# Chapter 6: Summary of Proposed Mitigation

One purpose of an EIS is to identify resources and their significance, describe potential impacts to such resources, and formulate appropriate measures to mitigate unavoidable impacts. Throughout the development of alternatives, efforts have been made to avoid environmentally sensitive resources. Resource information and anticipated impacts have been incorporated in the decision making process to identify a preferred build alternative. Detailed mitigation measures will be developed for inclusion in the FEIS. The following discussion includes mitigation requirements or considerations concerning impacts associated with the alternatives described in Chapter 5 - Environmental Consequences, of the DEIS.

## 6.1 Land Use Impacts

With the identification of the Preferred Alternative, mitigation measures need to focus on coordination with regional planning commissions and local officials concerning future land use development in the area. Secondary land use impacts could arise as a result of private developers who are subject to local ordinances and codes.

## 6.2 Relocation Impacts

The acquisition of property and the subsequent relocation of all displacements will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. INDOT will carry out the appraisal and relocation process in accordance with Federal and State law.

## 6.3 Local Access Impacts

Local access, especially for emergency service needs, will be provided across the Preferred Alternative G-Es and across US 20. Mitigation measures aimed at providing for north-south connectivity across US 20, include the extension of Fellows Street southward over existing US 20 to Jackson Road and the extension of Scott Street northward over existing US 20. Mitigation measures aimed at providing for the improved east-west connectivity across US 31 include overpasses at Johnson and Jackson Roads. An overpass at Jackson Road will also provide local east-west connectivity between the Fellows Street and Scott Street extensions. In addition, Main Street will be extended southward to connect to existing US 31 just north of Kern Road.

The ultimate location of access to landlocked parcels will be decided on during final design.

## 6.4 Pedestrian and Bicycle Impacts

Bicycle and pedestrian access across the proposed corridor at interchange and grade separation (overpass/underpass) locations will be given due consideration as the project proceeds into the design phase. There are no bicycle paths planned within the right-of-way of the proposed freeway.

## 6.5 Air Quality Impacts

Pursuant to the 1990 Clean Air Act Amendments, St. Joseph and Elkhart Counties in Indiana are designated as being a maintenance area for Hydrocarbons (HC) and Nitrogen oxide (NOx). The US 31 project design, concept and scope is in an adopted MACOG 2025 Transportation Plan Update and in the MACOG Transportation Improvement Plan

for 2003 - 2005 that have met transportation conformity requirements. The project will not jeopardize MACOG's air quality conformity with the applicable mobile source emission budgets established in the State Implementation Plan for St. Joseph and Elkhart counties. There are minor differences between the US 31 project identified in MACOG's 2025 Transportation Plan Update and the Preferred Alternative. MACOG modeled the Preferred Alternative and demonstrated a reduction in emissions compared to the US 31 project identified in the Transportation Plan Update. Therefore, the differences between the Preferred Alternative and the project in the MACOG Transportation Plan are not significant and it is not necessary for MACOG to amend their 2025 Transportation Plan to address the minor differences.

## 6.6 Noise Impacts

The noise analysis conducted for the DEIS was of sufficient detail to identify potential impact areas associated with each study alternative. A preliminary analysis in the DEIS identified likely reasonable and feasible noise abatement measures for the two alternatives that were combined to become the Preferred Alternative. A more detailed noise barrier analysis will be conducted for the FEIS and noise barriers and other abatement measures will also be analyzed in more detail during the design phase. The design phase analysis will utilize plans, survey data, profiles and cross sections based on accurate survey data to determine the number of impacted receivers according to the appropriate noise abatement criteria (NAC).

Preliminary analysis in the DEIS was based on INDOT's Highway Traffic Noise Policy, and evaluated the feasibility and reasonableness of noise barriers at locations in the project area where noise impacts were identified for the preliminary build alternatives.

The preliminary noise analysis evaluated the feasibility of noise mitigation in the form of:

1) Alteration of horizontal and/or vertical alignments.
2) Noise insulation of public use or non-profit institutional structures.
3) Construction of highway noise barriers or other mitigation measures.

The alteration of the horizontal and/or vertical alignment was found to be either unwarranted or not feasible, and no public use or non-profit institutional structures were identified as sensitive noise receivers. Noise barrier walls were determined to be a feasible means of mitigating adverse highway noise impacts for the project. Therefore it was then necessary to determine the reasonableness of such abatement according to INDOT's criteria.

In general, factors considered when determining reasonableness include:

1) Number of receivers that will experience a benefit.
2) Cost of abatement per benefited receiver.
3) Severity of impact in terms of future traffic noise levels and anticipated increases relative to existing levels.
4) Timing of development near the project.
5) Views of noise impacted residents.

The preliminary noise evaluation in the DEIS found that only one site along the Preferred Alternative met both the feasibility and reasonableness criteria. This area was located at the north end of the Preferred Alternative in South

Bend from Dice Street to US 20. The barrier would be approximately 4500-5000 feet long and approximately 11 – 14 feet in height. Additional barrier locations could be identified after more detailed study in the FEIS.

Construction noise impacts are to be mitigated through one or more of the following measures:

1) Provide noise-dampening equipment housing or enclosures for stationary noise producing machinery (drills, augers, cranes, derricks, compactors, pile drivers, generators, etc.).
2) Provide efficient silencers on air intakes of equipment.
3) Provide efficient intake and exhaust mufflers on internal combustion engines.
4) Perform proper maintenance on all noise producing equipment to prevent excessive rattling and vibration of metal surfaces.
5) Use plants for post-construction ground cover.

Final decisions on noise barrier locations and lengths will be determined in the design phase.\

## 6.7 Section 106 Impacts – Historic and Archaeological Resources

According to the National Historic Preservation Act, an adverse effect occurs when "an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property" [36 CFR 800.5(a)(1)]. For this undertaking, the introduction of "visual, audible" elements [36 CFR 800.5(a)(2)(v) constitutes adverse effects on the Bunch Farm with the anticipated local road improvement project (widening of Pierce Road). Mitigation measures for this impact will be included in a Memorandum of Agreement (MOA). They may include concepts such as plant screenings to screen visual impacts of the proposed highway. Earth embankments may also be utilized to create noise and sight buffers. Other mitigation measures may focus on a public education endeavor associated with agricultural history in St. Joseph County.

A consulting party meeting will be held on November 5, 2004 to solicit possible mitigation measures for the MOA. Following this meeting, a draft MOA will be prepared for review by INDOT, FHWA, the SHPO, and consulting parties. The MOA will be completed, signed, and executed prior to the issuance of the FEIS.

On-site Phase 1a archaeological investigations along Alternative G-Es have been undertaken to assess impacts to previously unrecorded archaeological resources along the alignment. The Phase 1a Archaeological Report will be included in the FEIS and will be utilized as a resource in determining if additional investigations will be required. Mitigation strategies will be developed as needed for impacts to archaeological resources discovered and documented in coordination with the Indiana State Historic Preservation Officer (SHPO) and consulting parties as part of the MOA.

## 6.8 Visual Impacts

Where appropriate, the Preferred Alternative will incorporate Context Sensitive Solutions to create positive impacts and reduce negative impacts without compromising safety. Context Sensitive Solutions are mitigation measures that insure that items in the design of the new US 31 freeway shall be designed and constructed with sensitivity to aesthetic values, historic cultural landscapes, and the historic context of the area The design for Context Sensitive Solutions shall include input from local residents and officials and will further develop as the project proceeds to the stages of final design. Where practicable, design elements should match prominent architectural elements and

styles within each of the adjacent communities. Interchanges and overpasses along US 31 would provide effective opportunities for incorporation of reasonable aesthetic enhancements. The INDOT will work with the City of South Bend on the segment of preferred alternative between Kern Road and US 20 to provide a gateway sense of arrival to the City of South Bend. Items included in Context Sensitive Solutions in design for similar projects around the state include special landscaping, vegetative screening, signing, bridge treatments, aesthetic treatments of surfaces, etc. that complement the natural, cultural, historical and scenic resources of the study area.

## 6.9 Hazardous Waste Sites Impacts

From the information in the DEIS it was concluded that there are four suspected contamination sites for Alternative G-Es. These sites include three gas stations and a body shop, which are all located along US 31 south of US 20. This area is highly commercialized and is the major area of concern for this alternative. In addition there is also an abandoned landfill located in the northwest quadrant of the existing US 31/US20 interchange, but it is undergoing remediation and is being developed as a commercial shopping area. Record checks and a visual inspection of potential hazardous material sites will be conducted along Alternative G-Es prior to land acquisition in order to verify and update data found in the FEIS. If Underground Storage Tank site(s) or other contaminated sites are discovered prior to land acquisition, the following mitigation will occur:

1) Conduct soil sampling and profile site if evidence of soil staining, noxious odors or contamination is detected during demolition and tank removal activities.

2) Investigate and confirm source of contamination. Where appropriate, perform remedial action according to profile and properly close tank system in accordance with appropriate state protocol.

Other potential hazardous material sites within the project study area may include power pole-mounted electrical transformers with PCBs, agriculture operations possibly containing stored pesticides and herbicides, and commercial buildings and older homes that may contain asbestos or lead-based paints. During relocation, transformers should be inspected for evidence of leaking contents through coordination with the appropriate utility company. 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 and lead paint. If present, these materials should be handled and disposed of according to profile and prior to demolition.

## 6.10 Floodplain Impacts

The largest floodplain crossed by the proposed project will be the Yellow River and its associated floodplain. The existing US 31 bridges will be utilized to cross this river, and no changes in the approaches in this area are expected as part of the proposed project. Therefore no impacts to the Yellow River floodplain are expected. Mitigating impacts to floodplains may be completed by bridging the entire floodplains of streams impacted where deemed feasible and appropriate by INDOT. Bridges will be designed to ensure that waterway openings provide sufficient capacity for floodwaters. All structures constructed as part of this project will be designed to accommodate, at a minimum, a 100-year flood volume, in accordance with standard design practices.

## 6.11 Wetland Impacts

In accordance with the “no net loss” goals of Executive Order 11990, wetland impacts resulting from project implementation would require that mitigation be planned and scheduled to the approval of the USACE, USFWS, and IDEM. Recommendations of the National Governor’s Association Provision to the Wetlands Conservation and

Regulatory Improvements Act (Senate Bill 1304) stated "that regulatory policies should include a clear preferred sequence of mitigation options that begins with avoidance of adverse impacts on wetlands and the reduction of unavoidable adverse impacts and allows the use of environmental compensation only as a last resort, while allowing regulators sufficient flexibility to approve practical options that provide the most protection to the resource and that balance the effects of such actions on the total human environment, recognizing socioeconomic factors." Section 7 of the Watershed Management Act of 1993 provides for a clear sequence of mitigation options.

The DEIS identified wetlands and estimated impacts based on the estimated right-of-ways for the alternatives and USFWS National Wetland Inventory (NWI) wetlands. Since the publication of the DEIS, wetlands within the Preferred Alternative G-Es have been delineated using USACE guidelines to determine precise areas. In addition, since the publication of the DEIS, several shifts have been made to the Preferred Alternative in order to reduce wetland impacts.

Wetlands within the Alternative G-Es footprint have been delineated and mapped since the publication of the DEIS. A "Waters of the US" verification report detailing wetland impacts has been prepared and submitted to the USACE and IDEM. Field investigations in July, August, September, and October of 2004 identified approximately 25 - 30 acres of wetlands at over 35 separate impact locations within the proposed right-of-way. On October 4-6, 2004 representatives from the USACE and IDEM were shown potential wetland and stream impacts during a field review. Impact numbers are currently being refined based on agency comment during the field review and will be updated in the FEIS. The wetlands identified within the proposed right-of-way consisted of approximately 11 acres of forested, 1 acre of scrub/shrub, 16 acres of emergent, and 0.6 acres of open water (ponds). Two 8-digit watersheds are crossed by the Preferred Alternative, the Kankakee (07120001) and the St. Joseph (04050001). Of the total wetland impacts, approximately 23 acres are in the Kankakee watershed and 5 acres in the St. Joseph. The majority of individual wetland impacts are under 0.5 acre. The U.S. Army Corps of Engineers Routine Wetland Determination Forms on each of the delineated wetland areas may be found in the "Waters of the US" verification report.

Impacted federal jurisdictional wetlands of different community types (i.e. forested, scrub/shrub, emergent, open water) will be mitigated at different ratios. The Memorandum of Understanding between INDOT, IDNR, and USFWS (January 28, 1991) establishes the following mitigation ratios for wetland replacement in Indiana:

1) Exceptional, unique, critical - 4 and above: 1
2) Bottomland hardwood forest – 3:1 or 4:1
3) Scrub/shrub and emergent – 2:1 or 3:1
4) Farmed wetland – 1:1

Isolated wetlands will be mitigated based on the IDEM Isolated Wetlands Regulatory Permit Program. Under this program, mitigation ratios are based upon the Class of the wetland, either I, II, or III. Class I wetlands are of the lowest quality, while Class III are the highest. Mitigation ratios differ based on the replacement class and whether the mitigation is conducted on or off site. Mitigation ratios for each wetland Class are listed in the table below.

Table 6.1 - Isolated Wetlands Mitigation Ratios

| Wetland Class | Replacement Class | On-site Ratio | Off-site Ratio |
|---|---|---|---|
| Class I | Class II or III | 1 : 1 | 1 : 1 |
| Class I | Class I | 1.5 : 1 | 1.5 : 1 |
| Class II | Class II of III | 1.5 : 1 Nonforested<br>2 : 1 Forested | 2 : 1 Nonforested<br>2.5 : 1 Forested |
| Class III | Class III | 2 : 1 Nonforested<br>2.5 : 1 Forested | 2.5 : 1 Nonforested<br>3 : 1 Forested |

Note: For isolated wetlands, mitigation that is performed up-front, prior to the impact, the mitigation ratio is 1 : 1 regardless of the Class impacted.

Based on the delineated wetland impacts of permanent fill from Alternative G-Es and application of the above mitigation ratios, the required compensatory wetland mitigation for this project are expected to be approximately 50 - 75 acres.

A Conceptual Wetland Mitigation Plan for this project will be included in the FEIS. The plan will identify potential development of wetland mitigation sites in both watersheds. Potential mitigation sites will target areas adjacent to existing wetlands to expand existing habitat and increase the functional values of both the existing wetland and the replacement wetland. Properties selected for wetland mitigation purposes should provide the best opportunities for replacement of wetland habitat and functions, and will be screened for suitable hydrology and soil conditions conducive to the germination and sustained growth requirements of native woody and/or herbaceous wetland vegetation. Enhancing existing wetlands by adding to them will provide a better habitat for wildlife and improve the existing wetlands and also improve the chance of success of the mitigation site. A detailed "Wetland Mitigation and Monitoring Plan" will be developed prior to construction.

Property used for US 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.

## 6.12 Stream Impacts

The USACE will take jurisdiction over any stream or ditch with an Ordinary High Water Mark (OHWM). An OHWM is defined as the line on the shore of a waterway established by the fluctuations of water and indicated by physical characteristics. Examples of these physical characteristics include the following:

(A) A clear and natural line impressed on the bank.

(B) Shelving.

(C) Changes in the character of the soil.

(D) The destruction of terrestrial vegetation.

(E) The presence of litter or debris.

Approximately 4,500 linear feet of jurisdictional streams are expected to be impacted by this project. Stream impacts are described in the "Waters of the US" Verification Report. Most of these streams are linear ditches surrounded by agricultural fields. The majority of the impacts will be due to bridge or culvert construction. Stream impacts will be mitigated such that the functions and values of the stream impacted are replaced. Possible mitigation measures include but are not limited to riparian plantings, bank stabilization, and in-stream habitat improvements. Stream mitigation will be completed following the requirements of all appropriate review agencies.

## 6.13 Agricultural Impacts

This project is being developed in compliance with the Farmland Protection Policy Act of 1981, and in accordance with state and federal regulations concerning farmland protection.

## 6.14 Forest Impacts

Wetland forest impacts will be mitigated for this project. Wetland forest losses will be replaced through the appropriate wetland mitigation. Wetland forest replacement sites will be selected considering the potential to increase core forest, with a preference on sites adjacent to existing forests or other high quality natural areas. Upland forest may also be developed in association with wetland and stream mitigation sites.

## 6.15 Water Body Modifications Impacts

Mitigation measures for potential water quality impacts will be followed, where reasonable. Some such measures are:

1) Tree clearing shall be kept to a minimum and limited to the construction limits within the permanent right-of-way.
2) Trees or under story vegetation outside the construction zone boundaries shall not be cleared.
3) As much as possible, low-water work shall be restricted to placement of piers, pilings and/or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap.
4) As much as possible, channel work and vegetation clearing shall be restricted to within the width of the normal approach road right-of-way.
5) The extent of artificial bank stabilization will be limited to only that required to provide for adequate scour protection.
6) If riprap is utilized for bank stabilization, it shall be extended below low-water elevation to provide aquatic habitat.
7) Bioengineering with natural vegetation and materials shall be considered as an alternative bank stabilization method where appropriate.
8) Temporary erosion control devices such as burlap, jute matting, grading, seeding and sodding shall be used to minimize sediment and debris in tributaries of the project.
9) Culverts and other hydraulic devices will be used to preserve existing drainage patterns.
10) Stream relocations will be minimized by incorporating Best Management Practices during design.

# 6.16 Ecosystem Impacts

All efforts have been made to minimize ecosystem impacts by identifying such resources and avoiding them as much as possible. As subcomponents of the ecosystems that comprise the project study area, wetland, stream, and forest impacts will be mitigated as determined through consultation federal and state resource agencies.

In addition, the following measures will be utilized to address impacts on ecosystems:

1) DO NOT SPRAY OR MOW –Where woody vegetation, wetlands, wildflowers, or environmentally sensitive areas occur, "DO NOT SPRAY OR MOW" signs will be posted.

2) Invasive Plant Species – 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. 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.

3) 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.

# 6.17 Water Quality Impacts

Mitigation measures for potential water quality impacts are:

1) Develop stream mitigation plans that provide for the relocated stream "in like kind or better kind" with the impacted stream.

2) Disturbed in-stream habitat will be returned as near to original conditions as reasonably possible.

3) Minimize tree clearing near streams and rivers.

4) Avoid wetlands wherever possible.

5) Replace all wetlands at appropriate mitigation ratios.

6) Follow Best Management Practices for erosion control in the project.

# 6.18 Threatened and Endangered Species Impacts

## Federally Listed Species

Coordination with the USFWS concluded that the project has the potential to impact Indiana bat summer maternity roost habitat. Mist netting for bats occurred in July 2004. Four sites were netted for two nights each. No Indiana bats were captured. Because suitable habitat for this species could exist throughout the project corridor, where removal or modification of habitat cannot be avoided, steps to minimize impacts to potential Indiana bats will be required. The following mitigation measure for the Indiana bat are suggested and will be implemented during design and construction of the project.

Indiana bat

- 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 trees are to be cut during this time, a Biological Assessment is required.

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