



## ES.7 Mitigation Measures

Throughout this project, efforts have been made to avoid and/or minimize impacts to both the human and natural environments. This effort is evident in the many modifications that were made to the alternatives throughout the screening and identification of the Preferred Alternative process. Where impacts were potentially unavoidable, measures to mitigate the impacts were identified. Chapter 6 – Mitigation, discusses the commitments made by the FHWA and the INDOT to mitigate potential environmental impacts that are associated with Preferred Alternative G-Es. These mitigation measures will be implemented during the design and construction phase of the project development. A summary of mitigation measures for Preferred Alternative G-Es is as follows:

**Relocation Assistance** – 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 (Code of Federal Regulations) 24, and Title VI of the Civil Rights Act of 1968. 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 are available to residential and business relocatees without discrimination. Advisory services will be made available to farms and businesses, with the aim of minimizing the economic harm to those businesses and farm establishments.

The availability of commercial real estate is most prevalent in the South Bend area at the north end of the corridor. In general, there appears to be adequate availability of commercial property. Commercial properties are most heavily affected by Preferred Alternative G-Es because it utilizes a section of existing US 31 north of Kern Road. It is expected that there will be some small uneconomic remnant commercial parcels adjacent to the new US 31 frontage roads following right-of-way acquisition for the new facility. These parcels may be combined and allow opportunities for some relocated businesses to rebuild in the same general vicinity. Benefits would be made available for all commercial properties displaced by this project in accordance with 42 USC 4601-4655, 49 CFR Part 24, Title VI of the Civil Rights Act of 1964, and IC 8-23-17. Mitigation measures for displaced businesses include moving expenses, compensation for direct loss of tangible property, and replacement property search.

### **Historic and Archaeological Resource Mitigation**

The widening of Pierce Road (SR 4 extension) from existing US 31 to the proposed US 31 is a planned local road improvement project that is included as part of the US 31 Improvement Project. The W.O. Bunch Farm, a property that is eligible for the National Register of Historic Places (NR), is located on the south side of Pierce Road and is within the limits of the Pierce Road (SR 4 extension) local road improvement project. For this local road improvement project, in the vicinity of the W.O. Bunch Farm, Pierce Road (SR 4 extension) was shifted northward so that any additional right-of-way required for the improvements were on the north side of Pierce Road. The right-of-way along the south side of Pierce Road, in the vicinity of the W.O. Bunch Farm, will remain at the current right-of-way location. Use of any property associated with the W.O. Bunch Farm was avoided. The increase in traffic and the potential for development at the nearby interchange may reduce the integrity (the surrounding rural context) of the property but does not represent a substantial impairment to its listing in the NR. As a result of the FHWA finding of Historic Properties Affected, Adverse Effect, FHWA, SHPO and other consulting parties entered into consultation regarding a MOA. FHWA and the State Historic Preservation Officer (SHPO) have mitigated the impact on the W.O. Bunch Farm and executed a MOA, to which INDOT was an invited signatory.

The MOA stipulates that “FHWA and INDOT agree to implement and provide funding for an educational CD that will complement the 4<sup>th</sup> grade Indiana History curriculum, whereby the role of settlement and agriculture in northern Indiana are discussed, especially as it relates to roads and agricultural properties. This educational CD



will be developed in consultation with the Indiana Department of Natural Resources-Division of Historic Preservation & Archaeology. This CD will be distributed to grade schools in Marshall and St. Joseph counties and placed at repositories designated by FHWA and INDOT. These repositories may include but will not be limited to the Indiana Department of Natural Resources-Division of Historic Preservation & Archaeology, the Indiana Historical Bureau, the Indiana State Archives, and Historic Landmarks Foundation of Indiana. Approximately 100 copies of the CD will be produced. (Copyright will rest with INDOT.) All work will be completed within two (2) years of the publishing of the Record of Decision. Educational material will be formatted so that it may be published on a website if desired.”

The MOA addresses Post Review Discovery stating that

“In the event that one or more historic properties--other than Evergreen Hill, Lakeville High School, Cover House, Ullery/Farneman House, Conrad Schafer Farmstead, Francis Donaghue Farmstead, Court Farmstead, and W.O. Bunch Farm – are discovered or that unanticipated effects on historic properties are found during the implementation of this memorandum of agreement, the FHWA shall follow the procedure specified in 36 C.F.R. Section 800.13.”

Additionally,

“If, during the implementation of the project, a previously unidentified historic property is encountered, or a previously identified historic property is affected in an unanticipated manner, the FHWA will consult with the SHPO, and ensure that work shall cease in the area, and the provisions of IC 14-21-1, 312 IAC 21, and 312 IAC 22 will be followed.”

Based on the results of the Phase 1a archaeological field reconnaissance (see Appendix I) and other available information, the proposed project should have no effect on archaeological resources meeting the criteria established for inclusion to the Indiana Register of Historic Sites and Structures (IRHSS) or the NR. Three previously recorded archaeological sites were resurveyed and 20 previously undocumented archaeological sites were discovered during the Phase 1a field reconnaissance of the project area. Based on this field reconnaissance, no further work was recommended on any of these sites. This is with the understanding that if human remains, features or midden deposits are revealed during construction, any disturbances will cease until an archaeologist is contacted and mitigation is completed.

The MOA executed between the FHWA and the SHPO (See Appendix P), to which INDOT was an invited signatory, stipulates that the:

“FHWA may withhold or limit public disclosure of information about historic properties in accordance with Section 304 of the National Historic Preservation Act and 36 CFR 800.6(a)(5) and 36 CFR 800.11(c)”.

The MOA also addresses Post Review Discovery stating that:

“If human remains are discovered, the appropriate County Coroner and law enforcement officials will be notified immediately, and the discovery of any human remains dating on or before December 31, 1939 must be also reported to the IDNR within two (2) business days. The discovery must be treated in accordance with IC 14-21-1 and 312 IAC 22. If a Native American Indian burial ground is discovered, the IDNR shall immediately provide notice to the Native American Indian Affairs Commission as per IC 14-21-1-25.5.”

**Air Quality Impacts** –The project would be designed to minimize any impacts on ambient air quality in or around the project vicinity. No violations of the NAAQS are projected for this project. Therefore, no air quality mitigation measures are required for the roadway improvements. During construction, the contractor will comply with all federal, state, and local laws and regulations governing the control of air pollution. Adequate dust-control measures will be maintained so as not to cause detriment to the safety, health, welfare, or comfort of any person or cause any damage to any property or business.



**Noise Impacts** – At all sensitive receivers where traffic noise impacts are predicted under the Preferred Alternative G-Es, noise mitigation measures will be considered. One method of mitigating traffic noise impacts is to construct a noise barrier in the form of an earthen berm and/or vertical wall. According to INDOT’s Highway Traffic Noise Policy, when impacts have been identified, there must be consideration of any reasonable and feasible measures that would abate the traffic noise impacts. Abatement must be implemented if it is feasible and reasonable on any significant segment of the project.

“Feasible” means that it is structurally and acoustically possible to attenuate traffic noise occurring at a receiver by at least 5 dBA  $L_{eq}(h)$ . Traffic noise abatement measures include traffic control measures (TCM), alteration of vertical or horizontal alignment, acquisition of buffering land, noise insulation of impacted receivers, and construction of traffic noise barriers.

“Reasonable” means that INDOT believes abatement of traffic noise impacts is prudent based on consideration of all the following factors:

1. The number of benefited receivers, those for whom the mitigation will benefit by at least 5 dBA  $L_{eq}(h)$  at the noisiest hour conditions. This number is not necessarily the number of receivers impacted.
2. The cost of abatement on a benefited receiver basis and on a project level basis. INDOT has set the acceptable cost per benefited receiver range as \$20,000 - \$30,000. This cost should be arrived at by applying a square footage cost basis on the square footage of the noise barrier. A reasonable square footage cost basis will be determined by the INDOT.
3. The severity of existing and future traffic noise level. The absolute level and the increase of the future noise are two aspects with which to assess the severity of the noise impacts.
4. The timing of development near the project. The state considers it appropriate to give more consideration for development that occurs before initial highway construction.
5. The views of noise impacted residents. Potential negative impacts of noise barriers include unsightliness, shortened daylight, poor air circulation, degradation by weather, reduced safety, vandalism, and restriction of access for emergency vehicles.

As a result of the preliminary barrier performance analysis for this project, noise barrier walls were found to likely be feasible and meet all the reasonableness criteria at two locations in the northern end of the project. If during final design, conditions substantially change, the abatement measures may or may not be provided. A final decision on the installation of abatement measure(s) will be made upon completion of the project design and the public involvement process.

**Farmland** – Agricultural impacts in the form of permanent conversion of farmland to non-farmland use generally cannot be mitigated easily by the creation of new farmland elsewhere. For this reason, the mitigation of agricultural impacts tends to focus on those practices that assist in avoiding and/or minimizing conversion, or designing alignments to minimize disruption to existing agricultural patterns.

**Wetland Mitigation** – Wetland mitigation is based on requirements set forth in Section 404 of the Clean Water Act (33 USC 1344). In 1991, the IDNR, USFWS, and INDOT signed a Memorandum of Understanding (MOU) that established standard mitigation ratios for impacts to wetland resources. While not signatory to the agreement, the USACE and IDEM typically follow the MOU for those wetland impacts that fall under federal jurisdiction. The agreed mitigation ratios of 2:1 for emergent wetlands, 3:1 for scrub/shrub wetlands, and 3:1 to 4:1 for forested wetlands are still used as guidance for regulatory determination of a permit applicant’s request for wetland mitigation. The USACE and IDEM may require more or less impact acreage depending on the quality, location, size, function, and value of the wetland. For those isolated wetland impacts that fall under the IDEM Isolated Wetlands Regulatory Program, mitigation ratios will depend on the Class of wetland impact, location of mitigation site, and timing of mitigation.



A Conceptual Wetland Mitigation Plan was developed for this project. This mitigation plan is conceptual and compensatory for probable wetland losses resulting from the Preferred Alternative G-Es. This plan lists general site locations where mitigation could take place. These sites include: Potato Creek State Park, Flat Lake Watershed, Lake of the Woods Watershed, Lakeville Lakes Watershed, Catfish/Wharton Lakes Area, Place Trail Marsh Area, Marker & Grimes Ditches Area, and the St. Patrick's County Park Area. There are conceptual sites located in both the Kankakee and St. Joseph watersheds. In many cases there is a community interest in the protection and/or enhancement of the watershed.

Reasons for expected success of the wetland mitigation sites include the occurrence of unique and high quality habitats in the areas near these mitigation sites. Mitigation sites are to extend outward from such environmentally productive sites. These sites will also involve the restoration of areas that were historically wetlands, rather than the creation of wetlands from upland areas. The likelihood of success in these areas is greater because proper hydrology is more likely to be achieved and a seed bank of wetland species may also be present. A more detailed mitigation and monitoring report will be developed as the project proceeds.

Property used for U.S. 31 wetland mitigation will be protected from future development and land use change indefinitely. This protection will be ensured by purchase of fee simple title to the property, or a perpetual conservation easement restricting any alteration of the wetland. Interagency agreements will also be pursued to provide for future management of the mitigation sites following successful wetland establishment. Continued coordination with review agencies will assure that the wetland mitigation sites are suitable and that they are located in areas which assure the greatest potential for successful wetland habitat development.

**Mitigation of Visual Impacts and Aesthetics** – This project will consider visual mitigation measures for associated visual impacts. Potential aesthetic enhancements for possible incorporation into the project would reflect input from the affected communities. The adjacent communities of Plymouth, LaPaz, Lakeville, and South Bend offer natural, cultural, historical, and scenic resources.

This project would incorporate cost-effective design features for the purpose of mitigating adverse aesthetic impacts such as cut and fill slopes, increased pavement surface, removal of vegetation, bridges, lighting standards, guardrails, and other roadway features. Specific mitigation measures and aesthetic design features should be refined during the final design phase, coordinated with local communities. These communities will be granted the opportunity to underwrite enhanced design amenities and/or architectural elements and maintenance.

**Construction** – Construction activities will follow good heavy highway construction practices, and as governed by INDOT and Occupational Safety and Health Administration (OSHA) standards.

Noise and vibrations control measures will include those contained in INDOT *Standard Specifications*.

Procedures to reduce the impact of erosion and runoff into streams will be implemented. Best Management Practices (BMPs) shall be used in the construction of this roadway to minimize impacts of erosion.

To minimize any adverse effects to streams, the following measures will be implemented during construction, where reasonable.

- Where appropriate and feasible, restrict low-water work to placement of piers, pilings and /or footings, shaping of spill slopes around bridge abutments, and placement of riprap
- Where appropriate and feasible, restrict channel work and vegetation clearing to within the width of the normal approach road right-of-way
- Where appropriate and feasible, minimize the extent of artificial bank stabilization
- If riprap is utilized for bank stabilization, extend it below low-water elevation to provide aquatic habitat



Traffic flow maintenance and construction sequences will be planned and scheduled to minimize traffic delays on existing public crossroads and US 31, where possible. Signs will be used to notify the traveling public of road closures and other pertinent information.

Access to all properties will be maintained to the extent practical through controlled construction scheduling. Traffic delays will be controlled to the extent possible where many construction operations are in progress at the same time.

**Design** – As part of this project, no property will be acquired from any Section 4(f) resources.

**Ecosystem Impacts** – Where woody vegetation, wetlands, wildflowers or environmentally sensitive areas occur, “DO NOT SPRAY OR MOW” signs will be posted.

All efforts have and will continue to be made to avoid or minimize forest fragmentation

INDOT will use appropriate herbicides and / or physical mechanisms to control invasive plants, such as purple loosestrife, reed canary grass, kudzu, and others, in mitigation sites and within the proposed US 31 right-of-way

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

**Threatened & Endangered Species Impacts** – To avoid any direct take of Indiana bats, no trees with a diameter of 3 or more inches will be removed between 15 April and 15 September. Tree clearing and snag removal will be kept to a minimum and limited to within the construction limits. If INDOT proposes to cut trees during the prohibited time, INDOT and FHWA must consult with the USFWS before any tree cutting may proceed.

**Hazardous Material Site Mitigation** – There are seven potential hazardous material sites that could be impacted by the Preferred Alternative G-Es. These seven sites consist of one abandoned landfill, one body shop, three gas stations, one carwash, and one wrecker service, which are all located along US 31 south of US 20 except for the abandoned landfill and the wrecker service. The development in this area is highly commercialized and is the major area of concern for the preferred alternative. The abandoned landfill (Ireland Road Site) close to this alignment is currently proposed as being developed as a commercial shopping area. The abandoned landfill (Ireland Road Site) is currently in the process of remediation as part of the development of a commercial shopping area. The fill area that is nearest to the alignments has been remediated and is no longer an issue for this project.

The condition of stored agricultural chemicals should be evaluated prior to relocation and or disposal in accordance with applicable laws and regulations. Structures within the right-of-way of the preferred build alternative that are to be demolished prior to construction should be screened for asbestos. If present, this material should be handled and disposed of according to profile and prior to demolition. With respect to asbestos removal: all facilities slated for renovation or demolition (except residential buildings that have (4) four or fewer dwelling units and which will not be used for commercial purposes) must be inspected by an Indiana-licensed asbestos inspector prior to the commencement of any renovation or demolition activities. If regulated asbestos-containing material (RACM) that may become airborne is found, any subsequent demolition, renovation, or asbestos removal activities must be performed in accordance with the proper notification and emission control requirements.