abatement Guidance," prepared by FHWA, dated June 2010).*

Comments noted that there are very few north-south roads in northern Monroe County. With Sample Road as the only crossover point between North Walnut Street and the county line, EMS providers and traffic generated by these properties must use the local roads. Residents of western Washington Township and eastern Beanblossom Township are going to experience significant changes to travel patterns and longer travel times because access to I-69 may be several miles further than existing access to SR 37. Requests asked for further consideration of location of

access roads, with regards to existing infrastructure, displacements and costs. *The portions of northern Monroe County that currently access SR 37 will be rerouted to access I-69 via parallel access roads on either side of the highway to an interchange at Sample Road or via an overpass at Chambers Pike. The east side local access road in the Refined Preferred Alternative 8 extends from Connaught Drive (near Hoosier Energy) north to Chambers Pike, consisting of portions of new local access road, Wayport Road, and existing Old SR 37. The west side local access road in the Refined Preferred Alternative 8 extends from Connaught Drive (near Hoosier Energy) north to Burma Road. The west side access road consists of portions of new local access road, Sample Road, and Simpson Chapel Road. A separate section of local access road begins on the west side with the use of Turkey Track Road to access north into Morgan County to an interchange at Liberty Church Road.*

Sample Road Interchange

Comments from local government entities and businesses noted that a partial interchange at North Walnut Street would place addition burden on Sample Road both east and particularly west. Local entities requested additional local road improvements (extension of Lawson Road from the Sample Road interchange) to satisfy concerns regarding alternative access to I-69 for residents of Ellettsville and northwest Monroe County. The Hoosier/Duke Energy Bloomington substation is located near Norm Anderson Road and comments pertained to specific access needed to meet routine and emergency service requirements, length and weight requirements, approach grade, and the problematic use of barriers. Hoosier Energy noted that its southbound loads would have to first travel north to the Sample Road interchange to access I-69 and asked that the configuration at Sample Road accommodate high, wide and long loads. *While a portion of Sample Road is planned to be reconstructed over I-69 in conjunction with the planned interchange, additional work outside of the project limits (such as the extension of Lawson Road to Bottom Road) is not included in Refined Preferred Alternative 8. INDOT is discussing participation with the County on improvements to the network of local roads connecting to west of Sample Road as a local project but it would be conducted as a separate local project from I-69. Design standards for interstate highway overpasses provide for a clearance of 16' 6" for new construction. Coordination with Hoosier Energy will continue through design. Access to the Bloomington substation would occur from the Sample Road interchange south of the substation to Sample Road northward to Lee Paul Road northward to an I-69 Section 5 local access road that would travel alongside I-69 and beyond the substation property.*

Bryant's Creek Road

The existing Bryant's Creek Road currently floods and residents expressed concern in regards to a cul-de-sac on the east side of I-69 because they are frequently unable to get out going east because the road floods in two places and they stated that Monroe County does not maintain the road. They noted that bridges or a raised road is needed between 1331 E. Bryant's Creek Road and 1620 E. Bryant's Creek Road to make it passable after high rainfall events. Monroe County also noted that this area has a history of flooding and could strand up to nine residences if a flood event occurs and emergency services need to reach the area. *A cul-de-sac at I-69 is included for the west end of Bryant's Creek Road as part of Refined Preferred Alternative 8. While flooding*

occurs as an existing condition on Bryant's Creek Road, two residences are located between existing SR 37 and the first location where the creek frequently floods. Any properties east of that crossing are subject to existing flooding conditions which are not altered as a result of the I-69 project. The status of those first two residences immediately east of I-69 will be determined during the final design phase.

Cooksey Lane

Alternative 8 proposes displacement of all residents of this area. Property owners proposed building a service road that would run parallel to SR 37/I-69 from Cooksey Lane to Pine Boulevard to avoid several displacements, acquisition of farmland and timber, as well as to reduce travel time. *An analysis has been completed to review the benefits of providing access to the Cooksey Lane/Petro Road properties and effects on the various environmental resources and construction costs to do so. The FEIS continues to identify these properties as potential displacements. Final determinations about access, including which properties are acquired, will take place as part of the final design process.*

Liberty Church Road / Godsey Road

Comments included support for this interchange. However, some portions of this interchange are in the floodplain and moving the interchange north would avoid the floodplain. This is desired by resource agencies, and also would reduce disruption to existing homes and businesses. *The interchange at Liberty Church Road was shifted north to minimize impacts to floodplains located in the southwest corner of the interchange.*

Vertical Grades

Comments questioned the use of a 5% grade in some areas and the impacts of a truck lane to accommodate the slower moving traffic on the mainline and access roads from the Beanblossom Bottoms toward Martinsville. *The costs and benefits analysis followed standard analysis procedures outlined in the Indiana Design Manual (IDM) and is documented in* ***Appendix EE****, Level 1 & 2 Design Exceptions. The analysis determined that retaining the existing 5% grades in some locations along I-69 would result in an additional speed reduction for trucks of only 1 to 3 mph. It also would avoid over 7,800 (almost 1.5 miles) of road reconstruction, and save over $11 million in construction costs. The benefit-cost analysis for retaining the 4% grade shows that discounted benefits of retaining the existing 5% slope are more than 40 times greater than the discounted costs attributable to a slight increase in the number of forecasted crashes (six additional crashes over a 20 year span may be anticipated). All new construction will satisfy appropriate IDM requirements and truck lanes are not proposed on the access roads.*

Property Owners and Businesses

Property specific comments and questions were asked pertaining to potential residential or businesses displacements and access. Information was provided about property boundaries and various features located on the property. Questions about the timing of land acquisitions and how the purchase process works were also asked. Requests were made to allocate funds to make

advocates available to displaced businesses and to improve the notification process. Some residents expressed concern about increased noise because of increased traffic or loss of "buffer area" between home and roadway, or potential for flooding from altered drainage patterns. *Final design activities will address the specifics of the drainage design, as well as final determinations about access and right-of-way acquisitions. Right-of-way acquisitions and relocations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended, 49 CFR (Code of Federal Regulations) Part 24, and Title VI. Informal contacts with owners of potentially affected properties (known as "kitchen table meetings") were initiated in April 2013 and are ongoing. Individuals or businesses can contact the Section 5 Project Office at 3802 Industrial Blvd., Unit 2, Bloomington, IN 47403 (812-355-1390) for a more detailed discussion about individual properties.*

Emergency Medical Services (EMS)

The Bloomington Township Fire and Washington Township Fire Departments provided comments on the DEIS. The Washington Township Fire Department requested an exit only ramp for Legendary Hills as an interim plan (prior to construction of Section 6 for access to Burton Lane). The Bloomington Township Fire Department requested emergency access crossovers, and estimates an additional 5 to 10 minutes in travel time due to having to use small bidirectional two-lane roads in the northern part of Monroe County along I-69 instead of the four-lane SR 37. Ideally, the Department also desires an interchange at Burma Road or Chambers Pike to serve the people of northern Monroe County in a manner more in-line with National Fire Protection Association (NFPA) 1710 and 1720 which requires a response time of no more than 6 minutes. *Further analysis and feedback received on NFPA and potential emergency response route/time impacts has been integrated into* ***Section 5.3.5****, Community Facilities and Services. Further coordination will continue during design. The FEIS identifies fire, ambulance, and police service/response areas; dispatch centers or sites; hospitals/medical centers; and Refined Preferred Alternative 8 features, closures, and access points. The location of possible interchanges and the treatment (grade separation, relocation, or closing) of local roads could affect fire, ambulance, and police responses. Furthermore, the change in travel patterns related to road closings and re-routings could produce longer trips and slower response times for emergency responders. Conversely, the ability of emergency responders to reach major medical centers, such as Bloomington, Indianapolis, and Evansville, would be improved with I-69. In regards to the comment about Burton Lane access, this comment primarily addresses design aspects of the project in Section 6. Section 6 design information is not available at this time and is not within the scope of the Section 5 project. Access to this area will be provided from the Liberty Church interchange.*

Traffic

While some comments noted that car traffic is declining relative to other modes, others noted concern that four lanes north of the Sample Road interchange would not handle traffic to 2035 with both SR 37 and I-69 on same route. Questions also related to traffic model predictions of traffic on collector and local roads proximate to the I-69 corridor. *Changes in levels of auto travel relative to other modes vary by region. Overall, volumes of vehicular traffic are*

forecasted to continue to increase in the I-69 corridor, especially for truck traffic. The traffic forecasts from the I-69 Corridor Model indicate that a four-lane facility will be adequate to serve traffic levels in Section 5 north of Sample Road through the design year of 2035. The operational need for the third lane south of Sample Road is not anticipated until sometime after the year 2025 (see ***Appendix TT****, 3rd Lane Traffic Memorandum). The I-69 Corridor Model includes collector roads and those local roads for which traffic is forecasted to be affected by the opening of I-69.* ***Section 5.6****, Traffic Impacts, describes local and collector roads forecasted to have significant changes in traffic due to the opening of I-69.*

Historic Properties

Comments were provided regarding a home at 3275 N. Prow Road that the commenter viewed as historic. In addition, the comments included the documented history of the property. *Responses to comments related to cultural resources (above-ground and below-ground) are provided as appendices to the 800.11(e) Documentation. (See Appendices C, F, and I within* ***Appendix N****, Section 106 Documentation, of this FEIS). The references cited provide a detailed rationale regarding why the referenced property was determined not eligible for NRHP. At this time, no land acquisition is planned at this property under Refined Preferred Alternative 8.*

Tier 1 Issues

Comments were raised suggesting that various issues decided in Tier 1 be reconsidered. These included the Tier 1 selected alternative, applicability of other environmental laws in the Tier 1 study, and the applicability of the Tier 1 purpose and need in Tier 2 studies. *Tier 1 issues were fully addressed in the Tier 1 FEIS and ROD. A number of issues were raised in subsequent litigation in which all claims made against the Tier 1 ROD were rejected. Returning to an analysis of Tier 1 corridors or other Tier 1 issues would not provide any relevant information for decisions in Section 5 Tier 2 studies.*

Funding and Cost

Various comments were submitted regarding funding and costs. Some comments expressed concern about the cost or that the interstate was not needed and others expressed an urgency to obtain funding and finish I-69 to bring a safe highway to the community. Most felt that I-69 should not be tolled. *INDOT is pursuing innovative finance and delivery to deliver this project to the community as quickly as possible in order to alleviate concerns about the need for improvements to SR 37 that have been expressed by various members of the community in preparation for the opening of I-69 Section 4. Project sequencing and timing will be determined once the procurement process is completed. Possible construction sequencing is outlined in* ***Appendix FF****, Construction Sequencing/Prioritization. The innovative finance and delivery team may offer an alternative sequencing plan for review and acceptance by INDOT.*

Safety priorities include removing at-grade crossings such as Vernal Pike through the urban area. Staging of capacity improvements may be prioritized based on the year improvements are needed. As explained in ***Appendix TT****, 3rd Lane Traffic Memorandum, the operational need for the third lane is not anticipated until sometime after the year 2025; 2035 is the design year for*

this environmental study. INDOT is ready to begin right-of-way services once the use of federal funds is authorized. I-69 Section 5 will not be constructed as a toll facility. Regardless of procurement strategy chosen, all applicable state and federal requirements and adherence to INDOT standards and specifications will be required.

Since INDOT does not expend monies for innovative finance and delivery the same way it does for traditional design-build / design-bid-build projects, anticipated costs by year are not provided in the Tier 2 Section 5 FEIS.

Karst and Water Quality

USEPA requested additional information on caves and karst regions, as well as clarification of terminology (such as "relevant karst") and impact calculations in tables. USEPA also commented on blasting restrictions for caves with known populations of the Indiana bat. *Additional information has been added to the FEIS. Section 5 does not impact any cave entrances but rather is within a cave recharge area and crosses a previously mapped cave passage and conduits that are already under SR 37. The impacts in the table are only those located within the right-of-way. "Relevant karst" includes the area within the right-of-way that may not have existing surface expression, but still has the potential for karst features based upon the underlying bedrock. Blasting in the recharge area of Cave A is not anticipated. A special provision was developed for blasting in Section 4 to protect karst and limestone resources that will be applied in Section 5.*

IDEM provided comments on the Karst Report and expressed concerns about buried sinks at Fullerton Pike and Tapp Road and how these could increase instability, and cumulative impacts from the Fullerton Pike local road project. Other agencies also identified concern about erosion and sediment control and potential for contamination in karst sensitive areas. *The FEIS has added more discussion about the Karst MOU coordination, geophysical geo-tech studies, and the need to review the stability of this area. A general discussion of the local Fullerton Pike project's impacts has been added into* ***Section 5.24****, Indirect and Cumulative Impacts (specific impacts are not yet available). Erosion and sediment would be controlled by the contractor in accordance with the Karst MOU.*

USEPA and USFWS made several specific comments on the analysis for construction pollutant loads. *The FEIS clarifies the statement regarding a reference to the SR 37 project (built in the 1990's) that led to the development of the 1993 Karst MOU. With the Karst MOU in place, there is now better planning, better mitigation methods/best management practices, and more oversight to minimize pollutants to features during construction. Karst MOU and signatory agency coordination regarding Best Management Practices (BMPs) will be similar to what has occurred in Section 4, including on-site meetings.*

Comments also pertained to the HHEI Methodology, rationale for the 100-foot riparian zone, and the need to further avoid stream relocations/realignments. *In the 2005 coordination meeting held at the beginning of Tier 2, agencies discussed and agreed to use the HHEI assessment methodology. The FEIS provides additional detail regarding why this methodology was used and the rationale for the use of the 100-foot conservative riparian zone that typically includes*

forest and mid-successional habitat. The project avoids stream relocations/ realignments whenever possible. Section 5 is different than other sections since it follows an existing highway. Many channels are already impacted by previous construction. Stream impacts include roadside ditches and rock channels.

Permitting/Construction

IDEM requested that the FEIS reflect the jurisdictional stream status identified during the recent IDEM/U.S. Army Corps of Engineers (USACE) site visit. USEPA wetlands staff would like to be more involved in mitigation and planning of sites than they have in the past, including a commitment in the FEIS that they would be. *The jurisdictional stream status in the FEIS reflects the determinations from the IDEM/USACE site visit. INDOT is moving forward to acquire the mitigation sites identified in 2012 and will continue coordination with permitting agencies. Jurisdictional water resources will be signed in the field so that contractors may avoid them.*

IDEM noted that borrow/waste sites are an additional impact to the project and should be addressed during the planning process. *The contractor is responsible to have environmental clearance on these sites and the contractor must obtain INDOT approval. Contractors are directed by INDOT to avoid water/karst impacts when submitting site requests so as to not add cumulative impacts to project.*

USEPA, USDOI, and IDEM commented on secondary construction impacts and erosion and sediment control measures and compliance with these measures by the contractor. *INDOT will try to maintain hydrology of the existing road with any new culverts. New culverts will be sumped to perpetuate hydrology. Silt fencing and other erosion control methods will be used as well. Inspectors from IDEM, INDOT, and other consultant staff are assigned to each of the construction areas to ensure contractor compliance.*

Property owners and businesses expressed concern about business access for tractor trailers, and heavy loads during construction. *INDOT requires contractors to maintain access to businesses during construction.*

Mitigation Sites

USEPA requested that additional information regarding potential mitigation sites and baseline mitigation site conditions be provided in the FEIS, and asked to be involved in the mitigation site planning. *Mitigation sites were reviewed in 2012 field visit by the agencies. Possible sites are summarized in the FEIS and full information provided in the Section 5 Tier 2 Biological Assessment (BA), which can be found in* ***Appendix LL1****. Environmental clearance will be obtained separately on these sites. Hydrology studies (water budgets) for wetland mitigation sites and the monitoring mitigation plans will be provided as part of the Section 401/404 permit application packages. INDOT is responsible for mitigation sites while they own them. Monitoring of mitigation sites is required for 5-10 years.*

Superfund and Hazardous Waste Sites

USEPA and IDEM provided comments specific to superfund/hazardous wastes sites and noted that additional sources of data are available for some wells. *The evaluation of hazardous material sites has been updated and a narrative has been added into the FEIS from the environmental fact sheets for both Superfund facilities (Lemon Lane and Bennett's Dump) in the project area. A follow-up meeting was held on March 4, 2013, to review construction and right-of-way. Rather than identifying a particular structure to divert drainage from these sites, there will be a commitment that the contractor will not be allowed to divert additional water within a band as shown on the FEIS figures. A commitment has been added to continue coordination with IDEM and USEPA during design phase, with two week turnaround on design plan review. The FEIS uses the same IDNR water well data set that is available for the entire corridor. For design, the FEIS notes that additional monitoring and private well information is available from work done at the two Superfund facilities.*

Air Quality

USEPA and others provided comments related to $PM_{2.5}$ conformity requirements, CO_2 emissions and MSAT analysis, and recommended that the FEIS address anticipated impacts to project as a result of greenhouse gases (GHG), climate change, frequency of flooding, etc. *In regards to $PM_{2.5}$, coordination with the interagency group has continued as part of the FEIS development in order to determine the methods and procedures used for conducting the analysis presented in the FEIS. The ICG noted that the project is located in a $PM_{2.5}$ nonattainment area (Morgan County) with an increase in the number of diesel vehicles expected in future years. The ICG agreed that a project level $PM_{2.5}$ hot-spot analysis would be conducted for I-69 Section 5 although the group did not conclude that the project was a Project of Air Quality Concern. A two week public comment period on the draft report was offered and concluded on June 14, 2013. No comments were received during the comment period. I-69 Section 5 conforms to all applicable project level conformity requirements. Conformity findings and supporting documentation are included in* **Appendix OO**. ***Section 5.9**, Air Quality, describes the methodology and results of the air quality analysis conducted for Section 5 at both the regional level and the project level. Updated guidance and the MOVES emission model are incorporated into this analysis. The FEIS also clarifies language related to MSAT mitigation strategies for consideration (e.g., clean engines, clean diesel fuel, limits on idling times). Updated language has also been added in the FEIS for GHG. This includes background information on GHG, project-specific VMT information, statewide VMT numbers from MOVES2010b, statewide Indiana emissions, the potential change that the project will have on CO_2 emissions, and suggested mitigation strategies. Drainage-related project design elements (e.g., drainage calculations, culvert sizes, bridge lengths) are determined using the adopted provisions of the IDM. In turn, the IDM provides for use of data from the National Oceanic and Atmospheric Administration (NOAA) to determine the size and frequency of regional rainfall events. To the extent that there are changes in precipitation patterns, the use of baseline NOAA data reflects such trends in drainage designs.*

Threatened and Endangered Species/Wildlife Crossings

USEPA provided comments in regards to details of the pollutant loading analysis and its implications for potential cave biota effects. *Without detailed design, assumptions were made for the analysis as if the roadway was draining into an opening in ground without drainage ditches, erosion/runoff control, or change in grades. INDOT is following the Karst MOU process and will treat runoff that will be directed into karst openings. With the erosion control plan, reduced impacts to May Cave are anticipated since the pollutant loading model shows worst-case estimates.*

USDOI (USFWS) requested that the newly identified maternity colonies be added to the FEIS. It also noted that although the bald eagle was removed from the list of threatened and endangered species in July, 2007, it is still protected under the Bald and Golden Eagle Protection Act. *Two additional Indiana bat maternity colonies (for a total of three colonies in the Section 5 project area) have been identified and are discussed in the FEIS and the Tier 2 Section 5 BA. FHWA and INDOT will comply with all permit requirements previously established for the bald eagle for this project through Section 7 consultation. A bald eagle nest is located on a parcel being pursued for I-69 Section 5 forest mitigation. Once environmental clearance for this mitigation site is complete, a conservation easement will be pursued.*

USDOI (USFWS) requested consideration of wildlife crossings. *At stream crossings where new structures are required due to geometric or structural requirements and where there is evidence of wildlife use, the design specifications will provide for wildlife habitat connectivity, including adequate space under bridges with dry land unarmored with riprap, with minimum dimensions (8 feet tall by 24 feet wide) to allow for passage of large wildlife. For those structures which can be widened or rehabilitated to meet the geometric or structural requirements, the existing bridge openings will be retained and any wildlife that currently crosses under SR 37 will continue to be able to use these existing structures to cross under I-69.*

Indirect/Cumulative Impacts

USEPA asked about the Karst Impact Methodology and use of Percentage of Total Impervious Area (PTIA) in karst areas. *Methodology considers the amount of developed area in the watershed and the study referenced has found that once there is 10% impervious cover, the start of degradation of streams can be seen. Using indirect development within the 14-digit watershed, the EIS analyzed which watersheds may exceed that percentage. The study does have limitations in regards to its use in karst terrain. Because a portion of Section 5 is within a karst region, research was conducted to determine if karst-specific data was available. No data was found specific to karst regions. Therefore, an analysis of the PTIA (using the methodology used in the publication) was completed within the entire Section 5 Study Area for the watersheds that were impacted by Section 5 directly or indirectly. Further information regarding indirect impact analysis conducted for the 14-digit watersheds crossed by Section 5 can be found in Section 5.24.3, Analysis (Step 9. Determine the magnitude and significance of cumulative effects by identifying the changes in Section 5 as a result of I-69).*

USEPA recommended that stream impacts and cumulative impacts to all resources of concern be added to the running tally of all I-69 sections. *This will be done for direct impacts, but not for indirect and cumulative impacts. They are not tallied because there is overlap and different data sets in different years are used, as explained further in the FEIS.*

Environmental Justice (EJ)

USEPA recommended that it would be more accurate to say, "there is a potential for disproportionate impacts to minority and/or low-income populations due to relocations." USEPA also recommend the FEIS identify potential mitigation measures that could be implemented to off-set the impacts, if applicable. *The EIS analysis uses a conservative approach and the statement made in the EIS is correct. The disproportionate analysis considered the percentage of all displacements within these block groups and represents a worse case analysis. Since it is very unlikely that all displacements within an Affected Community (AC) would be borne solely by minority or low-income individuals, the impact to minority and/or low-income populations is likely to decrease. The analysis followed the current INDOT Environmental Manual, which provides guidance used in the analysis for all INDOT projects. A relocation plan for all potential displacements resulting from this federally-funded project will be completed in accordance with the Uniform Act as amended, 49 CFR Part 24, and Title VI. This includes providing housing of last resort, if necessary, which would off-set impacts.*

Additional Agency Input

On March 12, 2013, FHWA and INDOT hosted a webcast meeting to review comments and responses provided by the resource agencies on the Section 5 DEIS. Issues raised during this meeting are discussed in many of the preceding topic areas.

S.11 Mitigation

Throughout this study, efforts have been made to avoid human and natural resources. In particular, avoidance and the opportunity to minimize impacts were used in the decision making process to identify a preferred alternative. Alternative 8 was identified as the Preferred Alternative in the DEIS. Subsequent to the DEIS, additional engineering and refinement of Alternative 8 was performed to reduce overall project costs and impacts, resulting in Refined Preferred Alternative 8, the preferred alternative for the FEIS. Environmental agencies and the public have been instrumental in providing assistance to avoid and minimize impacts upon both the human and natural environment, and helped develop many of the mitigation measures identified in this FEIS.

During the Tier 1 process, conceptual mitigation proposals were developed as the starting point for identifying the total mitigation for constructing I-69 from Evansville to Indianapolis. During the Tier 2 process in Section 5, mitigation measures specific to the conditions and potential impacts within Section 5 were developed based on the more detailed information and interactions with the public and resource agencies. Where applicable, these mitigation measures incorporated and, in some cases, expand upon the "major mitigation initiatives" developed during Tier 1. These initiatives are summarized in **Table S-13**. Initiatives that apply to Section 5 are identified in the text that follows. For more detailed discussion of mitigation measures, see **Chapter 7**, *Mitigation and Commitments*.

Table S-13: Major Initiatives

Major Initiatives	Description
Context Sensitive Solutions (CSS)/ Community Advisory Committees (CAC)	CSS is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist, which has been implemented during the Tier 1 and Tier 2 EIS development and will continue through subsequent design. Invited stakeholders become members of the Community Advisory Committee (CAC) for each section during the NEPA Phase and provide input and information to INDOT and FHWA regarding the project and resources in the study corridor.
Indiana Bat Hibernacula	INDOT and FHWA will attempt to purchase and protect hibernacula (winter habitat) for the Indiana bat. Some sites already have been secured.
Wetland Mitigation	INDOT and FHWA will replace wetlands impacted by the Refined Preferred Alternative 8 in accordance with INDOT's Wetlands Memorandum of Understanding (MOU). Sites have been secured, and mitigation construction has been completed or is underway in other sections.
Forest Mitigation	INDOT and FHWA will mitigate upland forests impacted by the Refined Preferred Alternative 8 at a ratio of 3:1. Multiple sites in other sections have been secured for this mitigation effort.

Table S-13: Major Initiatives	
Major Initiatives	**Description**
I-69 Community Planning Program	INDOT and FHWA developed and implemented a program that established a regional strategy for managing growth.
Geographic Information System (GIS)	INDOT and FHWA developed and implemented a statewide GIS Atlas that is comprised of more than 170 different layers. This Atlas is available on the Indiana Map website.
Update County Historic Surveys	INDOT and FHWA will provide financial and technical assistance to the IDNR-DHPA to support the completion of field surveys and publication of County Interim Reports.
Biological Surveys on Wildlife and Plants	INDOT has worked with resource agencies to conduct biological surveys for threatened and endangered species. Follow-up surveys for the Indiana bat are also being made prior to and during construction.
Bridging of Floodplains	INDOT and FHWA agreed to bridge the Patoka Rivers and Flat Creek floodplains in Section 2. This bridging was incorporated into the construction plans. There are no floodplains in Section 5 which are anticipated to be bridged in their entirety. Floodplain crossings in Section 5 are primarily at existing bridge crossings
Distance Learning	INDOT and FHWA have and will continue to support distance-learning opportunities for students in Southwest Indiana as part of the public outreach for transportation projects.

Context Sensitive Solutions (CSS)/Community Advisory Committees (CAC):

FHWA and INDOT met with the Section 5 CACs and participating agencies to describe the status of the project, to ask them to distribute information to their constituents, and to also seek feedback from them and their constituents. In addition, FHWA and INDOT also conducted public information meetings and a public hearing about the project at key project milestones.

The specific outcome of CSS depends, in part, on input from the CACs, participating agencies, and the public. The use of CSS may result or has resulted in the following modifications to the alternatives:

- Generally constraining all of the alternatives to the general SR 37 location and elevation to reduce overall impacts and traffic disruptions.
- Use of existing transportation right-of-way, pavement, and infrastructure where appropriate by utilizing minimal impact design criteria to maximize return on capital investments. All of the build alternatives used some existing features of SR 37 to minimize costs and impacts. However, Alternatives 6, 7, 8, and Refined Preferred Alternative 8 were designed using minimal impact design criteria. For further information, refer to **Chapter 3**, *Alternatives*.
- Improving the aesthetics of the highway by planting native wildflowers, minimizing riprap on side slopes and in ditches, and using attractive structures (e.g., bridges, retaining walls, signs, etc.). There is also community interest in gateway treatments for

Bloomington and Martinsville approaches. INDOT has committed to include context sensitive solution measures, which may include plantings, gateways, and other enhancements within constraints of available right-of-way, impacts, and cost, as further discussed with the cities and counties during final design.

- Terminating the Fullerton Pike connection on the west side of the mainline to avoid impacts to a deep valley with karst features, a historic cemetery, and a private hospital. Alternatives 4, 5, 6, 7, and 8 would follow the existing alignment of Fullerton Pike on the west side of the mainline and connect to the existing roadway. Refined Preferred Alternative 8 would shift Fullerton Pike slightly north to straighten a curve in the existing roadway, and tie into the existing Fullerton Pike alignment.

- Providing Tapp Road access to I-69 via a split-interchange (reduced collector-distributor[10] [CD] system) in Alternatives 5, 7, 8, and Refined Preferred Alternative 8 to provide access for congestion reduction, the large investment in Tapp Road improvements to the east of SR 37 by the City of Bloomington, and planned development.

- Northern shift of the west side Tapp Road expansion for a turning lane (Alternative 4) away from tightly spaced housing.

- Elimination of a CD system with two mainline travel lanes and two CD lanes for access to Tapp Road, SR 45/2nd Street, and SR 48/3rd Street with Alternative 2 (described in Preliminary Alternatives Analysis and Screening dated May 2007, revised April 2012). Local government officials and public participants who provided comments as part of the July 2005 Public Information Meeting thought that it would not keep with the community feel, described as being too metropolitan or big city, and too much required right-of-way.

- Elimination of Alternative 1 where the entire highway was shifted to the west side of the bifurcation (described in Preliminary Alternatives Analysis and Screening dated May 2007, revised April 2012), and the inclusion of guardrail in order to maintain existing bifurcation to preserve forest, streams, and view shed for the remaining alternatives.

- Reconnection of existing local access roads in lieu of increased residential, business, and farm impacts associated with construction of new local access roads immediately adjacent to I-69.

- Use of existing partial interchange, Monroe County Bridge No. 913, and locally viewed gateway at Walnut Street in Alternative 7, 8 (Option B), and Refined Preferred Alternative 8. The use of the existing partial interchange was approved by FHWA

[10] Collector-Distributor (CD) Lanes – A one-way road next to a freeway that is used for some or all of the ramps that would otherwise merge into or split from the main lanes of the freeway. It is similar to a local access road, but is built to freeway standards. It is used to eliminate or move weaving from the main lanes of the freeway.

February 2013 (more information can be found in **Appendix RR**, *Walnut Street Interchange Selection Report*.)

- Use of a single folded interchange type at Fullerton Pike, Sample Road, and Liberty Church Road to match terrain and development patterns. All alternatives would incorporate a single folded interchange type in at least one of these locations. However, the specific interchange type for each location will be determined during final design for the final alignment, but will stay within the right-of-way footprint for the Refined Preferred Alternative 8.

- Treatment of a parcel outside of the Maple Grove Road Rural Historic District (as described in the National Register of Historic Places [NRHP] nomination form) as potentially eligible, and avoided by holding all alternatives to the west side right-of-way.

- Reuse of existing Arlington Road overpass by lowering mainline I-69 elevations to reduce traffic disruptions and maintain east/west connectivity. Alternatives 6, 7, 8 and Refined Preferred Alternative 8 incorporate this feature.

- Grade separator walls, steepened side slopes, and/or benched rock cuts have been committed to in order to reduce direct impacts and neighborhood encroachment (at Yonkers Drive), as well as to avoid a multi-family complex (at 2nd Street), churches (Prow Road), utility distribution center (at Ellis Drive), and IWPA dam (at Stonebelt Drive).

- Accommodation of bicycle and pedestrian traffic at new interchanges, and further consideration of these accommodations where existing infrastructure is reused, as appropriate. Bicycle and pedestrian facilities across I-69 have been incorporated into the Refined Preferred Alternative 8 (see **Table S-12**). Ongoing consideration of possible teaming with the City of Bloomington as part of a local project to provide a separate crossing of I-69 between 2nd Street and 3rd Street for use as part of local bicycle/pedestrian plans.

- Inclusion of an overpass type grade separator to maintain the eastside connection at Crescent Road at Vernal Pike/W. 17th Street to provide community access and reduce impacts to a housing development. Alternatives 7, 8, and Refined Preferred Alternative 8 would have an overpass of W. 17th Street to maintain east/west connectivity.

INDOT will continue the coordination during the design phase to obtain input on the use of CSS from both the county and city agencies, which may result in some minor modifications of CSS measures discussed above. However, any CSS measures will be within the right-of-way footprint of Refined Preferred Alternative 8.

Wetland Mitigation and Indiana Bat Hibernacula: INDOT and FHWA will follow the mitigation ratios listed in their Wetlands MOU signed January 28, 1991. The MOU is provided in **Appendix V**, *Wetlands Memorandum of Understanding*, of this FEIS.

For Section 5, two potential mitigation sites have been identified in the *Revised Tier 1 Conceptual Forest and Wetland Mitigation Plan & Comparison of Tier 1 Plans (*see **Appendix S** for this Plan and a comparison to the original *Tier 1 Forest and Wetland Mitigation and Enhancement Plan*, which was provided as Appendix NN in the Tier 1 FEIS): The following is a description of the two sites.

- **West Fork White River (Bryant Creek)** mitigation area is located along Bryant Creek just east of the confluence of Bryant Creek with the West Fork White River, directly south of Paragon Road. During the original bat surveys in 2004-2005, there were six Indiana bat roost trees identified in the proposed mitigation area. One tree was a primary roost with bat numbers reaching up to 128 per night. A second primary roost was identified in the area during surveys in 2012. This roost showed a maximum emergence count of 74 individuals. The area is a mix of bottomland and upland hardwood forest with interspersed grazing. Opportunities for mitigation in this area are excellent for creating riparian buffers along the West Fork White River and/or Bryant Creek. It would also reestablish bottomland woods with riparian buffers along the White River and/or Bryant Creek. Such habitat could be used by the Indiana bat and bald eagle and improve the water quality of the White River from enhanced soil and bank stabilization, vegetative filtering and uptake, and flood control. Improving the water quality may reduce siltation and improve water conditions for mussels in this area of the White River. In addition, this replacement of riparian habitat could enhance the White River flyway for the Indiana bat.

- **Beanblossom Bottoms** mitigation area is a secondary mitigation site near the Beanblossom Bottoms wetland complex. The Beanblossom Bottoms area includes a complex of high quality hardwood wetlands that harbor many unique plants and animals. Mitigation in this area would provide habitat for the bald eagle, Indiana bat, bobcat, and many species of amphibians and reptiles. The proposed design of this mitigation site could be shallow water, slough-like habitat. Such a habitat would attract ducks, geese, and wading birds. Of special interest would be whooping and sandhill cranes. Bottomland woods of oak and hickory would provide, as appropriate, for isolation and protection for some species. This mitigation site would increase summer roosting habitat for the Indiana bat and increase bald eagle nesting and feeding habitats and improve the water quality of the White River from improved soil and bank stabilization, vegetative filtering and uptake, and flood control. It is expected that the Beanblossom Bottoms mitigation area would be similar to the existing Muscatatuck Refuge in the Beanblossom Bottoms.

Indiana bat hibernacula (caves where Indiana bats overwinter) are present within the Section 5 Winter Action Area (WAA). Per the revised Tier 1 BO, opportunities will be investigated to purchase, at fair market value, from willing sellers, Indiana bat hibernaculum(a) including associated autumn swarming/spring staging habitat. After purchase and implementation of all management efforts, hibernaculum(a) and all buffered areas will be turned over to an appropriate government conservation and management agency for protection in perpetuity via conservation easements. At present, INDOT and FHWA have purchased a Conservation Easement for two Priority 1A hibernacula. In 2009, these two hibernacula showed approximately 37,000 wintering Indiana bats. A third hibernaculum within the WAA was also purchased and it showed

approximately 50 to 60 wintering Indiana bats in 2009. INDOT and FHWA have also purchased a mitigation property outside of the WAA, including one Priority 3 hibernacula that in 2009 showed over 800 wintering Indiana bats, as well as containing over 350 acres of autumn swarming/spring staging habitat.

Subsequent mitigation planning for Section 5 included the refinement of mitigation focus areas based on Indiana bat maternity colony areas, review of existing managed lands, and existing habitat blocks that could be expanded and/or preserved. In consultation with the environmental resource agencies, these refined mitigation focus areas have been reviewed and landowner contacts made to identify willing sellers and determine specific parcels which could be acquired for mitigation purposes. In December 2012, INDOT submitted a Tier 2 Section 5 BA that provided additional details on the mitigation plans in Section 5. The Section 5 Tier 2 BA identifies a total of 20 properties for mitigation. Seven focus areas were targeted for Section 5 mitigation: West Fork (Bryant Creek) Maternity Colony, Lambs Creek Maternity Colony, Beanblossom Bottoms Nature Preserve Maternity Colony, Crooked Creek Maternity Colony (Section 6), Morgan-Monroe State Forest, Beanblossom Creek, and Maple Grove Road Rural Historic District. The 20 properties would be acquired for preservation and/or future restoration and replanting activities. These 20 sites are expected to provide a total of more than 1,500 acres of mitigation lands. Additional detail on these sites is presented in the Section 5 Tier 2 BA in **Appendix LL1**.

Forest Mitigation: The potential impacts to upland forests due to Section 5 Alternatives of the proposed I-69 project vary (see **Section 5.20**, *Forest Impacts,* and **Chapter 7**, *Mitigation and Commitments*). Upland forests will be mitigated at a 3 to 1 ratio. In the case of any forests in a floodway, a 2 to 1 replacement or 10 to 1 preservation ratio would apply, as applicable by the IDNR Construction in a Floodway permit. If needed, the necessary permit would be secured before or during the design phase of the project.

In Section 5, the proposed forest mitigation sites are the same as those described above for wetland mitigation. Preference will be given to areas contiguous to large forested tracts that have recorded federal- and state-listed threatened and endangered species. Coordination with resource agencies will assure that these forest mitigation sites are strategically situated in biologically attractive ecosystems.

I-69 Community Planning Program: The I-69 Community Planning Program set in place a regional strategy for providing resources to local communities to manage the growth and economic development associated with I-69. The program provided grants for local communities (cities, towns, and counties) to prepare plans to manage potential new developments along with the I-69 corridor.

On October 29, 2007, INDOT awarded $950,000 in grants to communities located along the I-69 corridor in Southwest Indiana. Within Section 5, Morgan County, the Town of Mooresville, and the City of Martinsville together were awarded a grant for $150,000. On February 1, 2008, Monroe County submitted an application for a $50,000 grant. The City of Bloomington was eligible for this program but chose not to participate. Monroe County was awarded a $50,000

grant, and the Town of Ellettsville was also awarded a grant for $50,000. Local communities used these grants to prepare transportation land use plans, zoning and subdivision ordinances, and special highway corridor "overlay zones" for development. In the second phase of the program, on July 30, 2008, a $100,000 grant was awarded to Monroe County and the Town of Ellettsville. This grant was used for the preparation of the Monroe County Comprehensive Plan (2012). A transportation corridor plan for SR 37/I-69 also was developed by Monroe County in 2010 as a result of the grant program. Grants awarded in this second round of grants brought the total grant awards to $1,500,000 for both rounds. For further details, please see **Appendix T**, *I-69 Planning Grant Program Update*.

Geographic Information System (GIS): INDOT and FHWA, along with the Indiana Geological Survey (IGS), developed a comprehensive GIS dataset covering the entire Tier 1 26-county Study Area in southwest Indiana to assist in assessing impacts of the I-69 Evansville to Indianapolis project. This GIS for southwest Indiana is comprised of approximately 170 different layers of aquatic, terrestrial, mineral, social, and economic information for the 26 counties. With the publication of the I-69 Tier 1 Draft Environmental Impact Statement (DEIS), the IGS made this information available to all agencies and the public on its website. Building on the southwest Indiana GIS, INDOT and FHWA subsequently developed a statewide GIS Atlas, known as IndianaMAP, that consists of layers for similar resources for each county throughout the State of Indiana.[11]

Update County Historic Surveys: As part of a Tier 1 Section 106 commitment, FHWA and INDOT will provide funding and technical assistance to the SHPO to support a comprehensive effort to update the Interim Reports for Morgan and Monroe counties,[12] and further development of GIS-based tools for identifying and recording archaeological sites.

Biological Surveys on Wildlife and Plants: During Tier 1 studies, formal and informal consultation with USFWS was conducted as part of the requirements under Section 7 of the Endangered Species Act. Within the counties through which the alternatives traverse, there are two federally-listed endangered species—the Indiana bat and the fanshell mussel, and one federally-protected species—the bald eagle.[13] This consultation was concluded with the I-69 Tier 1 BO, approved on December 3, 2003.

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[11] Known as the IndianaMap, this site is hosted by the Indiana Geographic Information Council, and can be accessed at http://inmap.indiana.edu/viewer.htm. (Last accessed 3/28/13).

[12] These surveys will be completed in accordance with a Memorandum of Agreement following approval of the Record of Decision for the section(s) located within or near each specific county.

[13] Note: On July 9, 2007, the USFWS removed the bald eagle from the list of endangered and threatened species under the Endangered Species Act. Since that time; however, the bald eagle has been protected by the Bald Eagle and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668d. On May 20, 2008, the USFWS issued regulations governing permits under the Bald and Golden Eagle Protection Act for the projects that obtained an incidental take permit under the ESA. 50 C.F.R. Part 22. On June 25, 2009, the USFWS issued INDOT and FHWA a permit under the Bald and Golden Eagle Protection Act for the I-69 Evansville to Indianapolis project based on the incidental take permit under the ESA. 50 C.F.R. Part 22. FHWA and INDOT will comply with the Bald and Golden Eagle Protection Act permit requirements established by FWS, which include the Terms and Conditions associated with the Incidental Take Statement.

Formal consultation with USFWS has been reinitiated three times during Tier 2 studies. The first reinitiation occurred in 2006, as a result of additional information provided by Tier 2 bat surveys in 2004 and 2005. A revised Tier 1 BO was issued in August 2006. Current information shows no bald eagle nests within the corridor, and mussel surveys found no eastern fanshell mussels. Thus, there was no reinitiation of formal consultation on the bald eagle or eastern fanshell mussel.

This first re-initiation of formal consultation resulted in the preparation of an Addendum to the Tier 1 BA which was provided to the USFWS. The BA Addendum detailed information gathered on the Indiana bat during Tier 2 studies and after the original BO was issued. Upon completion of its review of the Addendum, USFWS submitted a revised Tier 1 BO, including an Incidental Take Statement, to FHWA and INDOT on August 24, 2006. In the revised Tier 1 BO, USFWS confirmed its original opinion that the I-69 project is "not likely to adversely affect the eastern fanshell mussels" (p. 37); and "is not likely to jeopardize the continued existence of either the Indiana bat or the bald eagle." Regarding the Indiana bat, USFWS concluded "the proposed extension of I-69 from Evansville to Indianapolis will have greater impacts to Indiana bats than were originally considered," but the project "is not likely to jeopardize the continued existence of the Indiana bat and is not likely to adversely modify the bat's designated Critical Habitat."

Tier 1 consultation was re-initiated a second time in 2011. The identification of a new Indiana bat maternity colony and the reported confirmation of White Nose Syndrome within hibernacula in Indiana constitute new information that was not considered during the original revised Tier 1 BO. USFWS amended the revised Tier 1 BO on May 25, 2011.

Tier 1 consultation was re-initiated a third time in 2013. The identification of two new Indiana bat maternity colonies, modifications to exempted levels of take, and documentation of private property owner tree clearing in Section 4 constituted new information not considered during the original Revised Tier 1 BO. USFWS issued Amendment 2 to the revised Tier 1 BO on July 24, 2013; refer to **Appendix BB**, *Revised Tier 1 BO and Amendments*.

Pursuant to the BO as revised and amended, INDOT is cooperating with USFWS, IDNR, and other agencies and organizations to complete the following: (1) biological surveys for rare and endangered species; (2) surveys of known Indiana bat hibernacula (i.e., caves); (3) funding of research for discovery of new hibernacula; (4) funding of research on autumn and spring habitat for the Indiana bat; (5) funding for captive-rearing research on mussels; and, (6) funding for the writing and printing of informative pamphlets on bats, bald eagles, and mussels in Indiana. Field studies in Section 5 included generalized pedestrian surveys during project field work, harp and mist netting for Indiana bats with radiotelemetry and Anabat, bridge habitat surveys and cave fauna survey. Tier 2 studies related to the Indiana bat began in the summer of 2004 and continued through the winter of 2006. All survey results have been included as an Addendum to the previous Tier 1 BA. In addition, pre-construction mist netting was conducted for a portion of Section 5 in the summer of 2012. The results of this mist netting were included in a separate report which was provided to USFWS. FHWA and INDOT agreed to commitments and mitigation documented in the revised Tier 1 BO, which incorporates by reference the *Revised*

Tier 1 Conceptual Forest and Wetlands Mitigation and Enhancement Plan (see **Appendix S**). Proposed mitigation for the Indiana bat includes providing additional forested and wetland habitat for this species, purchasing Indiana bat hibernacula, and installation of bat friendly gates at hibernacula.

Conservation measures were jointly developed by the FHWA, INDOT, and USFWS, during informal consultation and were subsequently incorporated into the Tier 1 BA and the Tier 1 BA Addendum as part of the official Proposed Action for the I-69 project. Since conservation measures are part of the Proposed Action, their implementation is required under the terms of the consultation. These measures were specifically designed to avoid and minimize impacts of the proposed action on Indiana bats and bald eagles and to further their recovery. **Section 7.3.16**, *Threatened and Endangered Species,* presents the conservation measures applicable to Section 5. **Section 5.17**, *Threatened and Endangered Species*, and **Appendix BB** (*Revised Tier 1 BO and Amendments*) provide a history of the Section 7 consultation for this project, and the revised Tier 1 BO contains the complete list of conservation measures for the I-69 project as a whole.

Bridging of Floodplains: Although it is not anticipated that any floodplains in Section 5 will be bridged in their entirety, floodplain encroachments will be minimized by rehabilitating existing bridges or replacing them at their existing locations. In addition to consideration of all major crossings, there are four Federal Emergency Management Agency (FEMA) mapped floodplains crossed in Section 5: the 100-year floodplain in the Beanblossom Valley (approximately 5,000 feet wide where crossed by existing SR 37), the 100-year floodplain of Bryant Creek valley (approximately 700 feet wide where crossed by existing SR 37), the 100-year floodplain of the broad valley of Little Indian Creek (approximately 1,780 feet wide where crossed by existing SR 37), and the 100-year floodplain of Indian Creek (approximately 5,000 feet wide where crossed by existing SR 37) that is only slightly encroached by the northern termini of the Alternatives. A final hydraulic design study will be completed during the design phase, and a summary of this will be included with the Field Check Plans and Design Summary.

Distance Learning: INDOT and FHWA have been involved and will continue to promote distance learning opportunities for students in Southwest Indiana.

Section 7.3, *Section 5 Mitigation Measures and Commitments*, provides specific proposed mitigation measures and commitments for each resource category in Section 5. In addition to the mitigation measures identified above, mitigation measures for the following categories of impacts are presented in that section:

- Land Use, (see CSS and the I-69 Community Planning Program described above).
- Social and Neighborhood, which includes providing for local access via access roads and overpasses; and assistance available to all residential relocates.
- Noise, which explains there are three noise barriers that meet the "feasibility and reasonableness" criteria found within the INDOT *Traffic Noise Analysis Procedure*. Barrier 1 involves impacted receptors along southbound I-69 between Fullerton Pike and Tapp Road. Barrier 3 involves impacted receptors along northbound I-69 between Tapp

Road and SR 45/2nd Street. Barrier 4 involves impacted receptors along northbound I-69 between SR 45/2nd Street and SR 48/3rd Street. Potentially affected property owners and/or tenants at the three potential barrier locations that meet INDOT feasible and reasonableness criteria were surveyed in accordance with the requirements set forth in the *INDOT Traffic Noise Analysis Procedure* to determine whether they do or do not want noise abatement. The majority of the responding residences voted in favor of noise barrier construction. A final determination on noise abatement for Refined Preferred Alternative 8 will be made during the design phase.

- Construction, which lists several measures to mitigate impacts including:
  - **Construction Plans –** Environmentally-sensitive locations will be clearly shown on construction plans and will not be permitted for use as staging areas, borrow, or wasted sites.
  - **Erosion Control –** Best Management Practices (BMPs) and erosion control devices will be used to minimize sediment and debris from leaving the project site in runoff. If slopes exceed 2 to 1, they will include stabilization techniques. Soil bioengineering techniques for bank stabilization will be considered where situations allow. INDOT will complete contractor compliance inspections on a regular basis to help control erosion and sediment on the project.
  - **Groundwater and Karst –** BMPs will be implemented during construction to protect groundwater. Stormwater runoff protection measures will be installed at all karst features in the right-of-way at the initiation of construction and maintained until all stormwater drainage has been diverted away from the feature, or final permanent stormwater treatment measures are in place. Procedures to reduce the impacts to karst will be implemented in accordance with INDOT's *Standard Specifications* and the 1993 Karst MOU between INDOT, IDNR, IDEM and USFWS. If active groundwater flow paths are discovered, measures will be taken to perpetuate the flow and protect water quality. If a Class V injection well is proposed, construction of such a well will be coordinated through the USEPA and will be authorized by rule or by permit. Any permits will be obtained prior to construction of the Class V well.
  - **Air Quality –** Construction equipment will be maintained. Fugitive dust will be controlled. All bituminous and Portland cement concrete proportioning plants and crushers will meet the requirements of the IDEM. Dust collectors must also be provided on all bituminous plants.
  - **Parking and Turning Areas –** Planning for heavy equipment parking and turning areas outside the construction limits but within the right-of-way will minimize soil erosion and impacts to identified resources.
  - **Tree Clearing –** Tree and snag removal will be avoided or minimized. No trees with a diameter of three or more inches will be removed between April 1 and November 15 within the Winter Action Area and April 1 and September 30 within the Summer Action Area to avoid any direct take of Indiana bats.

- **Emerald Ash Borer –** INDOT will comply with the requirements of 312 IAC 18-3-18 and Title 312 Natural Resources Commission Emergency Rule (LSA Document #12-195(E)) in regards to handling and transportation of cleared trees to prevent the spread of the emerald ash borer.
- **Revegetation –** Revegetation of disturbed areas will occur in accordance with INDOT standard specifications. Revegetation of disturbed soils in the right-of-way and medians will use native grasses and native wildflowers as appropriate.
- **Spill Prevention/Containment –** Contractors will be required to provide an acceptable spill response plan as part of the Rule 5 requirements.
- **Heavy Blasting –** While heavy blasting is unlikely, in the event that it is required, strict blasting specifications will be followed. All blasting in the WAA will follow the specifications developed in consultation with the USFWS. Blasting in karst areas will be in accordance with specifications developed in consultation with limestone industry representatives as well as the IGS and other geology experts.
- **Maintenance of Traffic –** Coordination with local agencies, emergency responders and schools will be conducted to ensure that appropriate access is maintained during construction.
- **Construction Noise –** Construction noise abatement measures may be required in areas where residences or other sensitive noise receivers are subjected to excessive noise from highway construction operations.
- **Construction in a Floodway –** Construction in a Floodway permit(s) will be applied for before or during the design phase of this project.
- **Bridge Surveys for Bats –** The undersides of existing bridges that must be removed for construction of I-69 will be visually surveyed and/or netted to determine their use as night roosts by Indiana bats during the summer. (Note: This work has been completed.)
- **Memoranda of Understandings (MOUs) –** Construction will adhere to the Wetlands MOU and the Karst MOU.
- **Equipment Maintenance –** Construction equipment will be maintained in proper mechanical condition. All servicing of construction equipment will take place in a designated maintenance area away from environmentally-sensitive areas, such as streams, wetlands, karst features, and historic resources.
- **Borrow Sites/Waste Disposal –** BMPs will be used in the construction of this project to minimize impacts related to borrow and waste disposal activities. Contractors are required to follow safeguards established in INDOT's *Standard Specifications* (Section 203.08 Borrow or Disposal) that include obtaining required permits.
- **Wetlands within the Right-of-Way –** Wetlands within the right-of-way that are not within the construction limits will be delineated and protected from construction impacts.

- **Training of Construction and Maintenance Personnel –** All I-69 engineering supervisors, equipment operators, and other construction personnel and INDOT and/or other maintenance staff will attend a mandatory environmental karst, bald eagle, and Indiana bat awareness training.

- Historic and Archaeological Resources (see **Section S.13.6**, below).

- Visual Impacts, which could include vegetation screening, CSS, and use of non-diffuse lighting if lighting is needed. Any lights installed will be at least 40 feet above the highway in order to discourage collisions between bats and vehicles.

- Hazardous Materials Impacts, noting that appropriate cleanup of hazardous materials, if any, will be coordinated with appropriate agencies and property owners.

- Floodplain Impacts (see Bridging of Floodplains, above).

- Wetland Impacts (see Wetland Mitigation, above).

- Farmland Impacts, including minimization of severances and landlocked parcels where possible.

- Forest Impacts (see Forest Mitigation, above).

- Water Body Modifications, including keeping tree clearing and snag removal to a minimum and limited to within calendar requirements and the construction limits, mitigating unavoidable stream impacts in coordination with regulatory agencies, using soil bioengineering techniques for bank stabilization where situations allow, placing culverts and other devices so they do not preclude the movement of fish and other aquatic organisms where situations allow, and using erosion control devices to minimize sediment and debris. Natural channel stream designs for perennial and larger intermittent stream relocation located within the Indiana bat maternity colony areas and the WAA may include stream designs that incorporate riffle/run/pool/glide or step/pool sequences and sinuosity to replicate natural channel geomorphology, and riparian buffer plantings outside the clear zone of the roadway.

- Ecosystem Impacts, including controlling invasive plants, coordinating with USFWS pursuant to the Migratory Bird Treaty Act of 1918, and providing wildlife corridors (see CSS, above).

- Water Quality Impacts, including crossing streams at their narrowest floodway width, developing stream mitigation plans where necessary, returning disturbed in stream habitats to their original condition when possible, minimizing tree clearing and snag removal, avoiding wetlands as much as possible and following the 1991 Wetland MOU, following BMPs for erosion control, providing grass-lined ditches connected to filter strips and containment (where appropriate), minimizing the amount of salt used for de-icing, and possible mitigation for a wellhead protection area that includes clay lined

ditches to help contain any possible spills, the restriction of borrow pits within the protection area, and the diversion of deicing chemicals and runoff from the protection area.

- Managed Lands, including the NRCS Conservation Reserve Program and the IDNR Classified Forest and Wildlands Program, could comprise repayment to the resource agencies of amount associated with each cost-sharing agreement. These mitigation measures would apply only if the agreements are still in force.

Threatened and Endangered Species (see the discussion of the Indiana bat in Biological Surveys on Wildlife and Plants, above). Conservation measures identified in the revised Tier 1 BO to address impacts to Indiana bats are listed in their entirety in **Section 5.17**, *Bald Eagles, Federal and State Threatened and Endangered Species*. Mitigation measures for the Indiana bat include tree cutting restrictions. There will be no tree cutting between April 1 and September 30 within the Summer Action Area and between April 1 and November 15 in the Winter Action Area. Additional mitigation measures for the Indiana bat include: adherence to the 1991 Wetland MOU, measures to avoid water quality contamination, summer habitat creation and enhancement, mitigation of forest impacts at ratios greater than those identified in the revised Tier 1 BO, and providing for educational opportunities to inform the public about the presence and protection of bats, particularly the Indiana bat. Mitigation costs are similar between the Alternatives 4 and 5 ($29M and $28M, respectively) but are higher than those calculated for Alternatives 6, 7, 8, and Refined Preferred Alternative 8 ($16M to $18M).

Detailed design will continue to make efforts to further reduce impacts to sensitive resources. When this is determined possible without reducing the benefits of the Refined Preferred Alternative 8 or increasing impacts to other sensitive resources and in consultation with the appropriate resource agencies, mitigation quantities may be reduced but the agreed-to ratios shall be maintained. Impacts to these resources and mitigation will be tracked and reported to the appropriate resource agencies on an annual basis. Should design changes cause impacts outside of the proposed footprint, those will be analyzed and documented.

Tracking of mitigation commitments and mitigation activities associated with each will be performed by INDOT within a GIS database. INDOT has coordinated with agencies to identify agency-specific information to be included in the database. INDOT will provide to permitting agencies and USEPA a tracking summary on an annual basis. The summary will identify the mitigation commitments and describe the status of the activities-to-date associated with each commitment.

S.12 Section 5 Project Development

INDOT intends to begin construction in Section 5 as soon as possible after the issuance of the ROD. INDOT has selected a design firm for Section 5 and early design activities are anticipated to begin in the summer of 2013. INDOT is pursuing innovative finance and delivery to deliver this project to the community as quickly as possible in order to alleviate concerns about the need for improvements to SR 37 that have been expressed by various members of the community in preparation for the opening of I-69 Section 4. I-69 Section 5 will not be constructed as a toll facility.

With innovative financing and delivery projects, it is likely that a single construction contract would be issued. Within this contract, construction segments in Section 5 are likely to be shorter. They would be prioritized for construction based on several factors, including but not limited to: operational and safety needs at a particular location, access for local residences and businesses with current direct access to SR 37, maintenance of traffic during construction, condition of the existing SR 37 pavement, timing of planned construction on the local road network adjacent to the project, and acquisition of necessary right-of-way in particular areas slated for construction at a given time.

Project sequencing and timing will be determined once the procurement process is completed. Possible construction sequencing is outlined in **Appendix FF**, *Construction Sequencing/Prioritization*. The innovative finance and delivery team may offer an alternative sequencing plan for review and acceptance by INDOT. Safety priorities, including removing at-grade crossings through the urban area, will continue to be of primary concern. Staging of capacity improvements may be prioritized based on the year improvements are needed. As explained in **Appendix TT**, *3rd Lane Traffic Memorandum*, the operational need for the third lane is not anticipated until sometime after the year 2025; 2035 is the design year for this environmental study. INDOT is ready to begin right-of-way services once the use of federal funds is authorized. Regardless of procurement strategy chosen, all applicable state and federal requirements and adherence to INDOT standards and specifications will be required. Since INDOT does not expend monies for innovative finance and delivery the same way it does for traditional design-build / design-bid-build projects, anticipated costs by year are not provided in the Tier 2 Section 5 FEIS.

Traffic will be maintained on existing SR 37 during the construction of I-69. With the exception of those properties which are acquired in full (resulting in a relocation), any residential or commercial properties will be provided with access to a public roadway during the construction.

S.13 Regulatory Actions and Approvals Associated with this Project

Coordination with all appropriate state and federal regulatory agencies occurred throughout the Tier 1 process and has continued in Tier 2. Major regulatory requirements applicable to this project include permitting under Section 404 of the Clean Water Act (CWA), which requires permits for discharges into wetlands or other waters of the United States; water quality certification under Section 401 of the CWA; permitting of construction in a floodway under Indiana Flood Control Act; National Pollutant Discharge Elimination System (NPDES) permitting for point source storm water discharges under the CWA; permitting under Rule 5 of Indiana State Regulations regarding erosion and sediment control; consultation regarding historic and archaeological resources under Section 106 of the National Historic Preservation Act; consultation regarding threatened and endangered species under Section 7 of the Endangered Species Act; certification of conformity under the CAA; USEPA Class V Injection Well Permit for permit approval; and, *de minimis* determinations under Section 4(f) of the Department of Transportation Act of 1966, as codified in 49 U.S.C. §303(c). This Act requires that, prior to the use of any of certain public land types, it must be determined that there are no prudent and feasible alternatives that avoid such use and that the project includes all possible planning to minimize harm to such resources. Actions taken or committed to be taken to comply with these requirements are summarized below.

S.13.1 Section 404 Permits

Projects involving excavation in or discharges of material into waters of the United States, or within jurisdictional wetlands require a Permit, or a letter of permission from the USACE, prior to the commencement of construction. As part of the Tier 1 process FHWA and INDOT consulted with the USACE on the approach to be used to obtain permits during the Tier 2 process. As part of the Tier 2 studies, streams and potential wetlands within the project area were assessed. The assessment identified the streams and wetland areas within the project area that would be subject to USACE permitting jurisdiction. Section 404 permit applications require specific location and design details for each place a permit is required. Once the process has reached the stage where sufficient design information is available for the selected alternative, the applications for Section 404 permits will be submitted to the USACE.

The nature of the Section 404 permits (whether individual, nationwide, or general) requires USACE to make a jurisdictional determination on all wetland and stream impacts prior to granting the permit. A Waters of the United States Jurisdictional Determination Report will be prepared for Section 5 and submitted to USACE prior to the submittal of the permit applications.

S.13.2 Section 401 Water Quality Certification

In addition to a Section 404 Permit, any activity involving dredging, excavation, or filling within waters of the United States requires a Section 401 Water Quality Certification from IDEM. This certification is based on IDEM's review of applications for Section 404 USACE permits for compliance with state water quality standards. Section 401 Water Quality Certifications must be obtained prior to issuance of the Section 404 permit.

S.13.3 Construction within a Floodway Permit

Indiana's Flood Control Act requires that any person proposing to construct a structure, place fill, or excavate material at a site located within the floodway of any river or stream must obtain the written approval of the IDNR prior to initiating the activity. Since its enactment, the scope of IDNR's analysis has been expanded to protect Indiana's natural resources located in the floodway. Construction in a Floodway permit(s) would be applied for before or during the final design phase of this project.

S.13.4 National Pollution Discharge Elimination (NPDES) Permit

The NPDES permit program regulates point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Owners of facilities which have discrete separate stormwater discharges directly to surface waters, must obtain NPDES Permits under 327 IAC 15-13 (Rule 13). INDOT, similarly, is required to permit discrete separate stormwater discharges under 327 IAC 5-4-6. While the INDOT permit requirements and process have not yet been finalized by IDEM, this project may require permitting under this process.

S.13.5 Rule 5 Erosion Control

Rule 5 is a state regulation (327 IAC 15-5) to control erosion resulting from construction activity that results in the disturbance of one acre or more of total land area. Rule 5 requires that a construction plan be developed, and as part of the overall construction plan, an erosion and sediment control plan and storm water pollution prevention plan (SWPPP) is developed. The overall construction plan would be approved by INDOT and IDEM prior to construction.

The applicant must submit the construction plan and a Notice of Intent to IDEM for review and to obtain a Notice of Sufficiency. The notice must state the project start date, which is then used by IDEM to determine the five-year duration date of the notice. Plan implementation must occur before, during, and after construction. Upon completion of construction, a Notice of Termination must be submitted to IDEM.

S.13.6 Section 106 – Historic and Archaeological Resources

During the Tier 1 process FHWA and INDOT consulted with the Indiana SHPO and other consulting parties and developed a MOA that defined the mitigation measures and other actions that would be examined during the Section 106 consultation process in Tier 2.

The Tier 2 process has continued the consultation with the SHPO and consulting parties to refine the Area of Potential Effects (APE) defined in Tier 1, identify potential resources within the area and define the scope of the field investigations that would be required. The results of the archaeological and historic property surveys that have been completed thus far are included in this FEIS along with SHPO and ACHP consultation (refer to **Appendix N**, *Section 106 Documentation*). Requirements for any further archaeological investigations (such as Phase Ic surveys) are documented in the Tier 2 Section 5 MOA.

These stipulations include two educational items, as provided in the Tier 1 MOA: a Multiple Property Documentation Form of the Dimension Limestone Industry, and if Monroe County chooses, an Educational Outreach Initiative, coordinated and implemented by the county with funding by FHWA. Other stipulations in the MOA include additional coordination during design to avoid highway drainage impacts to historic landscape districts and the possible inclusion of landscaping and the use of limestone or other treatments, as coordinated between the community, FHWA, and INDOT as part of the CSS process. The MOA was signed by SHPO on April 30, 2013, and the ACHP on May 9, 2013. See **Section 5.13**, *Historic Resource Impacts*, for additional information and **Appendix N** for a copy of the MOA.

S.13.7 Section 4(f) Resources – *de minimis* Determinations

Since the approval of the I-69 Tier 1 ROD, subsequent legislation (Section 6009 of SAFETEA-LU), permitted FHWA to determine that a direct use of a Section 4(f) resource which, after taking into account any measures to minimize harm, does not adversely affect the features, attributes and activities of the resource constitutes a *de minimis* impact. In such cases, the protections of Section 4(f) do not apply and such uses do not require a determination that there is no feasible and prudent alternative to that use.

For publicly-owned parks, recreation areas, and wildlife and waterfowl refuges, in order for FHWA to make a *de minimis* finding, it must receive written concurrence from the party that has ownership or control of the resource stating that the proposed impact will not affect the resource's features, attributes, and activities. Further, such concurrence may occur after public notice is provided, and interested parties are afforded 30 days in which to provide comments on the proposed use. The regulations implementing SAFETEA-LU contemplate that such notice typically is provided as part of the NEPA process. In the case of an EIS, the notice is provided by documentation in the DEIS, with the DEIS comment period affording the opportunity for interested parties to comment. As such, DEIS comments applicable to Wapehani Mountain Bike Park were provided to the City of Bloomington for consideration.

The *de minimis* impact determinations regarding the use of up to 1.73 acres of Wapehani Mountain Bike Park and approximately 1.96 acres of North Clear Creek Historic Landscape District include consideration of supporting documentation that demonstrate that the impacts, after avoidance, minimization, mitigation, or enhancement measures are taken into account, are *de minimis* as defined in 23 CFR §774.17; and coordination required by 23 CFR §774.5(b) has been completed.

These determinations are made in accordance with 23 CFR §774.7(e)(2), with regard to the preliminary Section 4(f) findings made in Tier 1 with respect to Section 5 of the I-69 Evansville to Indianapolis project. As established by the additional analysis in this Tier 2 study of the preliminary findings in the Tier 1 study, a new Section 4(f) use was identified.

Based upon public input and a comparison of impacts, Refined Preferred Alternative 8 proposes "no shift" of the alignment at the Wapehani Mountain Bike Park (similar to Alternative 7), which uses up to 1.73 acres of the park. Right-of-way needed will be in the form of a strip of land approximately 20 to 80 feet wide along the current western boundary of the park, adjacent to and

east of the existing SR 37 right-of-way containing approximately 310 feet of wooded trail with a foot bridge. By the approval of this FEIS/ROD, FHWA hereby makes a *de minimis* finding regarding the use of the Wapehani Mountain Bike Park; see **Chapter 8**, *Section 4(f)*. This use has occurred with the written concurrence of the City of Bloomington, after it was afforded the opportunity to review public comments on the DEIS pertaining to this resource. In addition, all possible planning to minimize the harm has occurred as outlined in the Wapehani MOA (see **Appendix QQ**).

Prior to making a *de minimis* impact determination for a historic site, Section 4(f) requires that the SHPO and ACHP (if participating) concur in writing in the Section 106 determination of No Adverse Effect (23 CFR §774.5(b)(1)(ii)). The request for concurrence in the Section 106 determination should include a statement informing the SHPO and ACHP (if participating) that FHWA intends to make a *de minimis* impact finding based upon their concurrence in the Section 106 determination. Refined Preferred Alternative 8 uses approximately 1.96 acres of the North Clear Creek Historic Landscape District. The Refined Preferred Alternative 8 is similar to the DEIS Preferred Alternative 8, with refinements made to the proposed right-of-way in this area to further reduce impacts by 0.45-acre at this site. As substantiation that Alternative 8 (the DEIS Preferred Alternative) minimizes harm, the SHPO agreed with FHWA's determination that it would have No Adverse Effect on the historic district. The transportation use of North Clear Creek Historic District and Wapehani Mountain Bike Park, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f). Therefore, upon the approval of the Section 5 FEIS/ROD, FHWA hereby makes a *de minimis* finding regarding the use of the district. FHWA notified the SHPO and the ACHP of its plans to make a *de minimis* finding; SHPO formally concurred with the No Adverse Effect finding for above-ground historic resources in a letter dated November 21, 2012; and, FHWA received and considered public comments on the issue. ACHP issued a formal concurrence on May 9, 2013.

Though it has been determined to be unlikely, in accordance with 23 CFR §774.11(f) and §774.13(b), if any archaeological sites eligible for the NRHP are identified that should be preserved in place, the protections under Section 4(f) will be applied.

S.13.8 Section 7 – Threatened and Endangered Species

Federally-listed species are protected under Section 7 of the Endangered Species Act (ESA). During the Tier 1 process the FHWA and INDOT consulted with the USFWS regarding the project's potential impacts on federally-listed threatened and endangered species. In July 2003, FHWA and INDOT submitted a BA that examined the impact of the project on the Indiana bat, the bald eagle and the eastern fanshell mussel. The USFWS reviewed the BA and issued a Tier 1 BO in December 2003, which determined that the project would not adversely impact the mussel and is not likely to jeopardize the continued existence of the Indiana bat or bald eagle. The Tier 1 BO also included conservation measures, an incidental take statement covering both the Indiana bat and the bald eagle, and specified the procedures to be followed in Tier 2.

Tier 2 studies related to the Indiana bat in Section 5 began in May 2004 and continued through Winter 2005-2006. Mist netting with radiotelemetry and Anabat was also conducted for Section 5 in the summer of 2012.

In addition, FHWA and INDOT agreed to commitments and mitigation documented in the revised Tier 1 BO (dated August 24, 2006, as amended on May 25, 2011 and July 24, 2013). Proposed mitigation for the Indiana bat includes providing additional forested and wetland habitat for this species. Commitments related to Indiana bat winter habitat include the potential purchase and preservation of hibernacula.

On June 28, 2007, the Secretary of the Interior announced that the bald eagle would be removed from the endangered species list. In the announcement the Secretary noted that the bald eagle would continue to be protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Both of these federal laws prohibit the "taking" of bald eagles. In guidance issued in June 2007, the Department of the Interior stated that the USFWS would honor existing Endangered Species Act authorizations in place before the effective date of the delisting. The guidance indicates that the USFWS does not intend to seek prosecution of a "take" of any bald eagle under either the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act, if the "take" is in full compliance with the terms and conditions of an incidental take statement issued to the action agency. FHWA and INDOT intend to comply fully with the terms and conditions imposed by the incidental take statement that is included in the August 24, 2006, Revised Tier 1 BO, as it proceeds with this project. In addition, FHWA and INDOT will comply, as appropriate, with future Bald and Golden Eagle Act permitting requirements established by the USFWS.

Tier 1 consultation was re-initiated a third time in 2013. The identification of two new Indiana bat maternity colonies, modifications to exempted levels of take, and documentation of private property owner tree clearing in Section 4 constituted new information not considered during the original Revised Tier 1 BO. USFWS amended the Revised Tier 1 BO on July 24, 2013; refer to **Appendix BB**, *Revised Tier 1 BO and Amendments*.

S.13.9 Clean Air Act Compliance

Conformity Requirements: Under the CAA, USEPA set forth National Ambient Air Quality Standards (NAAQS) for six principal pollutants—particulate matter (PM), sulfur dioxide (SO_2), carbon monoxide (CO), ozone, nitrogen dioxide (NO_2), and lead.[14] An area that does not meet the NAAQS for one or more pollutants will be designated by the USEPA as a "nonattainment area." An area that was formerly in nonattainment and now meets the NAAQS is known as a "maintenance area" for a period of 20 years after coming into attainment. Under the CAA, each state is required to establish a plan for achieving the NAAQS in nonattainment areas and

[14] For further information about the NAAQS and criteria pollutant levels, please refer to USEPA's National Ambient Air Quality Standards website. (Source: USEPA, "National Ambient Air Quality Standards (NAAQS)," http://www.epa.gov/air/criteria.html.)

maintaining the NAAQS in maintenance areas. This plan is known as the State Implementation Plan (SIP).

Section 176 of the CAA prohibits federal agencies from approving, funding, or supporting in any way actions in nonattainment or maintenance areas unless the federal agency determines that the action "conforms" to the applicable SIP for that area. Regional and project-level requirements must be met before a ROD can be issued for non-exempt federal transportation projects. At the regional level, a project must be included in a regional emission analysis which demonstrates that future emissions from the transportation system are consistent with the SIP for any pollutants contributing to the designation of an area as nonattainment or maintenance for NAAQS. At the project level, CO and/or PM analyses are required. This is done to demonstrate that emission concentrations adjacent to the new roadway are below the NAAQS.

Since Morgan County has been designated a maintenance area for 8-hour ozone and nonattainment for the annual $PM_{2.5}$ standard, a regional-level conformity analysis must demonstrate that emissions with the I-69 Section 5 project are below the SIP budgets for volatile organic compounds (VOCs) and NO_x. Since Morgan and Monroe counties are in attainment for CO, project-level CO analyses are not required for a transportation conformity determination for the proposed project in Section 5. Nevertheless, a worst-case CO project level analysis was performed for information purposes to demonstrate that there are no local air quality impacts associated with CO under NEPA.

A joint FHWA/Federal Transit Administration (FTA) policy memorandum of May 20, 2003, provides guidance concerning air quality conformity requirements for projects in nonattainment or maintenance areas requiring Environmental Impacts Statements (EISs). For a copy of this memorandum, see **Appendix L**, *USDOT Air Quality Guidance* (*Policy Memorandum: Clarification of Transportation Conformity Requirements for FHWA/FTA Projects Requiring Environmental Impact Statements)*. The memorandum states that, in general, any required conformity determination should be made by the time of the FEIS, but in any event, "the conformity determination must be made prior to the issuance of the ROD." Therefore, the conformity requirements for Section 5 must be completed before the Tier 2 ROD for Section 5 can be signed.

In regards to regional conformity, the Indianapolis MPO adopted the 2035 Long-Range Transportation Plan: 2012 Amendment that includes the approved Section 5 project corridor and corresponding "Air Quality Conformity Determination Report," dated July 23, 2012.

In addition to demonstrating conformity in nonattainment and maintenance areas for the NAAQS at the regional-level, transportation conformity requirements may also require project-level hot-spot analyses for CO and/or PM in nonattainment and maintenance areas for CO and/or PM. Section 93.109(b) of the federal conformity rule lays out the requirements for project-level conformity determinations. It specifies that interagency consultation is required to determine whether a project meets the criteria that would require a hot-spot analysis. Since Morgan County is in nonattainment of the $PM_{2.5}$ standard, interagency coordination was initiated during a conference call on August 23, 2012, with state and federal agencies involved in the project planning process. Additional interagency consultation group (ICG) meetings were held April 19,

2013, April 29, 2013, and May 23, 2013 to discuss the need for a quantitative $PM_{2.5}$ analysis for I-69 Section 5 and methodologies to be used for this analysis. It was noted that the project is located in a $PM_{2.5}$ nonattainment area (Morgan County) with an increase in the number of diesel vehicles expected in future years. The ICG agreed that a project level hot-spot analysis would be conducted for I-69 Section 5 although the group did not conclude that the project was a Project of Air Quality Concern. A two week public comment period on the draft $PM_{2.5}$ technical report was offered and concluded on June 14, 2013. No comments were received during the comment period.

The $PM_{2.5}$ hot-spot analysis has demonstrated transportation conformity for the project by determining that future design value concentrations for the 2018 and 2035 analysis year will be lower than the 1997 annual $PM_{2.5}$ NAAQS of 15.0 µg/m³. As a result, the project does not create a violation of the 1997 annual $PM_{2.5}$ NAAQS, worsen an existing violation of the NAAQS, or delay timely attainment of the NAAQS and interim milestones, which meets 40 CFR 93.116 and 93.123 and supports the project level conformity determination. IDEM and the USEPA completed their reviews in accordance with the Indiana Conformity Consultation State Implementation Plan Documentation, and FHWA finds that I-69 Section 5 conforms to all applicable project level conformity requirements. Conformity findings and supporting documentation are included in ***Appendix OO***.

Ozone

USEPA issued a Federal Register Notice on June 21, 2012[15] that found the updated Central Indiana 8-hour Ozone SIP (1997 NAAQS) budgets adequate for conformity demonstration purposes. The 8-hour Ozone SIP was updated using MOVES and the 2009 Indiana fleet mix data. This new maintenance SIP budget became effective July 23, 2012.

The Indianapolis MPO adopted the 2035 Long-Range Transportation Plan: 2012 Amendment and the 2012-2015 Indianapolis Regional Transportation Improvement Program (TIP) that includes the approved Section 5 project corridor and corresponding "Air Quality Conformity Determination Report", dated July 23, 2012.[16] The determination report found I-69 Section 5 to conform to the updated SIP budget (using MOVES and 2009 Indiana fleet mix data).

USEPA issued a Federal Register Notice on April 30, 2012, designating non-attainment areas for the new more restrictive 8-hour Ozone Standard (2008 standard of 0.075 ppm, rather than 1997 0.08 standard in which Morgan County was determined "maintenance"). The air quality in Indiana has improved to the point that only two areas in Indiana have been determine non-attainment to the new more restrictive standard: Cincinnati (Lawrenceburg Township in

[15] 77 FR 120, page 37328, June 21, 2012. http://www.gpo.gov/fdsys/pkg/FR-2012-06-21/html/2012-14949.htm.

[16] The Indianapolis Metropolitan Planning Organization, "Indianapolis Metropolitan Planning Area, Air Quality Conformity Determination Report, 2035 Long-Range Transportation Plan: 2012 Amendment & 2012-2015 Indianapolis Regional Transportation Improvement Program," Indianapolis Metropolitan Planning Organization, Madison County Council of Governments, Indiana Department of Transportation, July 23, 2012, http://www.indympo.org/Plans/Documents/2035LRTP_2012Amendment_Final.pdf.

Dearborn County, Indiana) and the Chicago Area (Lake & Porter County in Northwest Indiana). Morgan County is listed as attainment to the new more restrictive 8-hour ozone standard. As of July 23, 2013, USEPA revoked the 1997 8-hour Ozone standard for purposes of demonstrating conformity. As such, FHWA no longer needs to demonstrate conformity to the ozone SIP for Central Indiana (including Morgan County) once the 1997 8-hour Ozone Standard is revoked for purposes of demonstrating conformity since the region attains the new 8-hour ozone standard.

Mobile Source Air Toxics (MSATs): Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the NEPA context. However, FHWA has issued an interim guidance on how MSATs should be addressed in NEPA documents for highway projects while research is ongoing to try to more clearly define potential risks from MSAT emissions associated with transportation projects. FHWA will continue to monitor the developing research in this emerging field.

The FHWA has developed a three tiered approach for analyzing MSAT in NEPA documents, depending on specific project circumstances. For the design year 2035, I-69 is forecasted to have an ADT of approximately 77,300 vehicles per day (VPD) as the highest volume. As traffic for the design year 2035 falls below the 140,000 to 150,000 ADT, I-69 falls into the second analysis level involving a qualitative analysis for projects with low potential MSAT effects.

Following FHWA's interim guidance, the FEIS includes a qualitative analysis of the likely MSAT emission impacts of this project. Technical shortcomings or uncertain science prevent a more complete prediction of the project-specific health impacts of the emission changes associated with the Section 5 alternatives. Due to these limitations, **Section 5.9.4,** *Analysis*, includes documentation in accordance with Council on Environmental Quality (CEQ) regulations (40 CFR §1502.22) regarding incomplete or unavailable information.

The qualitative assessment acknowledges that the project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain. Because of this uncertainty, the health effects from these emissions cannot be estimated. For each alternative in this document, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network.

Although regional and localized increases in MSAT emissions are expected for the Build Alternative over the No Build Alternative, total MSAT emissions are projected to decrease substantially in the future compared to the present because of new USEPA programs to reduce MSAT emissions nationwide. Thus, the I-69 Section 5 project is expected to result in low potential MSAT effects.

Carbon Monoxide (CO): For the Tier 2 study, a CO project-level analysis comparing existing, future build, and future no build conditions was performed for the intersection/interchange carrying the highest predicted traffic volume in the corridor and which also includes a proposed traffic signal or stop controlled intersection on a ramp junction (worst-case scenario). The selected location for the CO project-level analysis was at the SR 48/Southbound entrance ramp to I-69. This intersection was selected because it had the highest predicted design year traffic volume. In addition, a free-flow analysis was also conducted (worst-case scenario) for the future build condition for I-69 between SR 45/2nd Street and SR 48/3rd Street. This segment was selected because it has the highest traffic volumes of any segment in the project area for Refined Preferred Alternative 8 (approximately 77,300 ADT).

Existing Condition. The results of the Existing Condition analysis indicate that the highest predicted 1-hour concentration of CO is 4.8 ppm, while the highest 8-hour concentration is 3.1 ppm. The results indicate that the total concentrations are well below both the 1-hour (35 ppm) and 8-hour (9 ppm) NAAQS criteria.

Future No Build Condition. The results of the analysis for the future No Build Condition indicate that the highest predicted 1-hour concentration is 3.5 ppm, while the highest 8-hour concentration is 2.3 ppm. These results are well below both the 1-hour (35 ppm) and 8-hour (9 ppm) NAAQS criteria. When compared to the Existing Condition, the predicted 1-hour and 8-hour CO concentrations for the future No Build Condition are decreased.

Refined Preferred Alternative 8. The results of the analysis indicate that the highest 1-hour concentration is 3.6 ppm, while the highest 8-hour concentration is 2.3 ppm, both below the NAAQS criteria. When compared to the Existing Condition and the future No Build Condition, the 1-hour and 8-hour CO concentrations for the Refined Preferred Alternative are predicted to decrease over the Existing Condition and slightly increase over the future No Build Condition.

Free-Flow Section Analysis. The maximum 1-hour CO concentration for the Refined Preferred Alternative 8 is 2.7 ppm, while the highest 8-hour concentration is 1.7 ppm. None of the CO values pertaining to I-69, either now (SR 37) or in 2035, exceeds the NAAQS criteria.

$PM_{2.5}$: On March 10, 2006, the USEPA published a Final Rule (71 FR 12468) that establishes transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas. For projects located in nonattainment areas, the USEPA has issued public guidance for quantitative hot-spot analysis in nonattainment areas (EPA-420-B-10-040, December, 2010). The interagency consultation process is used to determine which projects require quantitative hot-spot analyses and to determine the methods and procedures for such analyses. The ICG agreed that a project level hot-spot analysis would be conducted for I-69 Section 5 although the group did not conclude that the project was a Project of Air Quality Concern. The Morgan County portion of the Section 5 study area is in the nonattainment area for $PM_{2.5}$.

USEPA released guidance for quantifying the local air quality impacts of certain transportation projects for the $PM_{2.5}$ and PM_{10} NAAQS on December 10, 2010 (EPA-420-B-10-040). This guidance must be used by state and local agencies to conduct quantitative hot-spot analyses for new or expanded highway or transit projects with significant increases in diesel traffic in nonattainment or maintenance areas.

The analysis demonstrated transportation conformity for the project by determining that future design value concentrations for the 2018 and 2035 analysis year will be lower than the 1997 annual $PM_{2.5}$ NAAQS of 15.0 µg/m³. As a result, the project does not create a violation of the 1997 annual $PM_{2.5}$ NAAQS, worsen an existing violation of the NAAQS, or delay timely attainment of the NAAQS and interim milestones, which meets 40 CFR §93.116 and §93.123 and supports the project level conformity determination.

S.13.10 Class V Injection Well Permit

Class V injection well permits may be required for various types of projects. Most of the Class V well permits anticipated within Section 5 would be authorized by rule because there will be measures in place as part of sinkhole mitigation under the Karst MOU. While the specific karst features requiring a Class V injection well are not known at the EIS stage of the Section 5 project, they may be needed for sinkholes if they are modified to receive Section 5 stormwater drainage as part of final design. For example, such a permit could be required by USEPA Region 5 if a Class V injection well is located within the karst region of the state; a sole source aquifer area; a state designated source water protection area for a public water supply; or, anywhere untreated fluids discharged through a Class V well may otherwise endanger an underground source of drinking water. If there are measures in place to prevent contamination of groundwater, a Class V well could be authorized by rule rather than by a permit. A Class V Well Inventory Form would need to be provided to USEPA Region 5 prior to construction of a Class V injection well so that USEPA could determine if a Class V injection well permit will be required for any Class V wells. For the I-69 project, if the inventory information provided indicates that any injection well would likely contaminate any underground source of drinking water, a permit would be required. Any permit would need to be applied for and obtained prior to construction of the Class V well.

S.14 Remaining Steps – Tier 2 Process

The ROD for Section 5 is being issued jointly with the FEIS, per recommendations in MAP-21. Therefore, once this FEIS and the accompanying ROD are signed and issued, the Section 5 Tier 2 Environmental Impact Study will be completed.

S.15 Glossary of Key Terms

A number of key terms used in this summary are defined here. A more comprehensive glossary can be found in **Chapter 13**, along with a list of acronyms and an index.

Alternatives – Possible routes for I-69. In the Tier 1 study, alternative corridors were evaluated, and Alternative 3C was selected as the preferred alternative. In Tier 2, alternative roadway alignments are being studied within each of the six sections of the Alternative 3C corridor. Six alternatives were identified for detailed analysis in Section 5, which extends from SR 37 south of Bloomington in Monroe County, Indiana to SR 39 just south of Martinsville in Morgan County, Indiana.

Archaeological Research – Indiana guidelines define the phases of archaeological research as follows:

- **Phase Ia** includes background research and limited field reconnaissance to assess the potential for cultural resources within a project area. The reconnaissance consists of a surface survey and visual inspection of the soil when ground surface visibility and survey conditions are adequate; or, when ground surface and survey conditions are not adequate, the use of shovel probes, cores, and/or augering techniques to discover site evidence at or near the surface of the site.

- **Phase Ib** is an intensive survey with the use of controlled surface collections, piece plotting, or subsurface sampling.

- **Phase Ic** is subsurface reconnaissance to locate archaeological sites buried in alluvial (sediment deposited by flowing water), colluvial (loose deposit of rock debris), or eolian (wind-borne) landforms.

- **Phase 2** testing is conducted for sites identified through Phase I investigations that are potentially eligible for the National Register of Historic Places (NRHP). Sites are tested to determine the vertical extent of the site, the presence of subsurface cultural features (i.e. hearths, trash/storage pits, and living surfaces), the nature and context of deposits, and extent of disturbance, if any. Field research is conducted through the controlled excavation of test units (usually measuring between 1x1 m to 2x2 m). Testing also may involve the stripping of top soil in areas to identify cultural features. Sites determined eligible for NRHP listing are recommended for avoidance and/or mitigation.

- **Phase 3** archaeological projects are designed to mitigate or recover data from significant archaeological sites that cannot be avoided. These projects involve large-scale excavations

and recovery efforts to mitigate adverse effects on a site. Mitigation plans are developed to determine the methodology and research design for the project.

Biological Assessment (BA) – Information prepared by, or under the direction of, a federal agency to determine whether a proposed action is likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of species that are proposed for listing; or (3) adversely modify proposed critical habitat. BAs must be prepared for major construction activities. The outcome of the BA determines whether *formal consultation* or a *conference* with appropriate regulatory agency (i.e., USFWS or the National Marine Fisheries Service) is necessary.

Biological Opinion (BO) – A document that includes: (1) the opinion of USFWS or the National Marine Fisheries Service as to whether or not a federal action is likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of designated critical habitat; (2) a summary of the information on which the opinion is based; (3) a detailed discussion of the effects of the action on listed species or designated critical habitat; and (4) the terms and conditions (mitigation requirements) associated with the incidental take statement.

Community Advisory Committee (CAC) – A committee developed to facilitate communication between INDOT/FHWA/Project Team and representatives of potentially impacted and key constituent groups in the project area.

Core Goal – In Tier 1, certain project goals were identified as *core* goals. A Tier 1 project goal was identified as a *core goal* based upon consideration of the policy/legislative framework as well as the transportation and economic development needs assessment. A substantial improvement for each core goal was expected for the selected Tier 1 alternative. In Tier 2 studies, there is no designation of core goals.

Direct Impacts – Are defined by the CEQ requirements as "effects that are caused by the action and occur at the same time and place" (40 CFR §1508.8(a)). For this project, an example of a direct impact would be the taking of a wetland for right-of-way for an interchange.

Environmental Impact Statement (EIS) – A detailed document prepared as part of the NEPA process. A Draft EIS is published to seek agency and public input. A Final EIS adds (1) the comments and responses to the DEIS, and (2) selects a preferred alternative.

Floodplain – Mostly level land along rivers and streams that may be submerged by floodwater. A 100-year floodplain is an area that can be expected to flood once in every 100 years.

Forecast Year – A year that is 20 years into the future for which traffic forecasts are made. The design of any transportation facility must accommodate travel that would occur in the forecast year. For this study, the Forecast Year is 2035.

Geographic Information System (GIS) – A computer representation of data that is geographically distributed. These data can be generated and displayed to show their physical location. Each data set with a certain type of information (e.g., the location of wetlands) constitutes a "layer" in the GIS. GIS layers can be superimposed to show the spatial relationship between the locations of different items.

Grade Separation – Overpass or underpass.

Historic Properties – Buildings, structures, sites, objects, or districts, which are an important part of the historical and cultural heritage of the United States and are listed in or eligible for listing in the NRHP.

Horizontal Alignment – Location of the road as it can be moved from side to side, usually done by using curves.

Interchange – A grade-separated crossing with entrance and exit ramps to allow access to and from the route crossed.

Karst – Landscapes characterized by caves, sinkholes, underground streams, and other features formed by slow dissolution, rather than mechanical erosion, of bedrock. Karst areas can be especially sensitive to groundwater pollution.

Metropolitan Planning Organization (MPO) – The forum for cooperative transportation decision-making for a metropolitan area. Title 23 USC Section 134 requires that (1) a MPO be designated for each Urbanized Area (UZA) containing 50,000 or more persons based on the latest U.S. Census, and (2) the metropolitan area has a continuing, cooperative and comprehensive transportation planning process.

Mitigation – In the context of the NEPA process**,** CEQ regulations define mitigation as: avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or compensating for the impact by replacing or providing substitute resources or environments. The mitigation of impacts must be considered whether or not the impacts are significant.

National Environmental Policy Act of 1969 (NEPA) – Legislation passed by Congress that requires preparation of an environmental study for federal actions that may significantly impact the environment.

Performance Measure – A rating (typically numerical) that assesses the degree to which an alternative satisfies a project goal.

Public Hearing – INDOT holds public hearings for all transportation projects that involve the development of an EIS under NEPA. A public hearing, which is held following the approval of

the draft environmental document, is an opportunity for the public to make formal statements of position immediately before project decision-making and preparation of the final environmental document. The disposition of both oral and written comments is included in the final approved NEPA document that constitutes FHWA location approval.

Public Meetings – Public meetings, held as needed during the development of the NEPA document, provide additional opportunities for early and continuing public involvement. The disposition of comments made during a public meeting is not required to be included in the NEPA document.

Purpose and Need – The section of an environmental project that discusses the needs and defines the goals (purposes) of the project.

Record of Decision (ROD) – A NEPA requirement for an EIS, which explains the reasons for the project decision and summarizes any mitigation measures that will be incorporated in the project.

Relocation – The purchase of private property (land and/or structures) for a public purpose, such as a transportation facility. The purchase price includes the costs of relocating residents or businesses. Also referred to as a displacement.

Scoping – The initial step of an environmental study. It includes the determination of a range of possible alternatives and analysis of Purpose and Need for the project.

Screening – The second step of an environmental study. It applies Purpose and Need criteria to all alternatives to arrive at a set of alternatives for detailed study.

Section 7 Consultation – Section 7 of the Endangered Species Act of 1973 requires federal agencies to consult with the USFWS on all federal actions that may affect a federally-listed species to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat.

Section 106 Consultation – Consultation between a federal agency and consulting parties, including the SHPO and ACHP, regarding potential effects of a federal action to historic properties and mitigation measures to reduce impacts. This consultation and review process is required by Section 106 of the National Historic Preservation Act of 1966.

Section 404 – Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged and fill material into "waters of the United States," including wetlands. Activities in "waters of the United States" that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry.

State Historic Preservation Officer (SHPO) – Administers the National Historic Preservation Program at the state level, reviews NRHP nominations, maintains data on historic properties that have been identified but not yet nominated, and consults with federal agencies during the Section

106 process. In Indiana, the Director of the Department of Natural Resources serves as the SHPO. Members or his or her staff in the DHPA typically are involved in Section 106 consultation.

Tiering – A two-step process applied to NEPA evaluations where the first step (tier) focuses on broad issues such as general location, mode, choice and area-wide air quality and land use implications of the major alternatives. The second step (tier) addresses site-specific details on project impacts, costs, and mitigation measures.

Tier 1 EIS – An EIS that may be completed for large studies that require certain major questions to be answered before a more detailed study (Tier 2 EIS) can be done.

Tier 2 NEPA Studies – More detailed NEPA studies completed after the Tier 1 EIS has been done.

Tier 2 Sections – Shorter sections of the alternative that are selected in the Tier 1 ROD. Each Tier 2 Section is evaluated in a separate NEPA study.

Travel Demand Model – A computerized representation of the population, employment, socioeconomic characteristics, and transportation network of a region. Travel on the transportation network is forecasted as a function of population, employment, and socioeconomic characteristics. If proposed projects (such as an alternative of I-69) can be added to the transportation network, the model can forecast the effects of that proposed project.

Wetland – A type of land protected by various state and federal laws. Wetlands are characterized by plants adapted to a wet environment, soils which are characterized by anaerobic conditions, and which are inundated or saturated to the surface for at least 5% of the growing season in most years.

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