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CHAPTER 7 – MITIGATION AND COMMITMENTS

Substantive changes to this chapter since the Draft Environmental Impact Statement (DEIS) was published include the following:

- All mitigation values have been updated to be based on the Refined Preferred Alternative (RPA).
- Documentation of the Tier 1 major mitigation commitment regarding the bridging of floodplains has been added.
- Additional mitigation commitments made in response to agency comments on the DEIS have been incorporated. These additional commitments are found in **Section 7.3.6** (Construction), **Section 7.3.8** (Visual Impacts), **Section 7.3.10** (Floodplain Impacts), **Section 7.3.14** (Stream and Water Body Modifications), **Section 7.3.15** (Ecosystem Impacts), **Section 7.3.16** (Water Quality Impacts), and **Section 7.3.17** (Managed Lands).
- Modifications of historic and archaeological commitments in **Section 7.3.7** have been documented to reflect completion of the Section 106 process.
- Additional mitigation commitment in **Section 7.3.18** (Threatened and Endangered Species) have been incorporated to reflect listing of rusty patched bumble bee (*Bombus affinis*).
- Mitigation costs have been updated in **Table 7-3** to reflect mitigation costs for the RPA.

This chapter discusses the mitigation and environmental commitments for the RPA, recognizing that these commitments would apply to any of the alternatives evaluated in FEIS. All alternatives, including the RPA, would use the existing State Road (SR) 37 right of way, with additional adjacent acreage required based on design requirements and topography. Interchanges are proposed at SR 39, Ohio Street, SR 252/SR 44, Henderson Ford Road, SR 144, Smith Valley Road, County Line Road, Southport Road, and I-465/I-69. The RPA includes a local access interchange combination at I-465/Harding Street and at I-69/Epler Avenue. Grade separations (overpasses or underpasses) would be located at Grand Valley Boulevard, Teeters Road, Old SR 37/Myra Lane, Old SR 37/Egbert Road, Old SR 37/Perry Road, Waverly Road, Wicker Road, Banta Road, and Edgewood Avenue. Local service roads and new connections to existing local roads would be provided at most locations where drives and other roads currently connect to existing SR 37.

7.1 Introduction

Since the earliest phases of the Tier 1 study, efforts have been made to avoid human and natural resources. Avoidance and the opportunity to minimize impacts were used in the decision-making process to identify a Tier 1 preferred alternative. After alternatives were identified, further efforts



were undertaken to develop comprehensive mitigation measures. Environmental agencies, Community Advisory Committees (CACs), Stakeholder Working Groups (SWGs), community leaders, and the public were instrumental in providing assistance to avoid and minimize impacts upon both the human and natural environment and have helped develop many of the mitigation measures in this chapter.

This chapter is organized based upon the mitigation commitments made in the Tier 1 FEIS and Record of Decision (ROD) for the Tier 1 Preferred Alternative 3C. These commitments have been retained, and additional commitments are being made in each of the Tier 2 EISs. **Section 7.2** discusses the major mitigation initiatives first presented in the Tier 1 FEIS. These commitment initiatives have continued in Tier 2. **Section 7.3** lists specific mitigation measures and commitments for each environmental resource category for I-69 Section 6. **Section 7.4** provides mitigation costs and explains the methods used for estimating mitigation costs.

7.2 Major Mitigation Initiatives

Mitigation opportunities have been explored throughout the National Environmental Policy Act (NEPA) process. INDOT and Federal Highway Administration (FHWA) coordinated with state and federal environmental agencies, environmental organizations, local communities, and the public to gather input on both creative and traditional approaches for replacement of environmental resources that may be impacted as a result of this project. Based on this consultation, FHWA and INDOT developed a number of major mitigation initiatives, including several initiatives that go beyond the requirements of the law or regulation. These initiatives are summarized in **Table 7-1**. Initiatives that apply to I-69 Section 6 are explained in detail in the text that follows.

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

CSS is a collaborative, interdisciplinary approach that involves 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. INDOT has adopted the use of CSS in transportation project development as part of its Common Paths Program.¹

It is the policy of the Indiana Department of Transportation (INDOT) to incorporate context sensitive solutions (CSS) into the planning, development, construction, and

¹ INDOT Common Paths Initiative website: <http://www.in.gov/indot/3419.htm> (accessed September 17, 2017). This website describes this initiative as follow; “INDOT’s Common Paths program is a larger umbrella program and approach to road planning, design, and decision-making that considers and balances the dynamic needs of various users of our transportation system with a focus on moving people and goods safe and efficiently from point A to point B.”



maintenance process for improvement to the state jurisdictional system. The process for incorporating context sensitive solutions is intended to establish a basis for the planning, development, construction, and maintenance process to incorporate a community's character and vision in transportation improvements, including pedestrians, cyclists, public transportation vehicles and passengers, trucks, and automobiles.

Table 7-1: Major Mitigation 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. The CSS approach has been implemented during the I-69 Tier 1 and Tier 2 EIS development process and will continue through subsequent design. Invited stakeholders become members of the 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. Sites have already been secured in other sections of the project.
Wetland Mitigation	INDOT and FHWA will replace wetlands impacted by the preferred alternative 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. Site identification and development is ongoing for I-69 Section 6.
Forest Mitigation	INDOT and FHWA will mitigate upland forests impacted by the preferred alternative at a ratio of 3:1. Multiple sites in other sections have been secured for this mitigation effort. Site identification and development is ongoing for I-69 Section 6.
I-69 Community Planning Program	INDOT and FHWA developed and implemented a program that established a regional strategy for assisting local communities in managing growth.
Update County Historic Surveys	INDOT and FHWA will provide financial and technical assistance to the Indiana Department of Natural Resources (IDNR), Division of Historic Preservation and Archaeology (DHPA), to support the completion of field surveys along the I-69 corridor. County interim reports are no longer being updated and all new information regarding historic resources is being updated in the Indiana State Historic Architectural and Archaeological Research Database (SHAARD). For reference to the MOU describing the funding agreement between INDOT and IDNR DHPA see Appendix M .
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	There are no floodplains in I-69 Section 6 that would be bridged in their entirety. Floodplain crossings in I-69 Section 6 are primarily at existing bridge crossings.
Geographic Information System (GIS)	INDOT and FHWA have helped to develop a statewide GIS Atlas that includes more than 170 different layers. This atlas is available on the Indiana Map website (http://www.indianamap.org/).
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.



To design and construct a freeway that is sensitive to the local environment, FHWA and INDOT will seek the continued assistance from the communities near the corridor through Tier 2 design and construction phases of the project. INDOT and FHWA worked with the local officials, metropolitan planning organizations (MPOs), and others to identify representatives of neighborhood groups, emergency response agencies, schools, and local advocacy groups for each CAC. A group of local government technical representatives formed the SWG for I-69 Section 6 to provide additional input and early data exchange.

The I-69 Section 6 SWG includes city and county engineers from Morgan, Johnson, Marion, and Hendricks counties; IndyGo; Indianapolis MPO; the cities of Martinsville, Greenwood, Franklin, and Indianapolis; and the towns of Mooresville and Bargersville. FHWA and INDOT met quarterly with the I-69 Section 6 CACs and SWG to describe the status of the project, to ask them to distribute information to their constituents, and to seek feedback from them and their constituents. FHWA and INDOT also conducted public information meetings and provided public comment periods at the time of key project milestones. See **Chapter 11, Comments, Coordination, and Public Involvement** for reference to public and agency involvement.

The specific outcome of CSS depends largely on input from the CACs, the SWG, local officials, and the public. **Section 7.3.1** discusses CSS issues or options identified for I-69 Section 6.

7.2.2 Indiana Bat Hibernacula

The Biological Opinion (BO) for I-69 indicates opportunities will be investigated to purchase Indiana bat hibernacula including associated autumn swarming/spring staging habitat from “willing sellers” at a fair market value. Indiana bat hibernacula are caves or other cave like structures where Indiana bats overwinter. This is a requirement of the revised Tier 1 BO and applies to the entire I-69 project including all six sections and has been addressed by a previous mitigation acquisition. There are no Indiana bat hibernacula present within the vicinity of I-69 Section 6, and there is not an expectation that hibernacula will be purchased as part of the I-69 Section 6 project.

Hibernacula and all buffer areas purchased² by INDOT as part of I-69 mitigation will be managed in perpetuity by an appropriate government conservation and management agency. Prior to release of any purchased hibernacula, implementation of any required management efforts will be completed by INDOT. INDOT and FHWA purchased a conservation easement for two Priority 1A hibernacula in other I-69 sections.

² INDOT has purchased conservation easements for all hibernacula protected to date. Under this arrangement, an appropriate government agency is responsible for overseeing the management of each protected hibernaculum. The property itself remains under private ownership.



7.2.3 Wetland Mitigation

The construction of this project will impact wetlands of varying types. For the I-69 Evansville to Indianapolis project, over 40 percent of impacted wetlands are forested wetlands.³ To mitigate for these wetland losses, INDOT and FHWA will follow the mitigation ratios listed in the Wetlands MOU signed January 28, 1991 (see **Appendix S**), as supplemented by U.S. Army Corps of Engineers (USACE) mitigation requirements. The MOU was developed to ensure that wetland impacts are avoided, minimized, and mitigated to compensate for the loss of wetland functions and values. See **Section 7.4** for estimated wetland mitigation acreages.

The preferred location of wetland mitigation sites is in areas connected to protected wetlands and forests and those that provide habitat for federal- and state-listed threatened and endangered species. Sites conducive to wetland development are also preferred, such as those in hydric soils or in areas that were previously drained where hydrology could be restored. It is INDOT's intention to restore wetlands in areas that have the greatest opportunity to develop into naturally functioning wetlands and that will provide habitat for threatened and endangered species. These mitigation sites will be designed, constructed, monitored, and maintained by qualified professionals. INDOT-owned sites that have been accepted by the regulatory agencies may be donated to an appropriate governmental land management agency or a non-profit resource management group. Each site will have legal protections that will identify it as a mitigation site and protect it in perpetuity from disturbance. Each site will be designed with the assistance of federal and state resource management and wildlife agencies to ensure that the specific needs of each species are addressed in site design. The boundaries of the mitigation sites will be marked to identify them as mitigation property and to protect them from activities that may degrade their functioning.

For I-69 Section 6, three potential mitigation areas were identified in the *Revised Tier 1 Conceptual Forest and Wetland Mitigation Plan & Comparison of Tier 1 Plans*. See **Appendix Q** 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 three areas.

- The White River (Clear Creek) mitigation area is located along the White River north of Martinsville near the Blue Bluff Nature Preserve. This area extends eastward toward Henderson Ford Road and encompasses a wide stretch of floodplain for White River. Three Indiana bat secondary roost trees and one primary roost tree have been identified at this site. Two reproductive females and one juvenile female Indiana bat were captured within this site. The Blue Bluff Nature Preserve has an abundance of rare shrubs, i.e. a flowering raspberry. The preserve also has a richly varied early spring flora, and a profusion of ferns. There are a few large trees within the Blue Bluff Nature Preserve.

³ Tabulating forested and total (non-open water) wetland impacts for Sections 1 through 5 and the RPA in this FEIS shows 45% of total wetland impacts are forested wetlands.



Mitigation near this area would provide an excellent opportunity for habitat for the Indiana bat and bald eagle. The proposed design concept is to restore wetlands and bottomland woods and provide habitat for aquatic and terrestrial threatened and endangered species with a special emphasis on habitat for the Indiana bat, northern long-eared bat, and bald eagle. A secondary mitigation area could be on or next to Morgan and Monroe State Forest lands.

- The White River (Crooked Creek) mitigation area is located north of Martinsville where Crooked Creek merges with the White River. Two Indiana bat primary roost trees are located within this area. One of the primary roosts is located in an upland woodland area. This woodlot is almost completely dominated by shagbark hickories. The second roost is a transmission pole.

Mitigation in this area would provide an excellent opportunity for restoration of habitat for the Indiana bat and bald eagle. The concept is to restore wetlands and bottomland woods, preserve the upland hickory dominated woodland site, and provide habitat for both aquatic and terrestrial threatened and endangered species.

- The White River (Pleasant Run) mitigation area is directly south of Southwestway Park. Two Indiana bat secondary roost trees are located within this area. Two juvenile males, one juvenile female, and one reproductive female bat have been captured within this area. This area provides many opportunities to restore floodplain fields and bottomland forest, and to help control further development from the south side of Indianapolis into this area. The concept is to restore wetlands, bottomland woods, and riparian areas that no longer exist to provide habitat for both aquatic and terrestrial species. The reestablishment of forest in this area would also benefit the water quality. Oxbows that dry up in the mitigation site may be connected through woodland corridors to the White River to develop habitat for the Indiana bat, northern long-eared bat, and bald eagle.

Mitigation for the Indiana bat and northern long-eared bat will be focused in the Summer Action Area (SAA)⁴ for each species in I-69 Section 6. Indiana bat and northern long-eared bat habitat will be enhanced within the SAA through wetland and forest mitigation. This mitigation will be focused on riparian corridors and existing forest blocks in order to provide habitat connectivity.

⁴ “Action area” is defined by regulation as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR § 402.02). The action area is not limited to the “footprint” of the action nor is it limited by the federal agency’s authority. Rather, it is a biological determination of the reach of the biological, chemical, and physical impacts associated with the proposed action. In the Tier 1 Section 7 consultation process, FHWA, INDOT, and the USFWS Bloomington Field Office jointly developed two seasonally based action areas for the Indiana bat, referred to as the Summer Action Area (SAA) and the Winter Action Area (WAA). The SAA for the Indiana bat is generally defined as 2.5 miles either side of the centerline of Alternative 3C (including maternity colony areas), over the length of the project. The SAA for the northern long-eared bat is generally defined as 1.5 miles either side of the centerline of Alternative 3C (including the maternity colony areas), over the length of the project. The WAA is the area within a 5-mile radius centered on each of the known Indiana bat and northern long-eared bat hibernacula that have entrances located within 5 miles of the proposed 3C corridor. There is no WAA for either species of bat within I-69 Section 6.



The mitigation plan noted that the identified mitigation sites were conceptual, and that specific mitigation sites would be determined during or after Tier 2.

7.2.4 Forest Mitigation

For the I-69 Evansville to Indianapolis project, FHWA and INDOT committed to mitigate impacts to upland forests at a 3:1 ratio. Mitigation goals are to replace direct forest impacts at a minimum 1:1 ratio and provide up to a 2:1 ratio of forest preservation. For every acre of forest impacted, one acre will be replanted with trees and two acres of existing trees will be preserved. The 3:1 ratio will be achieved for the I-69 Evansville to Indianapolis project through the acquisition of mitigation sites. The ratio for a Tier 2 section could be higher or lower than 3:1.

In I-69 Section 6, the proposed conceptual forest mitigation areas are the same as those described above for wetland mitigation. Mitigation will be accomplished by purchasing and protecting existing tracts of forests or by planting trees. Preference will be given to areas contiguous to large forested tracts that have recorded sites for 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. All forest mitigation lands will be protected in perpetuity through conservation easements or other appropriate measures. Species to be planted and long-term management of the mitigation sites will be coordinated with the appropriate agencies relative to the conditions of the necessary permits and authorizations.

INDOT will be the long-term manager of mitigation areas unless they are transferred to another agency or land steward for long-term management in coordination with the regulatory agencies. As long as INDOT is the long-term manager, it will be INDOT's responsibility to cover costs to correct inappropriate actions or inactions by the easement-granting landowners. If the mitigation site(s) that are owned in fee simple by INDOT are transferred, the receiving agency or land steward would assume responsibility for these costs. This would be included in the land transfer documentation from INDOT. INDOT cannot transfer properties with conservation easements to other agencies since INDOT does not own the land. These conservation easements and associated restrictions remain in force even if the landowner transfers the land to someone else.

7.2.5 I-69 Community Planning Program

The I-69 Community Planning Program set in place a regional planning strategy for the I-69 corridor and provided grants for local communities (cities, towns, and counties) to develop plans for managing growth and economic development associated with I-69. INDOT provided technical and financial assistance for development of the plans. Participation by local communities was voluntary. Eligible communities in the vicinity of I-69 Section 6 were Marion, Morgan and Johnson counties, the Town of Mooresville, and the cities of Martinsville and Indianapolis. With a total budget of \$2 million, the I-69 Community Planning Program was implemented as a two-phase effort:



- **Phase 1** was a regional planning assessment and development of regional planning strategies and resources for the I-69 corridor impact area. It included establishing partnerships, inventories, review of regulations and legislation, identification of needs, preparation of processes and models, identification of environmentally sensitive areas, farmland protection strategies, workshops, and providing technical planning support for Phase 2 of the program.
- **Phase 2** provided grants to local communities for the preparation of local plans and growth management ordinances. It included public involvement activities, planning framework and corridor land use planning, economic development strategies, model planning ordinances, and implementation programs.

On October 29, 2007, INDOT awarded \$1,500,000 in grants to communities located along the I-69 corridor. Morgan County, the Town of Mooresville, and the City of Martinsville applied together and were awarded a single grant for \$150,000. Johnson County and the City of Greenwood were awarded a \$100,000 grant, and the City of Indianapolis elected not to pursue a planning initiative. The City of Martinsville, Town of Mooresville, and Morgan County used the grant to develop the SR 37/SR 144 Corridor Plan (2010), comprehensive plan updates for Morgan County and Martinsville, and a comprehensive plan and zoning ordinance update for Mooresville. Johnson County and Greenwood developed a new comprehensive plan that framed challenges and opportunities associated with I-69. For further details, see **Appendix R**.

7.2.6 Update of Aboveground Surveys of Historic Resources

IDNR DHPA manages the Indiana Historic Sites and Structures Inventory (IHSSI) and performs the duties of the State Historic Preservation Officer (SHPO) in the Section 106 process. INDOT and FHWA are providing financial and technical assistance to IDNR DHPA to support the completion of field surveys along the I-69 corridor.⁵ County interim reports are no longer being updated, and all new information regarding historic resources is being updated in the Indiana State Historic Architectural and Archaeological Research Database (SHAARD).

INDOT and FHWA cooperated with IDNR DHPA to provide the most current information on historic structures in counties that are crossed or in proximity to selected I-69 alternatives (i.e., Warrick, Gibson, Pike, Daviess, Martin, Greene, Monroe, Morgan, Johnson counties; and Decatur, Perry, and Franklin townships in Marion County). This commitment was developed through the Tier 1 Section 106 process. The Section 106 process requires federal agencies to consider impacts to historic aboveground and archaeological resources when undertaking major federal actions. The Section 106 Memorandum of Agreement (MOA) in Appendix P of the Tier 1 FEIS contains these commitments. An MOU was executed on June 30, 2011 between INDOT and IDNR DHPA for the funding for the survey of counties in the I-69 corridor (see **Appendix**

⁵ 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



M). This MOU is being amended to reflect that the fact that county interim reports are no longer being completed.

7.2.7 Biological Surveys on Wildlife and Plants

The Endangered Species Act (ESA) requires federal agencies to consult with the United States Fish and Wildlife Service (USFWS) and to ensure that their actions do not jeopardize federally-listed threatened or endangered species or significantly impact or adversely modify critical habitat of those species. Formal and informal consultation with USFWS was conducted during Tier 1 studies. The consultation provided that INDOT and FHWA would submit a Tier 1 Biological Assessment (BA) of potential impacts of the I-69 project on threatened and endangered species. At the time of the Tier 1 consultation, there were three federally-listed endangered species within the study area—the Indiana bat, the Eastern fanshell mussel, and the bald eagle.⁶ The consultation process resulted in the issuance of a Tier 1 BO by USFWS on December 3, 2003. For reference to the Tier 1 BA see Appendix W.

Coordination with USFWS during the Tier 2 studies resulted in the re-initiation of Tier 1 formal consultation for the Indiana bat in July 2005. Additional information provided by Tier 2 bat surveys completed in 2004 and 2005 prompted USFWS to re-examine the effects of the project as a whole on this species.

The re-initiation of formal consultation resulted in the preparation of an Addendum to the Tier 1 BA which was provided to USFWS on March 7, 2006. The BA Addendum detailed information gathered on the Indiana bat during Tier 2 studies and after the original BO was issued. For reference to the Tier 1 BA see Appendix W. 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.”

On April 11, 2011, FHWA reinitiated Tier 1 consultation for the second time based on new maternity colony information, as well as documentation of the disease White Nose Syndrome

⁶ Note: On July 9, 2007, USFWS removed the bald eagle from the list of endangered and threatened species under the Endangered Species Act (ESA). The bald eagle continues to enjoy protection under the Bald Eagle and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d). On May 20, 2008, USFWS issued regulations governing permits under the Bald and Golden Eagle Protection Act for projects that obtained an incidental take permit under the ESA (50 C.F.R. Part 22). On June 25, 2009, 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 USFWS, which include the terms and conditions associated with the Incidental Take Statement.



(WNS) within the action area. On May 25, 2011, USFWS issued an Amendment to the August 24, 2006, revised Tier 1 BO, including a revised Incidental Take Statement. The Amendment to the revised Tier 1 BO addresses each section of the revised Tier 1 BO dated August 24, 2006, that required new analysis for effects to the Indiana bat. Otherwise, the revised Tier 1 BO remains in effect.

On May 20, 2013, FHWA reinitiated Tier 1 consultation for the third time for the Indiana bat based on new maternity colony information, exempted levels of forest and wetland take, and documentation on private property tree clearing in Section 4. In response to FHWA's May 20, 2013, re-initiation request, on July 24, 2013, USFWS issued Amendment 2 to the August 24, 2006, revised Tier 1 BO, including a revised Incidental Take Statement. Amendment 2 to the revised Tier 1 BO addresses each of the sections of the revised Tier 1 BO dated August 24, 2006, that required new analysis for effects to the Indiana bat. Otherwise the revised Tier 1 BO (as previously amended May 25, 2011) remains in effect.

On October 2, 2013, USFWS proposed the northern long-eared bat for listing as threatened with 4(d) rule under the ESA. For species that have been proposed for listing, USFWS has determined that there is enough information to warrant listing them as either threatened or endangered. The final listing decision for the northern long-eared bat was expected within one year from that date (October 2, 2014). USFWS published a Federal Register notice announcing a six-month extension of the deadline for making a final determination on listing. On April 2, 2015, USFWS published a final rule to list the species as threatened and an interim 4(d) rule to provide measures for the conservation of the species. On January 16, 2016, USFWS published the final 4(d) rule for the species.

On October 10, 2014, FHWA requested the initiation of a formal Section 7 conference regarding project impacts on the northern long-eared bat through submission of the Addendum to the BA for Tier 1 – For the Northern Long-Eared Bat. On April 1, 2015, prior to official listing of the species as threatened, USFWS finalized the Conference Opinion (CO) and amended it as Amendment 3 to the 2006 Revised Programmatic BO for Tier 1.

Pursuant to the Tier 1 BO and subsequent revision and amendments, INDOT, FHWA, and USFWS have developed an MOA to complete the following:

- biological surveys for rare and endangered species;
- surveys of known Indiana bat hibernacula (i.e., caves);
- funding of research for discovery of new hibernacula;
- funding of research on autumn and spring habitat for the Indiana bat;
- funding for captive-rearing research on mussels; and,
- funding for the writing and printing of informative pamphlets on bats, bald eagles, and mussels in Indiana.



Field studies in I-69 Section 6 included: generalized pedestrian surveys during project field work; fish, unionid, and crayfish community characterization; mist netting for Indiana and northern long-eared bats with radio telemetry and Anabat;⁷ and bridge habitat surveys. Tier 2 studies related to the Indiana bat began in the summer of 2004 and continued through the winter of 2006. These survey results have been included as an Addendum to the previous Tier 1 BA. In addition, mist netting was conducted for I-69 Section 6 in the summer of 2015 at the request of USFWS. 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 Q**). Proposed mitigation for the Indiana bat and northern long-eared bat in I-69 Section 6 includes the provision of additional forested and wetland habitat for these species.

Conservation measures were jointly developed by FHWA, INDOT, and USFWS during informal consultation and were subsequently incorporated into the Tier 1 BA and the Tier 1 BA Addenda 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, northern long-eared bats, and bald eagles and to further their recovery. **Section 7.3.18** presents the conservation measures applicable to I-69 Section 6. **Section 5.17** and **Appendix W** provide a history of the Section 7 consultation for this project. The revised Tier 1 BO contains the complete list of conservation measures for the I-69 project as a whole.

7.2.8 Southwest Indiana Geographic Information System (GIS)

GIS is a system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographic data. GIS is a broad term that can refer to a number of different technologies, processes, and methods. INDOT and FHWA, along with the Indiana Geological Survey (IGS), developed a comprehensive GIS dataset covering the entire Tier 1 26-county study area, referred to as the Southwest Indiana GIS, to assist in assessing impacts of the I-69 Evansville to Indianapolis project.

The Southwest Indiana GIS dataset includes approximately 170 different layers of aquatic, terrestrial, mineral, social, and economic information for the 26 counties. Most of the information was obtained from other state and federal agencies including the USEPA, the United States Census Bureau, IDNR, the Indiana Department of Environmental Management (IDEM), IGS, and the Federal Emergency Management Agency (FEMA). With the publication of the I-69 Tier 1 DEIS, the IGS made this information available to all agencies and the public on its website.

⁷ *Anabat* detection systems record ultrasonic bat calls. Bat calls may then be analyzed in order to determine the bat genus or species.



Building on the Southwest Indiana GIS, INDOT and FHWA subsequently joined with other federal, state, and local organizations and universities to develop a statewide GIS Atlas, known as IndianaMAP. IndianaMAP is a free GIS web application that consists of information for resources for each county throughout the State of Indiana.⁸

7.2.9 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. One opportunity is the use of GIS maps and databases developed and compiled for use in I-69 planning. Digital data and online maps are being made available from a server accessed on the IndianaMAP website.⁹ These opportunities allow students to learn about their community without having to study in a traditional classroom-based environment.

7.3 I-69 Section 6 Mitigation Measures and Commitments

This section lists proposed mitigation measures and commitments that are specific to I-69 Section 6. A I-69 mitigation tracking method has been developed in consultation with permitting agencies and the USEPA. The mitigation tracking is accomplished using a database with a GIS component. INDOT has coordinated with agencies to identify information to be tracked in the database. This information includes: anticipated required natural resource mitigation, available mitigation credits, and information on purchased, constructed, and potential mitigation sites. The first annual tracking report was issued on February 22, 2010. The most recent annual tracking report was provided in June 2017.

INDOT and FHWA have developed two types of commitments: those that are firm and those which are for further consideration during project development. All commitments associated with mitigation measures to address regulatory requirements and permit conditions are identified as firm. These include wetland and stream mitigation to address Section 404/401 permit requirements, and habitat mitigation measures to address the terms and conditions of the incidental take statement provided in the I-69 Section 6 Tier 2 BO (including by reference the conservation measures incorporated into the Tier 1 BO as revised and amended). Other mitigation measures that address general recommendations by review agencies but are not associated with regulatory requirements are identified as for further consideration. These measures often require final design level information to determine feasibility of implementation in various portions of the project and for final cost evaluation to determine whether the benefit is worth the associated cost.

⁸ Known as the IndianaMap, this site is hosted by the Indiana Geographic Information Council, and can be accessed at <http://maps.indiana.edu/>. (Last accessed 8/29/17)

⁹ Indiana Geographic Information Council, "IndianaMap," <http://maps.indiana.edu/> (Last accessed 8/29/17).



INDOT's mitigation tracking system monitors the implementation status of all commitments through project design. The mitigation tracking system will designate any instances where a stakeholder has identified a specific commitment as firm and not for further consideration. The tracking system flags each commitment to require that it be completed (for firm commitments) or affirmatively considered (for further consideration commitments) during post-NEPA design. If a firm commitment cannot be implemented, the requestor is informed as to why it could not be implemented.

Commitments identified for further consideration, such as service roads for landlocked parcels, require final design level information to determine their cost effectiveness at specific locations. Such information includes final anticipated construction cost and residual parcel appraised value. As noted above, these measures will be tracked in post-NEPA design through INDOT's commitments tracking database to document whether they have been implemented.

Mitigation commitments for I-69 Section 6 are described below. In the event there are differences in wording between the commitments listed here and the final conditions of a regulatory action, the final wording of the condition of the regulatory action takes precedence over the following language.

7.3.1 Land Use

Portions of the I-69 Section 6 project area are urban with large commercial areas, subdivisions, and multi-unit residences, particularly in Martinsville and Indianapolis. Agricultural land, forest and scattered residential and commercial properties can be found between these urbanized areas. The following measures will be used to mitigate the potential impacts of this project on land-use patterns:

- 1. The I-69 Community Planning Program.** Five local governments in the I-69 Section 6 project area participated in this program. See **Section 7.2.5** and **Appendix R**.
- 2. Context Sensitive Solutions (CSS).** The CSS approach is described in **Section 7.2.1**. A key aspect of CSS is the involvement of local agencies, advisory groups, and the public to assist in developing a project that is responsive to local needs and conditions. In addition to holding a series of public meetings and meeting with stakeholders, INDOT and FHWA worked with the local officials, the Indianapolis MPO, and others to identify specific representatives for north and south CACs. A Stakeholder Working Group (SWG) was also formed to provide technical input and early data exchange from local government staff and officials.

Local access, traffic, farmland impacts, residential and economic development, and the potential impact of the project on emergency response times were the issues most frequently raised by CAC and SWG members. The information they provided regarding travel patterns, local development plans, and critical emergency response routes helped guide the development of alternatives, including the RPA. See **Chapter 11, Comments**,



Coordination, and Public Involvement for additional information regarding the CACs and SWG.

Some examples of the ways that local agencies, advisory groups, stakeholders, and the public influenced the development of I-69 Section 6 alternatives, including the RPA are listed below.

- a. Existing transportation right of way, pavement, and infrastructure are used where appropriate to maximize return on capital investments. All build alternatives use some existing features of SR 37 to minimize costs and impacts. For further information, refer to **Chapter 3, Alternatives**.
- b. The aesthetics of the highway will be improved by planting native wildflowers, minimizing riprap on side slopes and in ditches, and using attractive structures (bridges, retaining walls, signs, etc.). There is community interest in gateway treatments for the 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 city and county agencies during final design.
- c. Existing local service roads are being reconnected at many locations to minimize residential, business, and farm impacts that would be associated with the construction of I-69 Section 6.
- d. Designs consider the accommodation of bicycle and pedestrian traffic at new interchanges and grade separations, with further consideration of these accommodations where existing infrastructure is reused.
- e. Coordination with local officials from the City of Martinsville and the public resulted in the addition of an overpass at Grand Valley Boulevard connecting to South Street near the Martinsville High School. Local officials indicated that people walk across SR 37 in this area to get to and from shopping and restaurants east of SR 37. Sidewalks to accommodate pedestrians and bicyclists will be included on the overpass from South Street and along Grand Valley Boulevard to the commercial areas east of SR 37.
- f. Coordination with local officials from the City of Martinsville resulted in I-69 Section 6 being at grade through the City of Martinsville rather than being elevated.
- g. Coordination with local officials from the City of Martinsville resulted in I-69 Section 6 passing over SR 252 at the proposed interchange to provide a southbound gateway and allow for a more scenic view traveling south into the city.
- h. Based on public comment and emergency responder input the RPA includes an overpass at Waverly Road with a connector road to Whiteland/New Whiteland Road. Options had been presented to the public for an overpass at Waverly Road with a connector road north to Whiteland/New Whiteland Road or an overpass at Whiteland/New Whiteland Road with a connector road south to Waverly Road.



- i. A local service road originally proposed on a portion of Old SR 37 west of I-69 north of Stones Crossing Road is shifted in the RPA to an alignment immediately adjacent to I-69 on the west side of SR 37 from Stones Crossing Road in order to avoid bisecting the Greenwood Mobile Home Park. The community manager expressed concerns about splitting the community with the original plan.
- j. A local service road is included along the west side of I-69 to connect SR/CR 144 to Wicker Road, based on public input and input from the local agricultural community. Portions of this local service road include Old SR 37.
- k. Public and school district concerns regarding east/west connectivity in Perry Township resulted in most existing crossings of SR 37 remaining, with two interchanges (County Line Road and Southport Road) and four grade separations (Wicker Road, Banta Road, Edgewood Avenue, and Epler Avenue) in the township to provide east-west connectivity.
- l. Based on input from businesses along Harding Street near I-465, a connection from I-69 to Harding Street is provided via Epler Avenue in addition to maintaining the existing Harding Street exit on I-465.

INDOT will continue to apply CSS principles as the project moves forward. Further local public input will be received during the final design stage. Other CSS may be incorporated as the development process continues for this project while constraining all the alternatives to the general SR 37 location and elevation to reduce overall impacts and traffic disruptions.

7.3.2 Social and Neighborhood

Neighborhoods may be part of a platted subdivision, apartment/townhome complex, mobile home park, or concentration of rural residences. A neighborhood is most often thought of in terms of a district or locality with unique characteristics of its place, character, or inhabitants. The following measures will be used to mitigate impacts on neighborhoods, residential areas, or local communities:

1. **Local Service Roads.** Where reasonable and cost effective, local service roads will be used to maintain accessibility for residences, farm operations, businesses, religious facilities, schools, and other land uses. The determination of whether local service roads to potentially landlocked parcels will be constructed or whether the landlocked parcels will be acquired due to the cost of providing access will be made during final design.

Changes in roads used by school bus routes will be discussed with the school systems well in advance of when they take place, so the school systems can adjust routes in a timely manner. Where roads are severed, provisions for turnarounds have been included and will be further refined during the final design phase of the project.

2. **Road Closures.** Efforts have been made to minimize the disruption of local crossroads to minimize impacts to school bus and emergency provider routes. The alternatives were developed to avoid closure of local roads where possible. Any roads terminated at I-69 will



be provided a cul-de-sac or other means to allow large vehicles such as school buses or county maintenance vehicles sufficient space to turn around. Appropriate signing will be placed at the nearest intersection to warn that the road does not provide for through traffic. Refer to **Table 3-9** for further information about local service road closures.

3. **Fire, Police, and Emergency Medical Services Provider Coordination.** The I-69 Section 6 study area includes 11 fire, eight police, and two emergency medical service (EMS) providers. Coordination has been ongoing with these service providers and is documented in **Appendix U**. As a result of this coordination, INDOT has made the following commitments:
 - a. INDOT will continue to coordinate with emergency and law enforcement agencies as the project progresses into final design, construction, and operation.
 - b. INDOT will work with emergency and law enforcement agencies and township and county governments regarding potential intergovernmental agreements for managing response based on I-69 Section 6 access changes.
 - c. Median emergency crossover locations will be confirmed by INDOT during final design, in coordination with emergency and law enforcement agencies.
 - d. INDOT will work with fire departments regarding the location, design, and construction of access doors within noise barrier walls for water hydrant access.
4. **Bicycle and Pedestrian Accommodations.** The project will include bicycle and pedestrian accommodations at interchanges, overpasses, and underpasses where bicycle or pedestrian facilities are included in local jurisdiction plans or already exist on the approach roadway. The RPA will incorporate bicycle and pedestrian accommodations below and in **Table 7-2**.
 - a. Ohio Street – The project will include an interchange with Ohio Street passing over I-69 and connecting to Mahalasville Road. Sidewalks and bicycle lanes to accommodate pedestrians and bicyclists will be included within the interchange from Holden Street to Mahalasville Road. This has been proposed to accommodate individuals currently crossing existing SR 37 and the proposed U.S. Bicycle Route 235.
 - b. Grand Valley Boulevard/South Street – The RPA includes an overpass at Grand Valley Boulevard connecting to South Street near Martinsville High School. Sidewalks and bicycle lanes will be included on the overpass to serve the commercial shopping area east of SR 37. This has been proposed to accommodate individuals currently crossing existing SR 37 to access the Walmart and shopping area. Safer access across SR 37 is supported by the City of Martinsville. The western end of the Grand Valley Boulevard sidewalk will be extended north to York Street along the western edge of the Martinsville High School property.
 - c. Martinsville Bike-Pedestrian Bypass for I-69 – The City of Martinsville has considered a Martinsville Bike-Pedestrian Bypass near the I-69 Section 6 project area. This trail would use existing county roads and city streets, and would not intersect with I-69 Section 6. Coordination with Morgan County will continue during project design to accommodate future plans for this trail to the extent practical.



Table 7-2: Locations and Types of Bicycle and Pedestrian Accommodations

Location	Sidewalks	Bicycle Lanes	Multi-Use Path	Shared Lanes	Paved Shoulder
Bill's Boulevard	X				
Ohio Street	X	X			
Commercial Boulevard	X				
Old Mahalasville Road	X				
Top Notch Road				X	
Grand Valley Boulevard	X	X			
Flag Stone Drive	X				
Birk Road	X				
Artesian Avenue	X				
Hospital Drive / SR 252	X	X			
Reuben Drive / SR 44		X ¹			
Kristi Road				X	
SR 144			X		
Huggin Hollow Road - North of SR 144	X				
East Local Service Road - SR 144 to Stones Crossing					X
West Local Service Road - Stones Crossing to Smith Valley					X
West Local Service Road - Smith Valley to County Line					X
Smith Valley Road			X		
County Line Road			X		
Bluff Road				X	
Glenns Valley Lane				X	
Wicker Road	X				
Old Southport Road	X				
Perry Commons Avenue	X				
Southport Road			X		
Belmont Avenue	X				
Wellingshire Boulevard	X ²				
Banta Road	X				
Edgewood Avenue	X				
Kopetsky Drive				X	
Epler Avenue - East of Existing SR 37	X				

- Bicycle lane will be provided along Reuben Drive and through the SR 44 interchange. East of the interchange, bicycles may share the road or use the 10-foot shoulder along SR 44.*
- Sidewalk proposed for west side only to match existing condition.*



- d. Hospital Drive/SR 252 – The RPA includes an interchange and overpass at Hospital Drive/SR 252. Sidewalks and bicycle lanes will be included to accommodate pedestrians and bicyclists.
- e. Reuben Drive / SR 44 – The RPA includes an interchange and underpass at Reuben Drive / SR 44. Sidewalks and bicycle lanes will be included to accommodate pedestrians and bicyclists. A bicycle lane will be provided along Reuben Drive and through the SR 44 interchange.

White River Greenway Trail – The Indianapolis Department of Parks and Recreation has proposed a portion of the White River Greenway within the I-69 Section 6 project area. A segment of the proposed White River Greenway Trail would be located along the White River and under the I-465 bridge. The I-69 Section 6 project would replace and widen the bridge deck and widen the substructure. This bridge work is not anticipated to affect future trail construction under the bridge. Coordination with the Indianapolis Department of Parks and Recreation will be ongoing during project design to accommodate future plans for this trail to the extent practical.

- f. White River Greenway Trail – Morgan County has proposed the White River Greenway Trail within the I-69 Section 6 project area. The proposed White River Greenway would be located west of SR 37 along the White River, from the Morgan/Johnson County line to Henderson Ford Road. Trail plans indicate the trail could be near I-69 Section 6 in the vicinity of Cragen Road and the White River.
- g. Little Buck Creek Greenway – The Indianapolis Department of Parks and Recreation constructed portions of the Little Buck Creek Greenway on either side of SR 37 (0.40 mile and 0.54 mile in length) and has proposed constructing it across the SR 37 right of way. The existing trail stops approximately 550 feet east of SR 37 and 1,300 feet west of SR 37. This trail is planned to extend from Mann Road to Bluff Road along the north side of Little Buck Creek, just north of and parallel to Southport Road. A meeting was held with Indianapolis Department of Parks and Recreation staff on June 3, 2016, to discuss the planned trail. Park staff indicated that an underpass rather than a bridge over I-69 would be preferred. The underpass could be included with the I-69 bridge(s) over Little Buck Creek. Parks Department staff recommended following the underpass standards in the Indy Greenways Master Plan. They asked that bridge designers not direct drainage downspouts directly onto the trail. Coordination with the Indianapolis Department of Parks and Recreation will be ongoing during project design to accommodate future plans for this trail.
- h. U.S. Bicycle Route 50 – A national group, the U.S. Bicycle Routes System (USBRS), has mapped U.S. Bicycle Route 50 along Southport Road at SR 37. The USBRS was established in 1978 by the American Association of State Highway and Transportation Officials (AASHTO). The designation signifies that a route is officially recognized by AASHTO. There is no dedicated federal funding for the USBRS. No designated bike lanes are present. As part of the I-69 Section 6 project, facilities will be provided along Southport Road to accommodate the bicycle route through the interchange.



7.3.3 Relocations

All acquisitions and relocations required by this project will be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended, 49 CFR Part 24, and Title VI of the Civil Rights Act of 1964. No person displaced by this project will be required to move from a displaced dwelling unless comparable replacement housing is available to that person. INDOT will take required actions to ensure fair and equitable treatment of persons displaced as a result of this project up to and including providing replacement housing of last resort as defined in 49 CFR §24.404. Relocation resources for this project will be available to residential and business relocatees without discrimination. Advisory services will be made available to farms and businesses in advance of acquisition, with the aim of minimizing the economic harm to those businesses and farm establishments.

If a displaced resident cannot be relocated due to the unavailability of comparable housing, or because comparable housing is not available within the statutory limit of the Uniform Act, then housing of last resort will be made available to these persons. Last resort housing includes, but is not limited to, rental assistance, additions to existing replacement dwellings, construction of new dwellings and dwelling relocation. Replacement dwellings must meet the requirements of decent, safe, and sanitary standards as established by FHWA.

Relocation resources would be available to all relocatees without regard to race, creed, color, sex, national origin, or economic status, as required by the Uniform Act and Title VI of The Civil Rights Act of 1964. Financial assistance will be available to eligible persons displaced by this project. Payments received are not considered as income under the provisions of the Internal Revenue Code of 1954; or for the purposes of determining any person's eligibility, or the extent of eligibility, for assistance under the Social Security Act or any other federal law.

7.3.4 Cemeteries

Five cemeteries have the potential to be impacted by the I-69 Section 6 project. They are the Wilson Family, Old Mount Olive Methodist, Bell, Williams Bradford, and Stockwell/Hammons/Cain Cemeteries. This project would be developed in accordance with Indiana Code regulating construction near cemeteries (IC 14-21-1-26.5 and IC 23-14-44-1). If design plans require the RPA to disturb ground within 100 feet of the cemetery boundary, a cemetery development plan will be completed and submitted to IDNR DHPA during the design phase of project development in accordance with the Indiana Historic Preservation and Archaeology Act (IHPAA).

7.3.5 Noise

I-69 Section 6 transitions urban areas with dense, single to multi-unit residences in the southern and northern portions of the project area and rural areas with residences generally located on widely scattered sites throughout the central portion of the project area. The RPA would result in



noise impacts at 788 receptors in the I-69 Section 6 study corridor. These predicted exterior impacts include 777 residences, one religious facility, one school, one active sports area, one child care facility, two playgrounds, two restaurants, and three medical facilities. The measures listed below will be considered to mitigate noise impacts of the project on noise-sensitive receptors.

1. **Noise Abatement Measures.** Noise abatement measures include adjustments to roadway geometrics and/or installation of noise barriers. Noise abatement has been analyzed at 30 locations. There are nine feasible and reasonable noise barrier locations in Alternative C1, eight in Alternatives C2 and C3, nine in Alternative C4, and ten in the RPA. The cost per benefited receptor for these reasonable and feasible noise barriers ranges from \$8,653 to \$24,923. For a description of barriers, see **Table 5.10-6** and **Figures 5.10-1 to 5.14**. Potentially affected property owners and/or tenants at the potential barrier locations that meet INDOT feasible and reasonableness criteria will be surveyed during final design in accordance with the INDOT Traffic Noise Analysis Procedure to determine whether they warrant noise abatement.

A final determination on noise abatement for the RPA will be made during the design phase. At such time, additional noise analysis will be performed to determine barrier performance more accurately, barrier characteristics (length and height), and the optimal barrier location for any potential noise barriers that may be recommended for noise abatement.

2. **Roadway Geometrics.** The final design of the RPA may include shifting the alternative both vertically and horizontally, where feasible, to minimize noise impacts where other factors are not prohibitive.
3. **Construction Noise.** Consideration will be given to reasonable and feasible noise abatement, including noise barrier walls, early in construction for the added benefit of mitigating construction noise. Construction vehicles will be required to follow *INDOT Standard Specifications*¹⁰ on controlling noise. Abatement of construction noise impacts will be controlled through the regulation of construction time and hours worked near noise sensitive receptors, using noise-controlled construction equipment, limiting use of some construction vehicles during evening and weekend hours, and locating equipment storage areas away from noise-sensitive areas. Blasting will be performed in accordance with the *INDOT Standard Specification 203.15* for roadway construction or other blasting specifications developed for the project. Consideration will be given to the timing of blasting to minimize noise impacts to sensitive receptors during periods of occupancy.
4. **Coordination among Local Planning Authorities.** Since most of the proposed project would be located on existing roadway, there is limited potential for local officials and developers to minimize adverse noise impacts. With regard to currently undeveloped land, the creation of a “buffer zone” or locating noise sensitive developments a reasonable distance away from the project would help minimize future noise impacts. Local planning authorities

¹⁰ “Indiana Department of Transportation Standard Specifications, 2016,” <http://www.in.gov/dot/div/contracts/standards/book/sep15/sep.htm>.



will be provided information that generally identifies the limits of where 66 dBA and 71 dBA noise levels are predicted relative to the proposed facility. This information can be used to direct noise compatible land uses outside the 66 dBA and 71 dBA buffer zones along the highway. Copies of this FEIS will be provided to local officials.

7.3.6 Construction

I-69 Section 6 will be constructed as a freeway, using best management practices (BMPs). The measures listed below will be used to mitigate construction impacts.

1. **Construction Plans.** Environmentally-sensitive locations (e.g., wetlands, historic structures, archaeology sites, or drinking water wells) in the general project area will be clearly shown on construction plans and called out to contractors during a pre-construction meeting. These sites will not be permitted for use as staging areas, borrow, or waste sites. Additionally, appropriate protection measures such as spill prevention, sediment and erosion control, and stormwater pollution prevention will be required of the contractor near these areas.
2. **Erosion Control.** Prior to construction, 327 IAC 15-5 (Rule 5) requires that the contractor develop a construction plan for stormwater discharges from construction activities encompassing one or more acres. An erosion control plan and stormwater pollution prevention plan (SWPPP) will be developed and approved by INDOT and IDEM prior to construction. The SWPPP will be provided to the local stormwater officials for each community within the project area and to relevant water utilities for areas within a WHPA in the project area. BMPs will be used in the construction of this project to minimize erosion. Erosion and sediment control measures are typically put in place as a first step in construction and maintained throughout construction. The construction contract(s) will require that a level 2 stormwater inspector, meeting current INDOT qualifications, be engaged to insure the SWPPP is implemented per the approved permit. At the time this document is prepared, a level 2 stormwater inspector (SWQM) must successfully complete the INDOT Construction Stormwater Training course and hold a current training verification document for that course. In addition, the level 2 stormwater inspector shall hold a current certification as a CESSWI, or a CESSWI In-Training, or a CISEC, or a CISEC In-Training, or a CPESC, or a CPESC In-Training, or an approved equivalent.
3. **Temporary Erosion Control.** BMPs will be used to minimize sediment and debris within the project area. Examples of these BMPs include silt fencing, check dams, rock filter berms, sediment traps, sediment basins, inlet protection, seeding, and sodding. Timely re-vegetation after soil disturbance will be implemented and monitored.

Prior to construction, heavy equipment parking and turning areas may be located outside the construction limits but within the right of way. Parking and turning areas will be located in areas that do not require additional tree clearing, and will avoid environmentally sensitive areas, such as wetlands, wellhead protection areas (WHPAs) or areas prone to soil erosion.



Soil bioengineering techniques for bank stabilization will be considered where appropriate. INDOT will complete contractor compliance inspections on a regular basis to help control erosion, sediment movement and contamination on the project.

4. **Groundwater.** SWPPP, spill prevention, and stormwater BMPs will be implemented during and after construction to protect groundwater. Potable water sources will be protected through the use of BMPs such as diversion of stormwater into grassy swales, and the use of construction BMPs such as straw or rock check dams, rock filter berms, sediment traps and/or sediment basins to reduce sediment erosion.

INDOT will coordinate with water utilities with WHPAs crossed by I-69 Section 6 to address WHPA requirements for groundwater protection during construction. A WHPA is the area around a wellhead where land use activities have the potential to affect the quality and quantity of water that flows into the well. These areas will be protected in order to preserve existing groundwater resources.

5. **Air Quality.** Construction equipment will be maintained in proper mechanical condition. Mobile source air toxics (MSAT) and diesel emission reduction strategies may also be employed to limit the amount of diesel emissions from construction equipment, such as limiting idling times or reducing the number of trips. Fugitive dust generated during land clearing and demolition procedures will be controlled by proper techniques. *INDOT Standard Specifications* will be followed, including provisions for vegetative cover, mulch, spray-on adhesive, calcium chloride application, water sprinkling, stone, tillage, wind barriers, and construction of a temporary graveled entrance/exit to the construction site.

All bituminous and Portland cement concrete proportioning plants and crushers will meet IDEM requirements. For any portable bituminous or concrete plant or crusher, the contractor must apply for and obtain a permit-to-install from the Permit Section, Air Quality Division of IDEM. Dust collectors must also be provided on all bituminous plants. Dry, fine aggregate material removed from the dryer exhaust by the dust collector must be returned to the dryer discharge unless otherwise directed by the INDOT project engineer.

6. **Parking and Turning Areas.** The contractor SWPPP will specify heavy equipment parking area locations and measures taken to prevent tracking onto roadways, control spills, and provide erosion and sediment control. These will be located in areas that do not require additional tree clearing, and will avoid environmentally sensitive areas, such as wetlands or areas prone to soil erosion. Special provisions will prohibit filling or damaging wetlands in the right of way outside the construction limits. This prohibition will not extend to certain ponds such as farm ponds and those developed from old borrow sites. These are exempt from regulation because they are manmade bodies of water constructed in uplands.
7. **Tree Clearing.** The potential construction impacts to the Indiana bat and northern long-eared bat summer habitat will be addressed in accordance with the requirements of the USFWS revised BO for Tier 1, issued on August 24, 2006 and amended on May 25, 2011 and July 24, 2013 (see **Appendix W**), and subsequent formal consultation conditions specific to I-69 Section 6. The BO for I-69 Section 6 will dictate the mitigation required for construction impacts.



8. **Spill Prevention/Containment.** To fulfill Rule 5 (327 IAC 15-5), contractors will be required to provide a spill response plan acceptable to INDOT and IDEM. This response plan will include, at minimum, protocols for contact with emergency response personnel, material safety data sheets, and copies of agreements with any agencies that are part of the spill-response effort. An emergency contact for the contractor will also be required. The contractor will work with the relevant water utilities for areas within a WHPA in developing these spill response plans.
9. **Revegetation.** Revegetation of disturbed areas will occur in accordance with INDOT Standard Specifications. Woody vegetation will only be used a reasonable distance beyond the clear zone to ensure a safe facility. Revegetation of disturbed soils in the right of way and medians will use native grasses and native wildflowers as appropriate, such as those cultivated through the INDOT Roadside Heritage Program.¹¹
10. **Blasting.** See **Section 7.3.6.**
11. **Abandoned or Dry Petroleum Wells.** If an abandoned or dry petroleum well is encountered during construction, proper closure methods shall be implemented through coordination with the IDNR Division of Oil and Gas and IDEM.
12. **Traffic.** A Traffic Management Plan (TMP) will be developed in coordination with local government officials, emergency service providers, and schools. This will be completed by the construction contractor prior to beginning construction activities to ensure that access is maintained during construction with as little disturbance to emergency routes (including existing SR 37) as possible. Traffic flow maintenance and construction sequences will be planned and scheduled to minimize traffic delays on existing public crossroads. Signs will be used to notify the traveling public of road closures and detours.

Local law enforcement officials, fire departments, and other emergency responders will be notified by the construction contractor at least one month prior (or sooner if required by local regulations) to all road closings and other construction-related activities that could affect their response times and routes, so they can plan alternative routes in advance. The local news media will be notified in advance of road closings and other construction related activities that could inconvenience the community, so motorists can plan alternative travel routes.
13. **Construction Noise.** See **Section 7.3.5.**
14. **Construction in a Floodway.** Construction in a Floodway permit(s) will be applied for before or during the design phase of this project.

¹¹ INDOT's program was developed in cooperation with FHWA, IDNR, and IDEM and funded through a Federal Transportation Enhancement Project grant. The program promotes the use of native plants in state rights-of-way. The plants are grown on state-owned seed farms. The native plants not only provide aesthetic appeal along the highways, they also save the cost of frequent mowing, since the wildflower plantings are mowed only once a year, at the end of the growing season.



15. **Surveys.** The undersides of existing bridges that must be impacted for construction of I-69 Section 6 will be visually surveyed and/or netted to determine their use as night roosts by Indiana bats or northern long-eared bats during the summer.
16. **Wetlands and Jurisdictional Streams.** Wetlands, wetland complexes, and jurisdictional streams were avoided as much as possible in alignment planning. Where direct impacts are unavoidable, wetlands will be replaced in accordance with the MOU between INDOT, USFWS, and IDNR dated January 28, 1991, or any successor agreement entered into by these agencies. Where direct impacts are unavoidable to jurisdictional streams, mitigation will be provided in coordination with the regulatory agencies during the permitting process. The following measures will be taken to avoid/minimize impacts during construction.
 - a. BMPs will be followed for erosion control in the project.
 - b. Disturbed in-stream habitats will be returned to their original condition, when possible, upon completion of construction in the area.
 - c. Wetlands within the right of way that are not within the construction limits will be delineated and protected from construction impacts.
 - d. 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, and historic resources.
17. **Borrow Sites/Waste Disposal.** Contractors are required to follow safeguards established in INDOT Standard Specifications Section 203.08, entitled “Borrow or Disposal.” BMPs will be used in the construction of this project to minimize impacts related to borrow and waste disposal activities. Solid waste generated by clearing and grubbing, demolition, or other construction practices will be removed from the location and properly disposed.

Special provisions will be included in contract documents that restrict the storage of construction materials generated by clearing and grubbing or demolition from within the WHPAs.

Contractors will be required to coordinate with the appropriate utility during the final design phase and during construction with regard to all borrow or disposal areas within wellhead protection areas.

Prior to their use, borrow sites will be assessed for impacts to resources such as archaeological resources, wetlands, and/or waters of the U.S., and appropriate measures will be taken to avoid or mitigate impacts to these resources. Special provisions will include prohibiting tree clearing from April 1 to September 30 in the SAA, as identified in the revised BOs for Tier 1 and Tier 2. Tree clearing will be allowed from October 1 through March 31 in the SAA.



Provisions will be included in the construction contracts to provide additional limitations on the location of waste and borrow facilities associated with I-69 Section 6. These provisions will be coordinated with IDEM prior to the finalization of the construction contracts.

18. **Wetlands.** Construction specifications will include prohibiting the filling or other damaging of wetlands within the right of way outside the construction limits.
19. **Burning of Construction-Related Debris.** Burning, if any, will be conducted in accordance with all local, state, and federal regulations and *INDOT Standard Specifications*. All burning will be conducted at a reasonable distance from homes and care will be taken to alleviate any potential atmospheric conditions that may be a hazard to the public. All burning will be monitored.
20. **Training of Construction and Maintenance Personnel.** All I-69 Section 6 engineering supervisors, equipment operators, and other construction personnel, including INDOT (and/or concessionaire) maintenance staff, will attend mandatory environmental awareness training. The training will identify known locations of bald eagle nests and sensitive Indiana bat and northern long-eared bat sites in the project area and address any other concerns regarding bald eagles and bats. A protocol will be presented for reporting the presence of any live, injured, or dead eagles or bats observed or found within or near the construction limits or right of way during construction, operation, and maintenance of I-69 Section 6.
21. **Access to Water Treatment Facility.** Access will be maintained to The Marlin Water Treatment Facility of Indiana American Water - Johnson County at all times.

7.3.7 Historic and Archaeological Resources

As determined in the identification and evaluation efforts for the I-69 Section 6 project, there are 16 individual properties or districts identified as listed on or eligible for the National Register of Historic Places (NRHP) within the Area of Potential Effects (APE). **Section 5.13** identifies the listed and eligible properties. The I-69 Section 6 project is anticipated to result in an Adverse Effect to the Reuben Aldrich Farm and the Southside German Market Gardeners Historic District.

For archaeological resources, a Phase Ia archaeological survey was conducted for the APE for the preliminary alternatives with additional survey conducted subsequently for the RPA. Sites 12Mg52 12Mg334, 12Mg561, 12Mg571, 12Jo10, 12Jo17, 12Jo42, 12Jo44, 12Jo62, 12Jo489, 12Ma52, 12Ma170, 12Ma171, 12-Ma-0174, 12-Ma-0175, and 12-Ma-0241 were evaluated within the APE; however, there is insufficient information on these sites to determine if they are eligible for inclusion in the NRHP. Portions of these sites within the APE were found unlikely to contain intact deposits and no further investigation was necessary within the APE. The portions of these sites outside of the APE were identified as environmentally sensitive resources and noted for avoidance by construction activities.

Based on the results of the 2015–2016, 2016–2017, and 2017 investigations, insufficient information is available regarding sites 12Mg564–12Mg568 to determine whether they are



eligible for inclusion in the NRHP. These sites must be avoided by ground disturbing activities or else subjected to Phase II evaluative investigations.

Three areas in the White River valley, near Indian Creek, near Crooked Creek, and near Honey Creek, were identified with potential for buried cultural deposits, and Phase Ic subsurface investigation was recommended if these areas cannot be avoided

Any needed Phase Ic, Phase II, and Phase III archaeological survey and data recovery are addressed in the MOA included in **Appendix M**. If the results of further testing show that additional archaeological investigations or mitigation are warranted, that work will be completed, in consultation with the Indiana SHPO, before construction of the project begins in those areas.

At the conclusion of Tier 1 studies for I-69, FHWA and INDOT entered into a Section 106 MOA. The Tier 1 Section 106 MOA includes the stipulations and commitments between INDOT, FHWA, and the SHPO listed in **Section 7.3.7.1**. The Section 106 consulting process in I-69 Section 6 during Tier 2 is in compliance with these commitments.

7.3.7.1 Section 106 Consultation during Tier 2 Studies

The following consultation activities, as stipulated in the Tier 1 MOA, took place during the Tier 2 studies:

- **Tier 2 Sections.** I-69 Section 6, as defined in the Tier 1 FEIS, is considered a separate undertaking for purposes of Section 106 consultation.
- **Applicable Requirements.** FHWA conducted Section 106 consultation for I-69 Section 6 in accordance with all applicable federal and state laws and regulations. The applicable laws and regulations include Section 106 of the National Historic Preservation Act (16 USC §470f) and the implementing regulations (36 CFR Part 800), as well as 16 USC §470hh and 16 USC §470w-3, which require confidentiality regarding archaeological site information to be maintained. Nothing in the Tier 1 MOA is intended to supersede or modify any requirement contained in the Section 106 statute and regulations, or any other applicable laws or regulations.
- **Coordination of Tier 2 Studies in Adjacent Sections.** FHWA consulted with the SHPO regarding the coordination of Section 106 consultation activities in the adjacent Tier 2 section early in the development of I-69 Section 6.
- **Consulting Parties.** During Tier 2, the same party may be designated as a consulting party for more than one section. Information regarding consulting parties is provided in **Appendix M**.

7.3.7.2 Tier 2 Section 106 Commitments and Conceptual Mitigation



The Tier 1 MOA provided that additional commitments may be made, as appropriate, as an outcome of the Section 106 consultation process for each Tier 2 section. It has been determined that the I-69 Section 6 alternatives would have an adverse effect to aboveground properties. The resolution of these adverse effects has been addressed by the MOA included in **Appendix M**. Phase Ic, II, and III archaeological investigations and data recovery, if necessary, will be completed for the RPA as defined in the MOA.

As part of the Tier 1 MOA, FHWA and INDOT agreed to implement and/or fund the activities listed below as part of the Tier 2 environmental studies.

A. Avoidance and Minimization of Impacts in I-69 Section 6

1. In General. In accordance with the consultation process required under Section 106 and in accordance with other applicable laws, FHWA and INDOT will seek ways to avoid, minimize, and mitigate adverse impacts to the environment, including adverse effects to historic properties.

The following commitments will remain in place during design to ensure that I-69 Section 6 will not result in an adverse effect to aboveground properties:

- No right of way will be acquired from any historic property except for the Southside German Market Gardeners Historic District.
 - The Old SR 37 pavement, both north and south of Morgan County Bridge 224 and outside of the proposed I-69 Section 6 right of way, will remain in place.
2. Resources in Adjacent Sections. FHWA and INDOT ensured that the scope of work for I-69 Section 6 includes an analysis of resources (including aboveground and archeological resources) located just beyond the termini for that section. This analysis is intended to ensure that decisions reached in one section do not prematurely limit consideration of avoidance alternatives for resources in adjacent sections.
 3. Alternatives Analysis in Tier 2 studies. I-69 Section 6 considered alternatives for completing I-69 between Martinsville and I-465 in Indianapolis.
 4. Context Sensitive Solutions. Potential context sensitive solutions for historic properties include construction of an earthen slope on the north side of I-465 and east side of Bluff Road within the Southside German Market Gardeners Historic District; consideration in the design phase of a larger opening at the bridge carrying I-465 over Bluff Road to better connect the historic district; a commitment to conduct at least three neighborhood meetings during design to discuss specific plantings on the earthen slope and treatments on the mechanically stabilized earth (MSE) walls in the historic district; and, potentially providing graphite resistant coverings on the MSE wall within the historic district.
 5. Noise Abatement. The Tier 1 MOA for historic resources indicated “FHWA and INDOT will seek to minimize adverse noise effects on historic properties, which have



noise sensitive characteristics that contribute to the historic significance, in accordance with state and federal noise regulations, policies and guidance.” No adverse noise effects were identified for historic properties in I-69 Section 6; therefore, no noise abatement measures would be required for historic properties.

- B. **Preservation and Enhancement.** INDOT and FHWA will provide for the opportunity for vegetative screening on the Reuben Aldrich Farm.
- C. **Education and Interpretation.** INDOT and FHWA will investigate providing the option of an NRHP nomination application for the entire Southside German Market Gardeners Historic District and will investigate providing interpretive signage at Bluff Park and/or a new gateway sign to the park. In addition, INDOT and FHWA will investigate providing the option of an NRHP nomination application for the Reuben Aldrich Farm and will investigate providing a marker or plaque commemorating the property.
- D. **Technical Support for Section 106 Activities**
 - 1. GIS Capability. FHWA and INDOT will assist the SHPO to develop its GIS capability to facilitate Tier 2 consultation and to support historic preservation reviews for other transportation projects in Southwest Indiana. (This has been completed.)
 - 2. Interim Reports. FHWA and INDOT will provide funding and technical assistance to support a comprehensive effort to update the historic surveys and enter data into SHAARD for Morgan and Johnson counties and Decatur, Perry, and Franklin townships in Marion County within the project corridor. (This has been completed.)
 - 3. Archaeology. FHWA and INDOT will provide financial and technical assistance to the SHPO for the further development of GIS-based tools for identifying and recording archaeological sites and development of SHAARD. (This has been completed.)

IDNR DHPA and INDOT have agreed on a plan for support of the GIS and survey updates. Together with FHWA, they have signed an MOU that allows for funding these endeavors. This MOU is being amended to reflect that county interim reports are no longer being completed.

7.3.8 Visual Impacts

Existing SR 37 is the primary visual feature throughout the I-69 Section 6 corridor. In general, land use within the study area is more urbanized in and near the cities of Martinsville and Indianapolis, and is agricultural and forested with scattered residential and commercial development between Martinsville and Indianapolis. Dense urban-type development is located in Indianapolis, particularly from Southport Road north to I-465. The following measures listed below will be used to address impacts on visual resources.

- 1. **Design Elements.** Mitigation measures may include vegetative screening and roadside ditch enhancements with wetland and wildflower plantings.



2. **Context Sensitive Solutions.** Efforts will be made in this project to create positive impacts and reduce negative impacts without compromising traffic operations and safety (see **Section 7.2.1**). As the project continues into design, INDOT will consult with local governments regarding project elements such as signage, bridge design, and landscaping.
3. **Roadway Lighting.** Non-diffuse lighting will be considered, where appropriate. Any lights installed will be at least 40 feet above the highway in order to avoid collisions between bats and vehicles. Lighting locations will be identified during final design.

7.3.9 Hazardous Material Impacts

Due to the long history of commercial, industrial, and dense population development in Martinsville and Indianapolis areas, numerous potential hazardous material sites were reported in the vicinity of the I-69 Section 6 corridor. Recommendations for additional work include confirmation of final construction limits to verify no impacts to nine sites, Phase I Environmental Site Assessments (ESAs) for six sites, and Phase II ESAs for 16 sites. See **Chapter 5.16, Potential Sites of Environmental Concern** for more information.

7.3.10 Floodplain Impacts

Major streams and FEMA mapped 100-year floodplains being crossed in I-69 Section 6 are at White River, Little Buck Creek, Pleasant Run Creek, Honey Creek/Messersmith Creek, North Bluff Creek, Crooked Creek, Stotts Creek, Clear Creek, and Indian Creek. A final hydraulic design study that addresses structure size and types will be completed during the design phase of I-69 Section 6, and a summary will be included with the field check plans and project design summary. The measures listed below will be used to address impacts on floodplains.

1. **Encroachments.** Longitudinal and transverse floodplain encroachments will be minimized, where reasonable, through reuse of existing bridges, and design practices such as longer bridges and perpendicular stream crossings for new bridges. Flood easements may be acquired at these or other locations if determined appropriate.
2. **Construction in a Floodway Permit.** INDOT will submit a formal permit application to the IDNR Division of Water, during the final design phase of the project for all areas that require a “Construction in a Floodway” permit. All floodway mitigation required for Construction in a Floodway permits will follow the IDNR mitigation guidelines.

7.3.11 Wetland Impacts

Wetland impacts within the I-69 Section 6 field survey study area are identified in **Table 5.19.2**. The measures listed below will be used to address impacts on wetlands.

1. **Additional Avoidance and Minimization.** Wetlands and wetland complexes will be avoided when possible and follow the Wetlands MOU between INDOT, IDNR, and USFWS, dated January 28, 1991. If unable to be avoided completely, wetland impacts will be



minimized with shifts in the alignment wherever practicable and feasible in the design phase. All water resource areas within the right of way will be identified on the design plans, and these areas will have IDEM approved erosion control measures as part of the overall erosion control plan to prevent any filling or contamination of these areas during construction.

2. **Wetlands MOU.** Wetlands determined to be “waters of the US” will be replaced in accordance with the MOU between INDOT, USFWS, and IDNR dated January 28, 1991, or any successor agreement entered into by these agencies. While not signatory to the agreement, USACE typically follows the mitigation ratios within the MOU. Under the 1991 MOU, wetlands will be mitigated as follows:
 - a. Farmed 1:1.
 - b. Scrub/shrub and palustrine/lacustrine emergent 2:1 to 3:1 depending upon quality.
 - c. Bottomland hardwood forest 3:1 to 4:1 depending upon quality.
 - d. Exceptional, unique, critical (i.e. cypress swamps) 4:1 and above depending upon quality.

The identification of wetlands as “waters of the US” was based on definitions and guidance found in 33 CFR §328.3, Corps of Engineers Regulatory Guidance Letters, the Regional Supplement of the Corps of Engineers Wetland Delineation Manual: Midwest Region, and field observations performed as part of the InWRAP evaluation. USACE and IDEM will make final determinations regarding the jurisdictional status of wetlands. See **Section 7.4** for estimated wetland mitigation quantities.

3. **Revised Tier 1 Conceptual Forest and Wetland Forest Mitigation Plan.** During Tier 1, INDOT and FHWA developed a Tier 1 Forest and Wetland Mitigation and Enhancement Plan (“Plan”) for the proposed project in consultation with USFWS and other review agencies. An updated version of that Plan has been developed, and its stipulations regarding wetland mitigation are included in USFWS revised BO for Tier 1 issued on August 24, 2006 (as amended May 25, 2011). The revised Tier 1 Plan included a commitment to replace wetlands at a ratio of 3:1 for forested and scrub/shrub wetlands, and a ratio of 2:1 for emergent wetlands. The wetland mitigation sites will include an approximate 25% buffer area around them where appropriate. The Revised Tier 1 Plan identifies the general location of 13 potential mitigation sites for the design and construction of wetlands and upland forest. For I-69 Section 6, the sites are White River (Clear Creek), White River (Crooked Creek), and White River (Pleasant Run Creek). See **Section 7.2.3** for a description of these sites. Potential mitigation sites are being investigated in these focus areas and within the White River floodplain. Additional mitigation sites may be identified in the remaining stages of project development.
4. **Wetland Pooling.** If appropriate, wetland mitigation may include wetland pooling, meaning efforts would be made to group mitigation sites together to create a more substantial and effective mitigation site.
5. **Wetland Mitigation and Monitoring Plans.** Wetland Mitigation and Monitoring Plans will be prepared as required for Section 404 permitting. Additional measures to minimize impacts



to specific wetland sites will be considered, including narrowing the right of way, installing drainage features such as swales to ensure that roadway runoff does not enter wetland areas, and designing culverts to maintain the flow of water to a wetland area otherwise cut off from its existing water source. A more detailed conceptual mitigation plan has been included in the I-69 Section 6 Tier 2 BA, which is included in **Appendix GG**.

6. **Environmentally Sensitive Areas.** Environmentally sensitive areas, to include wetlands, will be marked with signs in the right of way. Herbicide use in these areas will be limited to that required to control noxious and invasive species as required by state law.

7.3.12 Farmland Impacts

The measures listed below have been used to address impacts to farmland:

1. **Alignment.** With the use of existing SR 37 right of way, I-69 Section 6 will be constructed on land already designated for transportation use, thereby minimizing farmland impacts and disruption of existing agricultural patterns.
2. **Existing Property Lines.** Where reasonable, alignments for local service roads were developed to follow existing property lines to minimize dividing or splitting large tracts of farmland. Agricultural property lines were followed where practicable and feasible or fields were crossed at perpendicular angles to reduce the creation of point rows and other uneconomic remnants.
3. **Farmland Access.** Many farm parcels that would otherwise lose access as a result of the project will be provided access through new service roads as features of the project. In some situations, providing access may not be reasonable from an economic standpoint (i.e., it would cost more to provide new access than to acquire the property) and the property would be landlocked. Potential acquisition and disposition of landlocked parcels and uneconomic remnants will be addressed during final design. In several locations, overpasses and local service roads will be provided to maintain the connectivity of local roads. The overpasses and local service roads will facilitate access to farm operations divided by I-69 Section 6.
4. **Farmland Protection.** The Natural Resources Conservation Service (NRCS) has been contacted, and appropriate analysis conducted in accordance with the Farmland Protection Policy Act for I-69 Section 6 (see **Section 5.4**). I-69 Section 6 accrued a total point value of less than 160 points and is therefore within the “no significant impact to farmland” range; therefore, there will be no further consideration for farmland protection.

7.3.13 Forest Impacts

The following measures will be used to address impacts on forests:

1. **Forest Mitigation Ratio.** Upland forest impacts will be mitigated at a ratio of 3:1 for the I-69 Evansville to Indianapolis project, through the preservation and/or replacement of forested lands within Southwest Indiana. Mitigation goals are to replace direct forest impacts at a 1:1



ratio and provide an additional 2:1 ratio of forest preservation. All forest mitigation lands will be protected in perpetuity by conservation easements or other preservation mechanism. It is anticipated that most of the mitigation for forest impacts for I-69 Section 6 will be located within the project area (see item 2, below). Forest mitigation is being developed on a project-wide basis, and may include large tracts that serve as mitigation for multiple Tier 2 sections. The 3:1 mitigation ratio may not be provided within each Tier 2 section; however, the total mitigation for all forest impacts will be 3:1 and this ratio is used in this FEIS for potential mitigation requirements for forest impacts. See **Section 7.4** for estimated forest mitigation quantities.

2. **Forest Mitigation.** INDOT has consulted with appropriate resource agencies regarding forest mitigation measures (see **Section 7.2.4**).
3. **Riparian Forest Mitigation.** Riparian impacts were calculated by identifying forest and forest fragments within 100 feet of a stream. If these riparian forests are identified as wetland forests, the impacts will be mitigated according to the Wetlands MOU. If the riparian forests are identified as non-wetland forests in a floodway, impacts will be mitigated according to IDNR ratios (2:1 replanting or 10:1 preservation). All non-wetland riparian forest replacement will be included as part of the 3:1 upland forest mitigation.

7.3.14 Stream and Water Body Modification Impacts

The measures listed below will be used to address impacts to streams and water bodies.

1. **Signage.** Water bodies, wetlands, and other natural areas outside the construction limits but within the right of way will be marked with signs in the right of way. The marking of jurisdictional streams will be coordinated with IDEM during project design. Herbicide use in these areas will be limited to that required to control noxious and invasive species as required by state law.
2. **Tree Clearing.** Tree clearing and snag removal will be kept to a minimum and limited to areas within the construction limits in compliance with applicable date restrictions.
3. **Stream Relocations.** The realignment of surface streams or impacts to riffle-pool complexes and natural stream geomorphology will be avoided where possible. In instances where this is not possible, stream impacts will be minimized and mitigated. Stream relocations within Indiana bat and northern long-eared bat maternity colony areas will be completed using the natural channel design features that are identified through coordination with the resource agencies. Stream mitigation will be completed to adequately mitigate for linear feet of stream impacts in coordination with regulatory agencies during the permitting process. Where possible, both banks of stream mitigation areas will be protected. If both banks cannot be protected, coordination with the regulatory agencies will be completed to identify the amount of mitigation credits that INDOT may receive based on the proposed mitigation site.

Coordination with regulatory agencies has been initiated and will continue throughout the development of the proposed mitigation sites that will be offered for compensatory mitigation. Natural channel stream design for perennial and larger intermittent stream



relocations within the Indiana bat and northern long-eared bat maternity colony areas may incorporate: riffle/run/pool/glide or step/pool sequences and sinuosity to replicate natural channel geomorphology; in stream natural structures, such as log and rock vanes, to help prevent streambank erosion; and riparian buffer plantings outside the clear zone of the roadway. Off-site channel restoration for compensatory mitigation will be completed including the same natural channel design features.

Consideration will be given in the design phase to planting trees and shrubs along relocated streams along the outside edge of the right of way and outside of the clear zone.

Continued efforts will be made during design to identify design features that minimize impacts at stream crossings, including measures to keep channel and bank modifications to a minimum and, where feasible, avoid channel alterations below the ordinary high water mark (OHWM) elevation. Mitigation of stream impacts could include installing three-sided culverts or oversized box culverts sunk into the streambed that would retain the natural channel bottom, thereby facilitating the migration of stream fauna through the culverts, and reducing impacts to the flow rate. The culverts will be of sufficient size to prevent upstream bed instability and erosion of downstream banks.

During the design phase, consideration will be given to using alternative armoring materials and include portions of dry land under the bridge opening that is not armored with riprap. The use of bio-engineering techniques to provide natural armoring of stream banks will be considered and implemented where practicable. Installation of riprap will be limited to areas necessary to protect structure integrity. If riprap is required, it will be installed outside the stream bed and between the toe of slope and the OHWM where possible. In some instances, such as culvert inlets and outlets, riprap may need to be placed within the stream bed to prevent scour. Riprap will be installed at the same elevation as the stream bed to avoid fish passage issues. Riprap may also be needed above the OHWM to protect bridge piers and abutments from scour where bio-engineering will not suffice.

Other details of mitigation will be coordinated with the regulatory agencies with jurisdiction during the permitting process. In addition, INDOT will coordinate with IDEM, IDNR, and USACE to take into account any recent stream stabilization projects. Any stream relocations required within an Indiana bat or northern long-eared bat maternity colony area in I-69 Section 6 will be completed with a natural stream design. USFWS will be included in the coordination regarding the relocation during the permitting process to assure that any concerns relative to the Indiana bat and northern long-eared bats are addressed as part of the stream relocation.

4. **Below-Water Work.** Where reasonable, below-water work will be restricted to placement of piers, pilings and/or footings, shaping of spill slopes around the bridge abutments, and placement of riprap. Any in-stream construction timing restrictions will be addressed during permitting.
5. **Channel Work.** Where appropriate, channel work and vegetation clearing shall be restricted to the width of the construction limits.



6. **Artificial Bank Stabilization.** The extent of artificial bank stabilization will be minimized. Soil bio-engineering techniques for bank stabilization will be considered where situations allow.
7. **Riprap.** If riprap is used for bank stabilization, it shall be of appropriate size and extend below the low-water elevation to provide for aquatic habitat. The construction plans will clearly note the dimensions and depth of riprap to be installed. It will be the responsibility of the contractor and/or the construction inspection team to ensure the riprap and culverts are installed per the final approved roadway plans. Alternative materials, other than riprap, will be reviewed for areas above the OHWM that require placement of scour protection measures and if feasible, the alternative measures will be considered.
8. **Culverts.** Culverts and small structures will be placed so that they do not preclude the movement of fish and other aquatic organisms. Culverts and small structures will be used to preserve existing drainage patterns. Consideration will be given to oversized culverts to allow for the passage of small fauna at locations where it is determined to be appropriate and reasonable.

7.3.15 Ecosystems Impacts

Alternative alignments have been located to minimize impacts to wildlife habitats where possible. The measures listed below will be used to address impacts on ecosystems.

1. **Environmentally Sensitive Areas.** Environmentally sensitive areas, to include wetlands, will be marked with signs in the right of way. Herbicide use in these areas will be limited to that required to control noxious and invasive species as required by state law.
2. **Invasive Plant Species.** In mitigation sites and within the proposed right of way for I-69, INDOT will use appropriate herbicides and/or physical mechanisms to control invasive plants, such as purple loosestrife, reed canary grass, kudzu, and Japanese knotweed. INDOT is a member of the Invasive Plant Species Assessment Group (IPSAWG), and as a member, develops recommendations for selling and planting plant species in the state.
3. **Migratory Bird Treaty Act.** Coordination with USFWS will continue pursuant to the Migratory Bird Treaty Act of 1918.
4. **Conservation Measures for Wildlife.** Transportation designers will work with appropriate agencies to determine the most feasible and practical conservation measures for the maintenance of wildlife movements and landscape connectivity.
5. **Mitigation Measures for Wildlife.** In a letter dated May 17, 2016 (see **Appendix C**), IDNR commented on the I-69 Section 6 preliminary alternatives. According to IDNR, “[w]ith any stream crossings, the design must include consideration of fish and wildlife passage. Any new or modified structure must not create conditions that are less favorable for passage under the structure compared to the current conditions. Wherever possible, bridges should be used for stream crossings rather than culverts. If culverts must be used, we recommend a three-sided structure.”



Based on field reconnaissance, habitat and landscape connectivity, and sizes of existing bridges, I-69 Section 6 includes nine locations where wildlife use the existing structure to cross the highway (see **Section 5.18**). Maps, photographs, and details regarding these crossings is provided in **Appendix AA**. Construction contracts will maintain the existing wildlife passages provided by SR 37 and other existing roadways. During the design phase of the project when structure sizing is being determined for new and existing crossings, accommodations for wildlife will be considered.

Clear Creek, Stotts Creek, Crooked Creek, and Travis Creek crossings have records showing bat usage for travel and foraging. As part of the RPA, each bridge will have vertical clearances equal to or greater than the existing clearance to accommodate bat passage and to maintain existing flyways under the bridge. Additionally, native vegetation will be maintained or re-vegetated along these waterways. The Travis Creek crossing is currently a pipe structure. Additional coordination will be conducted with USFWS regarding the proposed structure and vegetation treatments along Travis Creek to facilitate the connectivity for bat use.

There will be no net loss of the number of crossings, resulting in landscape permeability (ease with which wildlife can cross under I-69) being relative unchanged. Wildlife use of the existing structures indicates they have adapted to and use these areas to cross the highway. New bridges will be sized to accommodate the existing waterway and serve as wildlife crossings. Modifications to existing bridges or culverts to improve wildlife crossings will be made if feasible. With the proposed crossing improvements, it is anticipated that landscape permeability across the interstate highway will not decrease compared to current conditions along SR 37 with the construction of I-69 Section 6.

7.3.16 Water Quality Impacts

The measures listed below will be used to address impacts on water quality.

1. **Stream Crossings.** Where reasonable, the RPA will cross streams at their narrowest floodway width and use existing stream crossings where appropriate.
2. **Stream Mitigation Plans.** Stream mitigation plans will be developed where necessary.
3. **Disturbed In-Stream Habitats.** In-stream habitats will be returned to their original condition, when possible, upon completion of construction.
4. **Tree Clearing.** Tree clearing and snag removal will be minimized near streams and rivers. Approximately 20 feet of space may be cleared around a bridge to allow sufficient room for bridge maintenance and inspection activities after construction.
5. **Wetlands.** Wetlands will be avoided as much as possible and the Wetlands MOU dated January 28, 1991, between INDOT, IDNR, and USFWS will be followed. All wetlands will be replaced at the appropriate mitigation ratio as identified in the Wetlands MOU.
6. **Erosion Control.** BMPs will be followed for erosion control in the project.



7. **Roadside Drainage.** Where appropriate, roadside ditches will be constructed that are grass-lined and connected to filter strips and containment basins. Avoidance of infiltration features within WHPAs is the preferred approach to minimize groundwater impacts. During the design phase, specific coordination will be conducted with IDEM for any detention/retention facilities planned in WHPAs.
8. **Spill Prevention/Containment.** Roadway design will include appropriate measures for spill prevention/containment. Contractors will be required to provide an acceptable spill response plan. This response plan will include an emergency contact telephone number and telephone numbers for emergency response personnel and copies of agreements with any agencies which are part of the spill-response effort. The erosion and sediment control BMPs will provide protection of the WHPAs during construction. Appropriate BMPs in all areas where water leaves the site within the WHPAs (i.e., sediment traps and basins) shall provide sufficient protection for potential hazardous material spills during construction and post construction. Special measures including diversions of highway runoff from direct discharge off bridge decks into streams, and containment basins to detain accidental spills, will be incorporated into final design plans for perennial streams within any of the Indiana bat and northern long-eared maternity colony areas.

Coordination with American Water - Johnson County will be completed prior to the start of construction to develop a response plan for construction activities within the American Water - Johnson County wellhead protection area.

Coordination with Indiana American Water – Johnson County, as well as other water utilities that control wellhead protection areas (WHPA) crossed by I-69 Section 6, will continue during the design phase. The Spill Prevention, Control, and Counter-measure Plan (SPCC) will include each utility on the list of recipients. In addition to standard spill protection practices required as part of the INDOT Standard Specifications, the SPCC will include protocols for daily inspection of chemical tanks, no overnight storage of large equipment, no re-fueling of any equipment, no dumpsters, no concrete wash-out areas, and no fertilizer, pesticide, or herbicide application within the WHPAs. As appropriate these protocols will also be included in the Stormwater Pollution Prevention Plan (SWPPP).

9. **Road Salt Spray and Salt Runoff.** Every effort will be made to minimize the amount of salt used on the bridges and roads. Alternative substances or low salt (e.g., sand) will be used as much as possible. INDOT will coordinate with American Water - Johnson County to develop a maintenance plan for salt application within the American Water - Johnson County wellhead protection area.

7.3.17 Managed Lands

All alternatives, including the RPA, would impact property in the north unit of the Cikana State Fish Hatchery. INDOT will continue to work with IDNR and the Cikana State Fish Hatchery to minimize impacts to the property. The direct access to the north unit from SR 37 will be lost during construction of I-69 Section 6 and new access will be provided via Twin Branch Road.



With the exception of any wetland and forest areas within the managed properties, mitigation for impacts to the managed land areas could be accomplished through repayment to the resource agencies of amount associated with each cost-sharing agreement and abiding by other agreement stipulations. These mitigation measures would apply only if the agreements are still in force or the time stipulated periods have not expired. INDOT will consult with IDNR during design regarding impacts to the fish hatchery.

7.3.18 Threatened and Endangered Species

The revised Tier 1 BO issued by USFWS listed conservation measures to minimize impacts and ensure that the construction of I-69 is not likely to jeopardize the continued existence of any federally-listed, threatened, or endangered species, or result in the destruction or adverse modification of their critical habitat. Conservation measures listed below were jointly developed by FHWA, INDOT, and USFWS during informal consultation and were subsequently incorporated into the Tier 1 BA and the Tier 1 BA Addenda as part of the official proposed action for the I-69 project. For reference to the Tier 1 BA see **Appendix W**. 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, northern long-eared bats, and bald eagles and to further their recovery. It should be noted that only those portions of the text having some applicability to I-69 Section 6 are cited below. The applicability to I-69 Section 6 is described in the “Status” section following the applicable text. In the event of any differences of wording between the conservation measures listed below and the revised Tier 1 BO or amendments, the latter takes precedence.

Indiana Bat (*Myotis sodalis*) and Northern Long-eared Bat (*Myotis septentrionalis*)

A. Context Sensitive Solutions

Summer Habitat

1. **Alignment Planning** – Efforts will be made to locate roadway alignments so they avoid transecting forested areas and fragmenting core forest where reasonable.

Status – Efforts have been made to avoid and minimize fragmenting forests in design.

2. **Tree Removal** – Tree and snag removal will be avoided or minimized as follows:
 - a. **Tree Cutting** – To avoid any direct take of Indiana bats and northern long-eared bats, no trees with a diameter of 3 or more inches will be removed between April 1 and September 30. Tree clearing and snag removal will be kept to a minimum and limited to within the construction limits. In the median, outside the clear zone, tree clearing will be kept to a minimum with woods kept in as much a natural state as reasonable. Forested medians will be managed following the IDNR State Forest timber management plan.



- b. Avoid and minimize impacts from private landowner harvests within the right of way
 - The goal of the measure is to avoid and minimize impacts from private landowner harvests by working with property owners within the right of way who plan to harvest their property. FHWA and INDOT propose to develop a voluntary agreement with the interested landowners, such as a “right of entry” agreement or other type of covenant, to pay the landowner to limit the time of year in which they harvest their property, this time period would be limited to the late fall and winter when Indiana bats are not present in the forested areas.

Status – To be completed. All tree cutting activities will only occur within the construction limits. All tree clearing within the proposed construction limits will follow USFWS seasonal cutting restrictions. The construction limits will be identified during final design. The Revised BO for Tier 1 and the Section 1 Tier 2 BO include the dates of April 15 to September 15. However, after that BO was issued, USFWS provided (on February 14, 2008) revised tree clearing restriction dates of April 1 to September 30 for areas not within the Indiana bat WAA. The I-69 project is governed by the conditions of the BO, and INDOT and FHWA have adopted the updated tree clearing restriction dates for the project.

- 3. **Mist Netting** – In areas with suitable summer habitat for the Indiana bat and northern long-eared bat, mist net surveys will be conducted between May 15 and August 15 at locations determined in consultation with USFWS as part of Tier 2 studies. If Indiana bats are captured, some will be fitted with radio transmitters and tracked to their diurnal roosts for at least five days unless otherwise determined by USFWS. If northern long-eared bats are captured in Section 6, some will be fitted with radio transmitters and tracked to their diurnal roosts for at least five days unless otherwise determined by USFWS.

Status – Completed. For I-69 Section 6, 29 sites were surveyed in 2004, seven were surveyed in 2005, and 19 were surveyed in 2015. See **Section 5.17.3.1** and **Section 5.17.3.2** for summaries of Indiana bat and northern long-eared bat captures, roost identifications, and subsequent maternity colony determinations.

- 4. **Bridges** – Bridges will include the following design features:
 - a. Surveys – The undersides of existing bridges that must be removed for construction of I-69 shall be visually surveyed to determine their use as roosts by Indiana bats or northern long-eared bats during the summer.

Status – A total of 19 bridges were inspected for bats in I-69 Section 6 during the summer of 2004. No Indiana bats or northern long-eared bats were noted roosting. Big brown bats were documented under two bridges that span Little Buck Creek.

Additionally, as a mitigation measure, bridges and culverts will be inspected prior to construction in accordance with a protocol to be drafted in coordination with



USFWS. The protocol shall define all inspection parameters including, but not limited to: what structures are to be inspected, when (season and time of day) inspections shall take place, who has authority to conduct inspections, documentation requirements, and proper agency notification procedure when roosting bats are encountered.

- b. **Bat-friendly Bridges** – Where feasible and appropriate, interstate and service road bridges will be designed to provide suitable night roosts for Indiana bats and other bat species in consultation with USFWS.

Status – Due to concerns relative to attracting bats to the high-speed interstate facility, it is currently proposed to not include any “bat friendly bridges” on I-69. USFWS concurs with no “bat friendly bridges” for the project.

- c. **Floodplains** – Where reasonable and appropriate, floodplains and oxbows will be bridged to protect environmentally sensitive areas.

Status – To be completed. No floodplains in I-69 Section 6 will be bridged in their entirety, but floodplain encroachments will be minimized, where reasonable, by using existing bridge crossings and by applying design practices such as longer bridges and perpendicular stream crossings where new crossings are warranted. I-69 Section 6 contains several 100-year floodplains, including White River, Indian Creek, Clear Creek, Stotts Creek, Crooked Creek, Honey Creek, Pleasant Run, Little Buck Creek, and State Ditch. A final hydraulic design study will be completed during the design phase to determine span lengths, and a summary will be included in the field check plans and project design summary.

5. **Stream Relocations** – Site-specific plans for stream relocations will be developed in design considering the needs of sensitive species and environmental concerns. Plans will include, the planting of woody and herbaceous vegetation to stabilize the banks. Such plantings will provide foraging cover for many species. Stream mitigation and monitoring plans will be developed for stream relocations, as appropriate.

Status – To be completed.

All Habitats

6. **Medians and Alignments** – Variable width medians will be used where appropriate to minimize impacts to sensitive and/or significant habitats. Context Sensitive Solutions will be used, where possible. This may involve vertical and horizontal shifts in the interstate.

Status – A typical median width of 48-60 feet is proposed for I-69 Section 6 with no trees in the median.

7. **Minimize Interchanges** – Efforts have been made to limit interchanges in karst areas, thereby limiting access and discouraging secondary growth and impacts. In Tier 2, further



consideration will be given to limiting the location and number of interchanges in karst areas.

Status – There is no karst topography within I-69 Section 6 that requires mitigation.

8. **Memoranda of Understanding (MOUs)** – Construction will adhere to the Wetland MOU (dated January 28, 1991) and Karst MOU (dated October 13, 1993). The Wetland MOU minimizes impacts to the Indiana bat and northern long-eared bat by mitigating for wetland losses and creating bat foraging areas at multiple ratios to those lost to the project. The Karst MOU avoids and minimizes impacts to the Indiana bat and northern long-eared bat by numerous measures which protect sensitive karst features including hibernacula.

Status – To be completed. Wetland impacts associated with I-69 Section 6 will be mitigated in accordance with the Wetlands MOU. There is no karst topography within I-69 Section 6 that requires mitigation.

9. **Water Quality** – Water contamination will be avoided/minimized by the actions listed below.

- a. **Equipment Service** – Equipment servicing and maintenance areas will be designated to areas away from streambeds, sinkholes, or areas draining into sinkholes.

Status – To be completed. There is no karst topography within I-69 Section 6.

- b. **Roadside Drainage** – Where appropriate in karst areas, roadside ditches will be constructed that are grass-lined and connected to filter strips and containment basins.

Status – To be completed. There is no karst topography within I-69 Section 6.

- c. **Equipment Maintenance** – Construction equipment will be maintained in proper mechanical condition.

Status – To be completed. This item is contained in INDOT Standard Specifications and will be implemented during construction.

- d. **Spill Prevention/Containment** – The design for the roadway will include appropriate measures for spill prevention/containment.

Status – Special measures, including diversions of highway runoff from direct discharge off bridge decks into streams and containment basins to detain accidental spills, will be incorporated into final design plans for perennial streams within the Indiana bat and northern long-eared bat maternity colony areas to address water quality concerns associated with bats.



Measures for spill prevention/containment will be included in the roadway design. The Rule 5 Permit will require that each contractor have spill containment plans in their contract documents. This plan will include protocols for contacting emergency response personnel and copies of agreements with any agencies that are part of the spill response effort. An emergency response telephone number for the contractor is also required.

- e. **Herbicide Use Plan** – The use of herbicides will be minimized in environmentally sensitive areas such as karst areas to protect Indiana bats and northern long-eared bats. Environmentally sensitive areas will be determined in coordination with INDOT as appropriate. Appropriate signage will be posted along the interstate to alert maintenance staff of these areas.

Status – The use of herbicides will be minimized within the environmentally sensitive habitats. These areas have yet to be determined.

- f. **Revegetation** – Revegetation of disturbed areas will occur in accordance with INDOT Standard Specifications. Woody vegetation will only be used beyond the clear zone. Revegetation of disturbed soils in the right of way and medians will use native grasses and wildflowers, as appropriate, similar to the native seed mixes of other nearby states.

Status – To be completed. Revegetation of disturbed areas will occur in accordance with INDOT Standard Specifications. Woody vegetation will only be used outside of the highway clear zone. Revegetation of disturbed soils in the right of way and medians will use native grasses and wildflowers as appropriate, such as those cultivated through INDOT's Roadside Heritage program. Locations that may be considered, but are not limited to, stream crossings and the interchange locations.

- g. **Low Salt Zones** – A low salt and no spray strategy will be developed in karst areas for this project. A signing strategy for these items will also be developed. The low salt zones will be determined in coordination with the INDOT.

Status – There is no karst topography within I-69 Section 6. Therefore, implementation of this measure is not anticipated.

- h. **Bridge Design** – Where feasible and appropriate, bridges will be designed with no or a minimum number of in-span drains. To the extent possible, the stormwater flow will be directed towards the ends of the bridge and to the riprap drainage turnouts.

Status – To be completed during design.

- 10. **Erosion Control** – Temporary erosion control devices will be used to minimize sediment and debris movement. Timely revegetation after soil disturbance will be implemented and monitored. Revegetation will consider site specific needs for water and karst. Erosion



control measures will be put in place as a first step in construction and maintained throughout construction.

Status – To be completed. BMPs will be used in the construction of this project in accordance with INDOT Standard Specifications to minimize erosion impacts. Erosion control measures will be put in place as a first step in construction and maintained throughout construction. Temporary erosion control devices, such as silt fencing, check dams, sediment basins, inlet protection, sodding, and other appropriate BMPs will be used to minimize sediment and debris in tributaries within the project area. Timely revegetation will be implemented after soil disturbance and monitored for coverage and viability. Any riprap used will be of a large diameter in order to allow space for habitat for aquatic species after placement. Slopes will be designed that resist erosion. If slopes exceed 2:1, 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 monitor erosion control and sediment movement on the project.

11. **Parking and Turning Areas** – Parking and turning areas for heavy equipment will be confined to sites that will minimize soil erosion and tree clearing, and will avoid environmentally sensitive areas, such as karst.

Status – To be completed. There are no karst resources in I-69 Section 6.

B. Restoration / Replacement

Summer Habitat

1. **Summer Habitat Creation/Enhancement** – Indiana bat and northern long-eared bat summer habitat will be created and enhanced in the Action Area through wetland and forest mitigation focused on riparian corridors and existing forest blocks to provide habitat connectivity. The following areas and possibly others have been investigated for wetland and forest mitigation to create and enhance summer habitat for the Indiana bat: Pigeon Creek, Patoka River bottoms, White River, Thousand Acre Woods, White River (Elnora), First Creek, American Bottoms, Garrison Chapel Valley, Beanblossom Bottoms, White River (Gosport), White River (Blue Bluff), and Bradford Woods.

In selecting sites for summer habitat creation and enhancement, priority will be given to sites located within a 2.5-mile radius from a recorded Indiana bat capture site or roost tree. If willing sellers cannot be found within these areas, other areas may be used as second choice areas as long as they are within the Action Area and close enough to benefit these maternity colonies, or are outside the Action Area but still deemed acceptable to USFWS.

Where appropriate, mitigation sites will be planted with a mixture of native trees that generally include species identified as having relatively high value as potential Indiana



bat roost trees. Tree plantings will be monitored for five years after planting to ensure establishment and protected in perpetuity via conservation easements.

Status – To be completed. The primary focus area for Indiana bat and northern long-eared bat summer habitat mitigation will be within the White River floodplain west of existing SR 37. Additional areas outside the White River floodplain may receive consideration as well.

2. **Wetland MOU** – Wetlands will be mitigated at ratios agreed on in the Wetland MOU (dated January 28, 1991). Wetland replacement ratios are as follows:
 - a. Farmed wetlands 1:1.
 - b. Scrub/shrub and palustrine/lacustrine emergent wetlands 2:1 to 3:1 depending upon quality.
 - c. Bottomland hardwood forest wetlands 3:1 to 4:1 depending upon quality.
 - d. Exceptional, unique, critical (i.e. cypress swamps) 4:1 and above depending upon quality.

Status – To be completed. The MOU between INDOT, IDNR and USFWS was developed to ensure that wetland impacts are avoided, minimized, and mitigated to compensate for the loss of wetland functions and values. See **Section 7.4** for estimated mitigation quantities for alternatives.

3. **Forest Mitigation** – The Tier 1 Forest and Wetland Mitigation and Enhancement Plan (**Appendix Q**) identifies the general location of potential mitigation sites for upland and bottomland forests. Preference will be given to areas contiguous to large forested tracts that have recorded federal- and state-listed species. The actual mitigation sites implemented will be determined in or following Tier 2 in consultation with USFWS and other environmental review agencies. Coordination with the environmental review agencies will assure that these forest mitigation sites are strategically situated in biologically attractive ecosystems. Forest impacts will be mitigated at a ratio of 3:1. All forest mitigation lands will be protected in perpetuity via conservation easements. The 3:1 forest mitigation may not be located entirely within the Action Area. Forest impacts occurring within each of the northern long-eared maternity colony areas would be mitigated by replacement (i.e. planting of new forest and purchase of existing) at approximately 3:1, preferably in the vicinity of the known roosting habitat.

Status – To be completed. Forest mitigation goals for I-69 Section 6 are described in **Section 7.2.4**. This mitigation will be accomplished either by purchasing and protecting existing tracts of forests or by planting trees. 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. All forest



mitigation lands will be protected in perpetuity through conservation easements or other appropriate measures. The species to be planted and the long-term management of these mitigation sites will be coordinated with the agencies relative to the conditions of the necessary permits and authorizations.

C. Conservation / Preservation

1. **Summer Habitat** – Investigations will be coordinated with USFWS on purchasing lands at fair market value in the Action Area from “willing sellers” to preserve summer habitat. Any acquired summer habitat area would be turned over to an appropriate government conservation and management agency for protection in perpetuity via conservation easements.

Status – To be completed. Additional conceptual detail is provided in the Tier 2 BA for I-69 Section 6 (See Appendix GG).

D. Education / Research / Monitoring

Summer Habitat

1. **Mist Netting** – A work plan for surveying, monitoring, and reporting will be developed and conducted in consultation with and approved by USFWS. This mist netting effort will be beyond the Tier 2 sampling requirements. Fifty mist netting sampling sites are currently under consideration. In earlier discussions, FHWA/INDOT agreed with USFWS to complete surveys at 50 mist netting sites; however, 2 additional sites have been added to the list as recommended by USFWS to limit the number of surveyed sites to 50, possibly 2 sites can be removed in I-69 Section 6. Monitoring surveys focused at each of known maternity colonies will be completed the summer before construction begins in a given section and will continue each subsequent summer during the construction phase and for at least five summers after construction has been completed. If Indiana bats are captured in any section, or if northern long-eared bats are captured in I-69 Section 6, radio transmitters will be used in an attempt to locate roost trees, and multiple emergence counts will be made at each located roost tree. These monitoring efforts will be documented and summarized within an annual report prepared for USFWS.

Status – To be completed. It is anticipated nine mist net sites will be monitored in I-69 Section 6.

In addition to the conservation measures listed above, the following conservation recommendations for the Indiana bat were included in the Amendment 2 to the BO for Tier 1. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action/program on listed species or critical habitat, to help implement recovery plans, or to develop information. Conservation



recommendations generally do not focus on a specific project, but rather on an agency's overall program.

1. Working with USFWS, develop national guidelines or best management practices for addressing Indiana bat issues associated with FHWA projects within the range of the Indiana bat, including measures to avoid or minimize private landowner impacts to the species prior to state and/or federal acquisition.
2. Provide funding to expand scientific research and educational outreach efforts on Indiana bats in coordination with the USFWS Bloomington Field Office (BFO).
3. In coordination with the BFO, purchase or otherwise protect additional Indiana bat hibernacula and forested swarming habitat in Indiana.
4. Provide funding to staff a full-time Indiana bat Conservation Coordinator position within the BFO, which has the USFWS national lead for this wide-ranging species.
5. Provide funding for research to address WNS in bats.

FHWA and INDOT have no current plan to commit additional funding to implement these conservation recommendations. However, both INDOT and FHWA continue to work with USFWS to provide information and develop BMPs associated with highway development, management, and maintenance to assist in the conservation of the Indiana bat.

Bald Eagle (*Haliaeetus leucocephalus*)

On July 9, 2007, USFWS removed the bald eagle from the list of endangered and threatened species under the Endangered Species Act. However, the bald eagle continues to have protection under the Bald and Golden Eagle Protection Act, 16 USC §§ 668-668d. On May 20, 2008, 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 (refer to 50 CFR Part 22). FHWA and INDOT will comply, as appropriate, with the Bald and Golden Eagle Protection Act permit requirements established by USFWS prior to construction.

Most conservation measures for the bald eagle are also measures for the Indiana bat and northern long-eared bat, and have been updated in the Indiana bat Conservation Measures section, described above. The conservation measures for the bald eagle are described in the revised Tier 1 BO (**Appendix W**) and will be fully complied with as a part of the overall I-69 mitigation.

Both federal laws prohibit the “taking” of bald eagles. In guidance issued in June 2007 the Department of the Interior stated that USFWS would honor existing ESA authorizations in place before the effective date of the delisting. The guidance indicates that USFWS does not intend to seek prosecution of a “take” of any bald eagle under either the MBTA 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.

A Bald and Golden Eagle Protection Act permit from USFWS was acquired for this project for the bald eagle on June 25, 2009. This permit includes all six sections of I-69. FHWA and INDOT



will comply with the terms and conditions imposed by the incidental take statement included in the August 24, 2006, revised BO for Tier 1, as it proceeds with this project. Conservation measures developed for the bald eagle as part of the BA for Tier 1 and BA for Tier 1 Addendum will be completed as a condition of the permit, despite the species delisting. For reference to the BA see **Appendix W**.

There are no bald eagle nests within one-half mile of the proposed mainline highway. There is an active nest approximately 0.3 mile from proposed local service road improvements and an active nest north of I-465 about 0.6 mile away. Both nests are outside of the recommended 660-foot radius for activities as described in USFWS National Bald Eagle Management Guidelines.

Rusty Patched Bumble Bee (*Bombus affinis*)

On March 21, 2017, USFWS added the rusty patched bumble bee to the list of endangered and threatened species under the ESA. While I-69 Section 6 is not likely to adversely affect the rusty patched bumble bee, INDOT and FHWA may use seed mixes on their mitigation sites which are beneficial to pollinators such as bumble bees.

7.4 Environmental Mitigation Costs

Environmental mitigation costs for I-69 Section 6 are included in the overall cost estimate for the RPA. These costs are listed in **Table 7-3**. Estimated costs are included for the mitigation components listed below.

Wetland/Open Water Mitigation. The acreage needed for wetland and open water mitigation is estimated based on the expected impact acreage, type of wetland, and jurisdiction using mitigation ratios described in **Section 7.3.11**. A 25 percent buffer is added to the total mitigation area. The cost of this mitigation includes purchase of suitable parcels, design, and construction of wetlands.

Forest Mitigation. The acres needed for forest mitigation are determined based on the expected impact acreage using a 3:1 ratio (with the goal being 1:1 for reforestation to replace direct impacts, and 2:1 for preservation of existing forests). The cost of this mitigation includes acquisition of suitable parcels, site design and tree planting.

Other Riparian Areas. “Riparian areas” refer to non-wetland land located immediately adjacent to streams. The width of these riparian areas can vary, and is generally wider in the upland areas where topography is more rugged and narrower in the flatter lowlands where agricultural fields use more of the land (see **Section 5.19**). In general, impacts to these riparian areas are expected to be mitigated through the forest mitigation program wherever possible, but in some instances may be treated separately. Since some riparian areas are wooded but do not meet the USDA technical definition of “forest”, these areas are not included in the forest mitigation, but instead mitigated at the 1:1 ratio for mitigation of other (non-wetland) riparian habitat.



Stream Mitigation. IDEM and USACE criteria call for mitigating stream impacts based on the length of impact. Mitigation ratios will be determined in consultation with IDEM and USACE, but are assumed to be 1:1 for natural, channelized ditch or bridged stream impacts. The estimated cost of this mitigation includes: securing suitable parcels, conducting site design for stream stabilization projects, stream mitigation and monitoring plans, and planting of woody and herbaceous vegetation. A separate cost is added for a large bank stabilization mitigation project along the White River near its confluence with Stotts Creek.

Mitigation Monitoring and Maintenance. Monitoring and maintenance costs are estimated from costs in I-69 Sections 1-3. Stream monitoring cost estimates assume only 50 percent of the mitigation length will require monitoring outside of the forest and wetland monitoring. Monitoring costs include seven years of monitoring. Maintenance cost estimates assume only 15 percent of wetland and forest mitigation (excluding preservation) will require maintenance. Maintenance costs include replanting or reseeding and herbicide treatments for invasive species.

Noise Impact Mitigation. While a final determination on noise abatement will be made during the design phase, an allowance is included in the cost estimate for potential sound barriers. Additional noise analysis will be performed during final design to more accurately determine the need and extent of potential noise barriers.

Historic Resources. A lump sum value is applied to the entire I-69 Section 6 project to represent potential cost to mitigate historic and archaeological impacts. Mitigation funding would include support of interim reports in Morgan and Johnson counties and Decatur, Perry, and Franklin townships in Marion County. Mitigation measures are included in the Section 106 MOA. National Register nominations, landscaping, and other context sensitive design options are included in the Section 106 MOA for I-69 Section 6. This cost includes activities specific to I-69 Section 6 and other activities related to the Tier 1 MOA, which encompass multiple sections and are yet to be completed, such as entering of data collected along the I-69 corridor into SHAARD, and guides, brochures, and educational materials.

Section 4(f). The Southside German Market Gardeners Historic District is the only resource that will have a Section 4(f) use. Mitigation has been developed for impacts to the Southside German Market Gardeners Historic District as part of the Section 106 consultation process with the SHPO and consulting parties.



Table 7-3: Estimated Cost for I-69 Section 6 Mitigation

Criteria	RPA Estimated Cost (Rounded)
Wetland/Open Water Mitigation 16.07 ac x \$38,000	\$611,000
Forest Mitigation 477 ac x \$15,000	\$7,155,000
Riparian (non-forest, non-wetland) Mitigation 14.98 ac x \$15,000	\$225,000
Stream Mitigation 23,677 linear feet x \$300	\$7,103,000
Stream Mitigation (White River Bank Stabilization) *	\$1,500,000
Mitigation Monitoring & Maintenance**	
Wetland Monitoring (16.07 ac X \$8,400/acre)	\$135,000
Forest Monitoring (159 ac X \$4,200/acre)	\$668,000
Stream Monitoring ((23,677 linear feet X 0.5) X \$40/linear foot)	\$474,000
Maintenance (wetland & forest) ((175.07 ac X 0.15) X \$6,000/acre)	\$158,000
Noise Mitigation (Square feet of sound barrier X \$30/square foot)	\$15,167,000
Historic and Archaeological 18% of \$5,000,000***	\$900,000
Subtotal	\$34,096,000
Contingency: 17% of subtotal****	\$5,796,320
Total Cost, Year 2016 Dollars	\$39,892,320

* Cost estimate based on previously completed large stream bank stabilization projects.

** Monitoring and maintenance costs are estimated from costs from I-69 Sections 1-3. Stream monitoring cost estimates assume 50 percent will require monitoring outside of the forest and wetland monitoring. Maintenance cost estimates assume 15 percent of wetland and forest mitigation (excluding preservation) will require maintenance.

***Cost based on I-69 Section 6 percentage of total I-69 project estimates or on grant amount identified during Tier 1.

****A 17% contingency is included in the overall construction costs and is typical at the preliminary engineering stage of a project to account for unknown conditions.

Notes:

All cost estimates are in Year 2016 dollars, rounded to the nearest 1,000.

The cost estimating methodology is explained the Cost Estimation Methodology Technical Memorandum in **Appendix D**.