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5.12 Construction Impacts

5.12.1 Introduction

No substantive changes have been made to this section since the publication of the Draft Environmental Impact Statement (DEIS). Additional information regarding consultation with groundwater utilities has been included.

Nearly all of I-69 Section 6 entails upgrading an existing multi-lane, divided transportation facility to a full freeway design, rather than construction of a facility on new alignment. Most right of way for the I-69 Section 6 project is already devoted to transportation use. Accordingly, the impacts to natural resources in I-69 Section 6 would be lessened (on a per-mile basis), particularly in comparison to Sections 1 through 4, which were constructed on new terrain.

Construction activities for any of the alternatives would impact the environment in several ways. Maintenance of traffic impacts associated with reconstructing an existing road, as well as from detours for construction, may result in inconvenience to motorists, delays in emergency services, and damage to local roads by construction equipment. Additional construction impacts within the project construction limits may include construction equipment noise, air pollution, water pollution, tree removal, wetland impacts, and soil erosion.

5.12.2 Analysis

5.12.2.1 Noise

The presence of a potentially affected noise receiver within close proximity of the project construction limits could result in construction noise impacts. Generally, the potential for construction-related noise impacts is higher where an alternative passes through an urban or suburban area and where an alternative passes near existing development. I-69 Section 6 generally consists of developed residential and commercial land in the southern and northern areas of the project with residential and agricultural land in the central areas. The high number of noise receptors in these areas increases the potential for noise impacts.

The locations of noise receptors along the corridor are identified and the potential for noise due to construction is described in **Section 5.10** and in the *Noise Technical Report* provided in **Appendix T**. Construction noise abatement measures may be required in areas where residences or other sensitive noise receivers are subjected to excessive noise from highway construction. Consideration would be given to providing reasonable and feasible noise abatement early in the construction phase to mitigate construction noise. **Section 5.12.3.1** describes potential mitigation actions for construction noise.

5.12.2.2 Air Pollution

The main component of air pollution derived from construction activities is fugitive dust. Fugitive dust is fine particulate matter (PM2.5) that escapes beyond the right of way or construction boundary. Fugitive dust emissions can be created by many construction related activities such as grading and earth moving. Reasonable precautions are typically sufficient to control fugitive dust emissions during construction. Best management practices as outlined in the INDOT *Standard Specifications*[1] for roadway construction would be followed to minimize air quality impacts from fugitive dust.

PM2.5 is also a product of combustion. Construction activities, equipment engines, increased vehicle emissions due to traffic delays, and burning of cleared vegetation are the major sources of PM2.5. These air quality impacts may be reduced by scheduling construction activities to minimize traffic delays. They would also be reduced by adhering to state and local air pollution control laws, eliminating idling of construction equipment, and complying with regulations regarding open burning.

5.12.2.3 Groundwater

Construction activities could impact and/or be adjacent to existing groundwater wells within or adjacent to the right of way of the build alternatives. Any wells encountered within the right of way would be properly capped to prevent contamination of the groundwater.

In addition, the I-69 Section 6 alternatives would cross several public water supply wellhead protection areas (WHPAs). Grassy swales to facilitate infiltration and associated recharge of groundwater supplies and construction methods to reduce erosion, sedimentation, and turbidity that road construction could temporarily cause would be among the measures employed to protect groundwater resources. Stormwater best management practices (BMPs) would be used during construction of this project to reduce groundwater impacts.

Consultation has been undertaken between INDOT and public water utilities with WHPAs crossed by the proposed I-69 Section 6 corridor to identify appropriate groundwater protection measures for construction. Mitigation measures such as placement of straw bales in drainage ways and ditches, covering exposed areas with burlap, jute matting or straw, and grading slopes to retain runoff in basins will be applied, and consultation will be ongoing during construction.

[1] *"Indiana Department of Transportation Standard Specifications, 2016,"* http://www.in.gov/dot/div/contracts/standards/book/sep15/2016Master.pdf.

5.12.2.4 Erosion Control

Stream segments, including existing culverts, that are located within the I-69 Section 6 alternatives could be adversely affected by construction activities. Multiple stream segments (indicating a change in habitat) can make up one stream reach. These streams are identified and potential impacts described in **Section 5.19.2**. Procedures to reduce the impact of erosion and runoff into streams – stormwater BMPs, including temporary sediment basins and silt fencing – would be implemented and enforced. **Figure 5.12-1** illustrates a typical sediment basin, which is used to detain sediment-laden runoff from areas disturbed during construction.

Figure 5.12-1: Typical Sediment Basin

5.12.2.5 Heavy Blasting

It is anticipated that heavy blasting may be used in constructing portions of the highway in I-69 Section 6. Blasting in all areas would be performed in accordance with INDOT *Standard Specification*s Section 203.15, entitled "Excavating Rock."

5.12.2.6 Vibrations

It is anticipated that vibrations may be created during I-69 Section 6 construction activities, such as earth moving, operation of construction equipment, and pile driving for bridge piers, if required. A listing of receptors sensitive to vibrations will be created, and coordination with sensitive receivers will be conducted in the design process.

5.12.2.7 Local Roads

Local public roads could be damaged by the movement of heavy construction equipment to and from the construction site. INDOT *Standard Specifications* would be followed, including Section 105.12, which states: "legal load restrictions shall be complied with on public roads beyond the limits of the project. A special permit will not relieve the Contractor of liability for damage which may result from the moving of equipment. The operation of equipment of such weight or so loaded as to cause damage to structures or the roadway or to any other type of construction

will not be allowed. The Contractor shall be responsible for all damage done by the Contractor, its employees, agents, or subcontractors."

5.12.2.8 Borrow Sites/Waste Disposal

The locations of borrow and waste disposal sites are generally not known until a project is let for construction. In general practice, the contractor selects the sites based on free market economics (i.e., negotiations with property owners). Contractors must comply with all permitting requirements for borrow locations, and follow other applicable INDOT *Standard Specifications*. Prior to their use, these sites would be assessed for impacts to resources such as archaeological resources, wetlands, etc., and appropriate measures would be employed to avoid or minimize impacts, if any. Where impacts would warrant, the contractor, with INDOT oversight, would obtain required permits.

Due to the cost of mitigation that is often required for borrow and waste disposal sites, contractors often elect to identify and choose other sites in a different location that would avoid the impacts. Solid waste generation resulting from construction should be short-term and confined to the vicinity of the project area. In many cases, contractors can use existing agricultural fields near the construction sites for borrow/waste sites as they can be easy to use and typically have low potential to impact protected environmental resources.

5.12.2.9 Traffic Flow and Travel Patterns

Existing travel patterns would be impacted during construction along existing roadways. Motorist inconvenience and safety concerns would be greatest where construction occurs along SR 37, high volume crossroads, including Smith Valley Road, County Line Road, all state highways, and I-465. A detailed traffic management plan will be developed to coordinate construction, manage traffic, and inform the public. Detours and traffic restrictions during construction will be implemented with consideration given to minimizing the impact to the travelling public. Where detours are necessary, proper signage will be placed to assist motorists in navigating through the area. While maintenance of traffic plans will be prepared for the entire length of the project, and efforts made to notify the public of road closures and restrictions, unannounced traffic delays may occur. These unexpected delays could require some motorists to seek alternate routes without prior notification.

5.12.2.10 Threatened and Endangered Species/Tree Clearing

Based on field studies, the federally listed Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and federally protected bald eagle (*Haliaeetus leucocephalus)* are known to exist in the I-69 Section 6 study area. In addition, habitat is present for the following state-protected species: little brown bat (*Myotis lucifugus*), eastern tricolored or pipistrelle bat (*Perimyotis subflavus*), eastern red bat (*Lasiurus borealis*), and evening bat (*Nycticeius humeralis*). Refer to **Section 5.17** for further information.

Tree clearing has the highest potential to directly affect the Indiana and northern long-eared bats during construction. Their nocturnal habits and preference for large trees with loose bark as summer roosts presents the potential for disturbance during daytime roosting. The presence of these bats may go undetected during clearing activities, resulting in the potential for direct takes of these species. Tree clearing restrictions are requirements of the Revised Biological Opinion (BO) for Tier 1 provided in **Appendix W**.

Construction activities would be minimized and mitigated in accordance with standard INDOT specifications for construction contracts and in accordance with the U.S. Fish and Wildlife Service (USFWS) BO as identified with other mitigation actions in **Section 5.17.3**. These specifications address issues such as tree clearing restrictions to avoid the potential for direct impacts to Indiana and northern long-eared bats, as well as the minimization of construction-related air quality and noise impacts, erosion and sediment control, and spill prevention and control.

In consultation with IDNR, tree clearing would take into account the possible presence of the emerald ash borer. This consultation would determine appropriate measures during tree clearing to address these concerns.

5.12.2.11 Wetlands

Wetland areas within the right of way but outside the construction limits would be identified and protected from use as borrow or waste disposal sites and construction staging areas. Wetlands adjacent to the construction limits would be protected with silt fences or other erosion control measures. They would also be clearly marked to identify the wetlands as “Do Not Disturb” areas to prevent any impacts from construction activities. Wetlands inside the construction limits will be impacted by the project. Permits for these impacts will be obtained from the U.S. Army Corps of Engineers (USACE) and Indiana Department of Environmental Management (IDEM), and appropriate mitigation will be provided. See **Section 5.23** for a description of required permits and **Chapter 7**, **Mitigation** regarding wetland replacement.

5.12.2.12 Streams

Streams within the right of way but outside the construction limits would be identified and protected from use as borrow or waste disposal sites and construction staging areas. Streams adjacent to the construction limits would be protected with silt fences or other erosion control measures. They would also be clearly marked to identify the wetlands as “Do Not Disturb” areas to minimize impacts from construction activities. Streams inside the construction limits will be impacted by the project generally by a bridge of culvert. Appropriate permits for these impacts will be obtained from the USACE, IDEM, and Indiana Department of Natural Resources (IDNR), and appropriate mitigation will be provided. See **Section 5.23** for a description of required permits and **Chapter 7**, **Mitigation** regarding wetland replacement.

5.12.3 Mitigation

5.12.3.1 Construction Noise

Noise control measures would include those in INDOT *Standard Specifications*. Consideration would be given to providing reasonable and feasible noise abatement early in the construction phase to mitigate construction noise. Construction noise impacts would 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.

5.12.3.2 Air Quality

Construction equipment would 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 would be controlled by proper techniques. INDOT *Standard Specifications* would 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 would meet the requirements of the Indiana Department of Environmental Management (IDEM). 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.

5.12.3.3 Groundwater

BMPs would be implemented during construction to protect groundwater. Potable water sources would be protected through the use of BMPs such as diversion of stormwater into grassy swales, and the use of construction BMPs such as rock check dams, rock filter berms, sediment traps, and/or sediment basins to reduce sediment erosion. The erosion and sediment control BMPs will provide protection of the wellhead protection areas during construction. Appropriate BMPs in all areas where water leaves the site within the wellhead protection areas (i.e., sediment traps and basins) shall provide sufficient protection for potential hazardous material spills during construction and post construction.

A stormwater pollution prevention plan (SWPPP) and spill prevention plan will be implemented during and after construction to protect groundwater. Potable water sources will be protected

through the use of best management practices (BMPs) as described above. INDOT will work with water utilities with WHPAs crossed by I-69 Section 6 to address WHPA requirements for groundwater protection during and after construction.

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. Copies of these spill response plans will be shared with the relevant water utilities for areas within a WHPA. Post construction spill response will be completed by the local emergency management services.

INDOT will continue consultation with the public water utilities with WHPAs crossed by I-69 Section 6 to address their concerns and recommendations for groundwater protection during construction work within these areas.

5.12.3.4 Erosion Control

As part of the construction plan required under 327 IAC 15-5, an erosion control plan and SWPPP would be developed and approved by INDOT and IDEM prior to construction. BMPs would be used in the construction of this project to minimize impacts of erosion. Erosion and sediment control measures are put in place as a first step in construction and are maintained throughout construction.

Temporary erosion control BMPs would be used to minimize sediment and debris within the project area. Examples of these BMPs include, but are not limited to: silt fencing, check dams, rock filter berms, sediment traps, sediment basins, inlet protection, seeding, and sodding. Timely re-vegetation after soil disturbance would be implemented and monitored. Any permanent riprap used would be of a large diameter in order to allow space for habitat for aquatic species after placement.

The contractor Stormwater Quality Management Plan (SWQMP) would specify heavy equipment parking area locations and measures taken to prevent tracking onto roadways, control spills, and provide erosion and sediment control. Soil bioengineering techniques for bank stabilization would be considered where appropriate. INDOT would complete contractor compliance inspections on a regular basis to help control erosion and sediment on the project.

5.12.3.5 Heavy Blasting

If heavy blasting is used, strict blasting specifications would be followed, as found in Section 203.15 of INDOT *Standard Specifications*. Consideration would be given to the timing of blasting to minimize noise impacts to sensitive receptors during periods of occupancy. The time of occupancy would vary by receptor type. Noise receptors are categorized as part of the *INDOT*

Traffic Noise Analysis Procedure (2017). As shown in Table 1 of **Appendix T** of this FEIS, the most sensitive receptors include hospitals, libraries, medical facilities, and places of worship.

5.12.3.6 Vibrations

Vibrations above criteria provided in FTA's *Transit Noise and Vibration Impact Assessment*[2], are not anticipated. Special provisions will be included in construction contracts to require compliance with this standard. Coordinating with sensitive receptors will be conducted prior to the FEIS to determine if any additional mitigation measures are needed during construction.

5.12.3.7 Borrow Sites/Waste Disposal

Contractors are required to follow safeguards established in INDOT *Standard Specifications* Section 203.08, entitled "Borrow or Disposal". BMPs would 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 would be removed from the location and properly disposed.

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

Construction specifications may also include prohibiting the filling or other damaging of wetlands within the right of way outside the construction limits.

Burning of construction-related debris, if any, would be conducted in accordance with all local, state, and federal regulations and INDOT *Standard Specifications*. All burning would be conducted at a reasonable distance from homes and care would be taken to alleviate any potential atmospheric conditions that may be a hazard to the public. All burning would be monitored.

5.12.3.8 Traffic

Coordination with local government officials, emergency service providers, and schools would be conducted by the construction contractor prior to beginning construction activities to ensure that all access is maintained during construction with as little disturbance to emergency routes (including existing SR 37) as possible. Traffic flow maintenance and construction sequences would be planned and scheduled to minimize traffic delays on existing public crossroads. Signs

[2] *FTA-VA-90-1003-06, May, 2006, Chapter 12*

would be used to notify the traveling public of road closures and detours. A detailed traffic management plan (TMP) will be developed to coordinate and communicate the methods and processes for ensuring appropriate traffic management measures are completed during construction.

Local law enforcement officials, fire departments, and other emergency responders would 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 would be notified in advance of road closings and other construction-related activities that could inconvenience the community so motorists can plan alternative travel routes.

5.12.3.9 Threatened and Endangered Species/Tree Clearing

The potential construction impacts to the Indiana bat and northern long-eared bat summer habitat would 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 would dictate the mitigation for construction impacts.

It would be expected that efforts made during the Tier 2 study to avoid or minimize impacts to wildlife habitat (see **Section 5.18**) would benefit state-listed as well as federally-threatened or endangered species.

5.12.3.10 Spill Prevention/Containment

To fulfill Rule 5 (327 IAC 15-5) requirements, contractors would be required to provide a spill response plan acceptable to INDOT and IDEM. This response plan would include, at minimum, telephone numbers for emergency response personnel, material safety data sheets, and copies of agreements with any agencies which are part of the spill-response effort. An emergency contact telephone number would also be required.

5.12.3.11 Jurisdictional Wetlands and Streams

Jurisdictional wetlands, wetland complexes, and streams were avoided as much as possible in alignment planning. Where direct impacts are unavoidable, wetlands would be replaced in accordance with the Memorandum of Understanding (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 would be provided in coordination with the regulatory agencies during the permitting process. The following measures would be taken to avoid/minimize impacts during construction:

- BMPs would be followed for erosion control in the project.
- Disturbed in-stream habitats would be returned to their original condition, when possible, upon completion of construction in the area.
- Prior to construction, heavy equipment parking and turning areas would be identified outside the construction limits but within the right of way. These areas would be located in areas that do not require tree clearing, as well as avoid environmentally-sensitive areas, such as wetlands or areas prone to soil erosion. Special provisions would prohibit filling or damaging non-isolated wetlands in the right of way outside the construction limits. (Note: this prohibition would not extend to certain isolated ponds such as farm ponds and those developed from old borrow sites. These are exempt from regulation because they are man-made bodies of water constructed in uplands.)

5.12.4 Summary

Construction activities would have air, noise, water quality, traffic flow, and other impacts. All alternatives would use the existing SR 37 right of way, which currently serves the Martinsville and southern Indianapolis areas. Impacts would be substantially reduced by using this existing roadway as compared to the new terrain alignments of early sections of I-69. Impacts resulting from construction were considered in addition to impacts to the natural and human environment in defining alternatives for potential implementation of I-69 Section 6.

During construction, measures to minimize impacts would be controlled in accordance with proposed mitigation measures and commitments, and INDOT *Standard Specifications*. For further detail of mitigation measures and commitments for design and construction of this project, see **Chapter 7**, **Mitigation**.