



Executive Summary

ES.1 Introduction

The Indiana Department of Transportation (INDOT), in cooperation with the Federal Highway Administration (FHWA), are proposing an improvement of the existing US 31 Corridor as a freeway from US 30 in Plymouth to the southern junction of US 31 and US 20 in South Bend, Indiana.

The INDOT 2000-2025 Long Range Transportation Plan proposes the “US 31 Freeway Upgrade from Indianapolis to South Bend.” In particular, the Plan identifies the need to improve US 31 in St. Joseph and Marshall counties, and the associated statewide Travel Demand Model (TDM) shows unacceptable congestion along portions of US 31 for the years 1998 and 2025 in these counties. In addition to being a part of the INDOT 2000-2025 Long Range Transportation Plan, the need for improving existing US 31 has also been identified in the regional transportation plan. The transportation plan of the Michiana Area Council of Governments (MACOG), identifies the need to improve existing US 31 south of US 20 to a new “limited access road with interchanges at several locations that would continue to US 30 in Marshall County.”

On March 26, 2002, FHWA published a Notice of Intent (NOI) in the *Federal Register* advertising to the public that an Environmental Impact Statement (EIS) would be prepared for the proposed improvement of the existing US 31 corridor from US 30 to US 20. FHWA and INDOT approved the Draft Environmental Impact Statement (DEIS) and it was made available for review and comment on February 27, 2004, with the No-Build Alternative and Freeway Alternatives Cs, Es and G-C still under consideration. The formal comment period began on March 5, 2004, with the *Federal Register* notice of the availability of the DEIS. The public comment period extended 52 days (regulations require a minimum 45-day comment period) and concluded on April 26, 2004. A Public Hearing to discuss the findings of the DEIS was held on March 18, 2004. Several public comments and resource agency comments following the Public Hearing suggested the investigation of the combination of Alternatives Es and G-C north of Roosevelt Road. In response to these requests, a “hybrid” alternative, Alternative G-E, was developed that consisted of a combination of the southern portion of Alternative G-C and the northern portion of Alternative Es. This expanded the range of reasonable alternatives in the decision-making process to include the No-Build Alternative and Freeway Alternatives Cs, Es, G-C and G-E.

On September 23, 2004, INDOT announced its recommendation that Alternative G-Es (a modified version Alternative G-E) had been identified as the Preferred Alternative for the proposed improvements to US 31 and would be advanced to the Final Environmental Impact Statement (FEIS). This FEIS is the result of a multi-year effort involving an extensive public involvement process; on-going coordination with local officials, state officials and federal agencies; and detailed environmental, socio-economic, historic and archaeological analysis.

It should be noted that in addition to this EIS for US 31 from US 30 to US 20, in Marshall and St. Joseph counties, there are two other segments along the US 31 Corridor between Indianapolis and South Bend that are currently being studied. Environmental Impact Statements are currently underway for US 31 improvement projects from I-465 to SR 38 in Hamilton County (US 31 Improvement Project) and also from approximately two miles south of SR 26 to approximately one mile north of US 35 in the City of Kokomo in Howard County (US 31 Kokomo Corridor Project).



ES.2 Project Description

As shown in Figure ES.2.1, the US 31 Improvement Project extends through Marshall and St. Joseph Counties, Indiana and is approximately 20 miles in length, running from the southern terminus at US 30, near Plymouth, to the northern terminus at the south junction with US 20, near South Bend. The communities of LaPaz, Lakeville, and the south edge of South Bend are within the limits of the project study area. Due to the fact that US 30 and US 20 are both functionally classified as principal arterials on the National Highway System (NHS) and Statewide Mobility Corridors in the INDOT 2000-2025 Long Range Plan, they serve as logical termini for examining a need to improve this portion of US 31. Additionally, US 30 represents a major carrier of east-west traffic, and is a logical origin and destination point for through traffic on US 31. US 20 represents the last major east-west arterial within the study corridor, and US 31 follows the US 20 Bypass to the west, while Old US 31 continues northward from the US 31 and US 20 interchange into the South Bend Metropolitan Area.

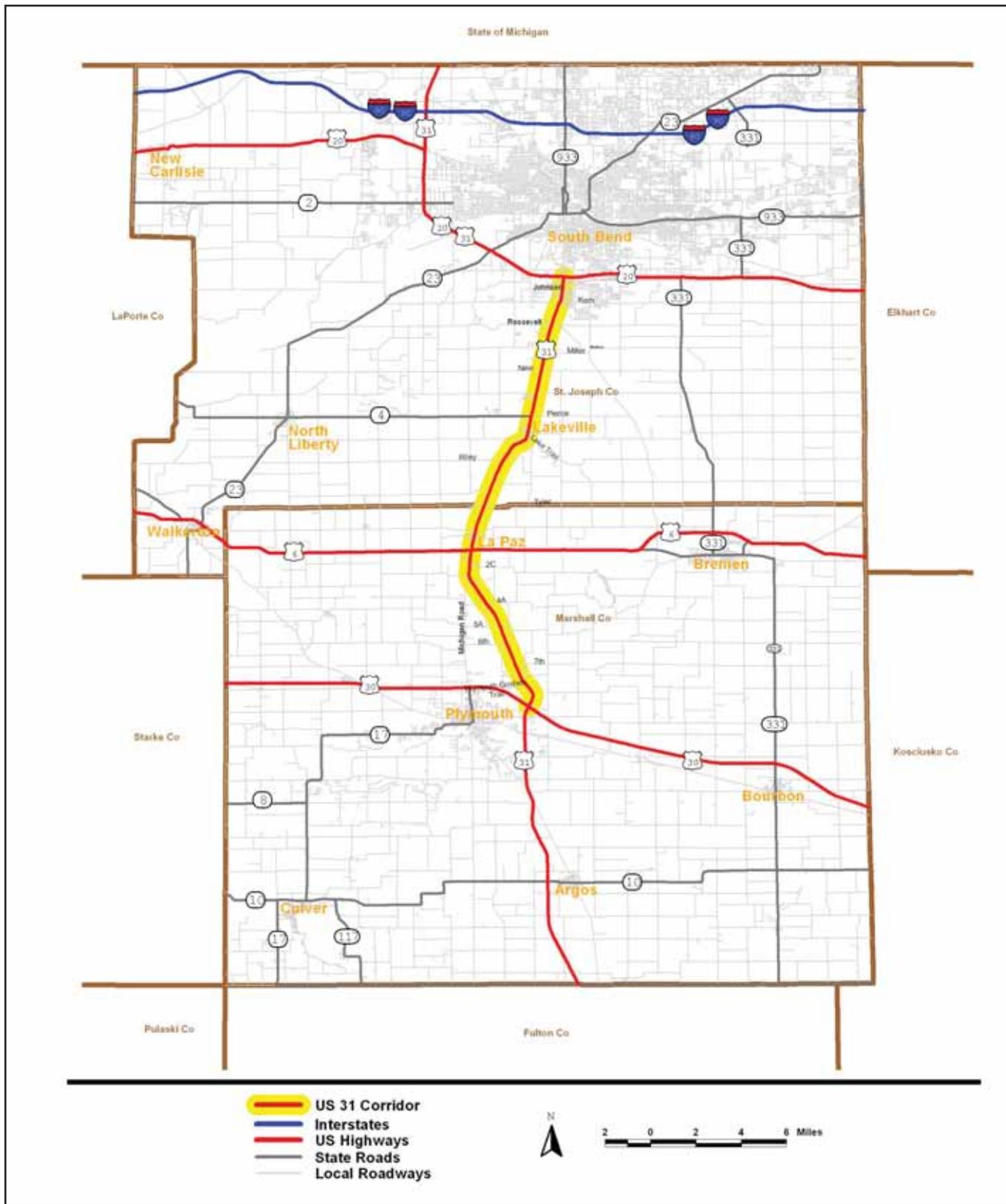


Figure ES.2.1: US 31 Improvement Project Location Map



ES.3 Purpose and Need

A Purpose and Need Statement for the US 31 Improvement from Plymouth to South Bend in Marshall and St. Joseph counties, Indiana, was drafted in March, 2003. It was presented at a Community Advisory Committee (CAC) and Public Information Meeting on April 10, 2003, and at an Interagency Review Meeting on May 15, 2003. The Purpose and Need Statement was subsequently revised based on projections for the year 2030 and comments received from the public and resource agencies.

Project Need Statement

Transportation improvements to US 31 between US 30 and its southern junction with US 20 are needed for the following reasons:

Reduce Traffic Congestion

- For the year 2002, three out of the four signalized intersections operate at an unacceptable level-of-service (LOS) of traffic operations during the AM and/or PM peak hours
- In the year 2030, all currently signalized intersections will operate at an unacceptable LOS
- For the year 2000, five out of eight segments of US 31 operate at an unacceptable LOS
- In the year 2030, all segments of US 31 will operate at an unacceptable LOS, with the one exception being the segment between US 30 and Michigan Road

Level-of-Service (LOS) describes a measure of congestion on roadways. LOS ranges from A to F, with LOS A indicating the least traffic congestion and LOS F indicating the most traffic congestion. INDOT standards state that an LOS C is the minimum acceptable for rural and suburban areas, and LOS B is more desirable. For urban intermediate and built-up areas, an LOS D is the minimum acceptable, while an LOS C is more desirable. Except for the segment from Miller Road (about three miles south of the US 20 Bypass) to the US 20 Bypass, the US 31 corridor is considered rural where an LOS falling below C is unacceptable.

Improve Safety

- Base year and projected future year total crash rates on US 31 exceed the statewide average for about half the length of the 20-mile corridor, including segments from US 6 through LaPaz, through Lakeville, and from Lakeville to US 20
- Base year and projected future year injury crash rates or fatal crash rates on US 31 exceed the statewide average for 40% of the corridor length

Consistency with Transportation Plans

- Existing US 31 lacks even partial access control for 15 miles from Michigan Road to the US 20 Bypass, where about 480 private driveways exist
- Existing US 31 also lacks adequate median width for left-turns through LaPaz, and through Lakeville to the US 20 Bypass



Project Purpose Statement

Based on the identified transportation needs, three overall project purposes (goals) have been established for the US 31 Improvement Project:

- 1) **Purpose 1 (Congestion):** Reduce congestion on US 31 by providing the capacity to meet the forecasted travel demand for 2030 at an acceptable LOS.
- 2) **Purpose 2 (Safety):** Improve safety on US 31 between US 30 and US 20.
- 3) **Purpose 3 (Consistency with Transportation Plans):** Determine consistency with statewide (INDOT) and regional (MACOG) transportation plans. MACOG is the South Bend Area Metropolitan Planning Organization (MPO). Project Alternatives will not be required to meet the third item in order to satisfy purpose and need.

Evaluation Criteria for Meeting Purpose and Need

Specific objectives and performance measures have been developed for each of the three identified purposes. The three purposes of the project and the performance measures for each are listed below.

Purpose 1 (Congestion): Reduce congestion on US 31 by providing the capacity to meet the forecasted travel demand for 2030 at an acceptable level-of-service (LOS).

Performance Measures:

- Achievement of an LOS in rural and suburban areas of C (B is more desirable) and in urban intermediate/built-up areas of no less than D (C is more desirable) on US 31 between US 30 and US 20.
- Reduction in the amount of congested vehicle-miles of travel and congested vehicle-hours of travel in the South Bend metropolitan area.

Purpose 2 (Safety): Improve safety on US 31 between US 30 and US 20.

Performance Measures:

- Reduction in the risk of fatal, injury, and property damage only (PDO) crashes to crash rate levels at or below statewide averages for this type of facility associated with travel on US 31 between US 30 and US 20.
- Reduction in fatal, injury and PDO crashes to crash rate levels at or below statewide averages in the South Bend metropolitan area.

Purpose 3 (Consistency with Transportation Plans): Determine consistency with the statewide (INDOT) and regional (MACOG) transportation plans.

Performance Measures:

- Determine consistency with the INDOT 2000-2025 Long Range Transportation Plan for Statewide Mobility Corridors and consistency with the MACOG Transportation Plan. Project Alternatives will not be required to meet this criterion in order to satisfy purpose and need.



ES.4 Alternatives

Preliminary Alternatives and Screening

The development of the alternatives for the US 31 Improvement Project began with a broad examination of potential solutions to the transportation needs in the US 31 Corridor. The current transportation system, existing and projected traffic conditions, and the mobility needs for the State of Indiana and the South Bend metropolitan area were examined in determining the purpose and need for the project. The major concerns were increasing traffic congestion, deteriorating safety conditions, and poor statewide mobility.

The potential solutions to the transportation needs in the US 31 Corridor that were initially developed included:

- **No-Build Alternative** – represented by the existing roadway network plus programmed major roadway improvements in the South Bend Metropolitan Area. This alternative is the baseline for comparing “build” alternatives; its inclusion as an alternative is required by the National Environmental Policy Act of 1969 (NEPA)
- **Travel Demand Management (TDM)** – actions to spread the peak-hours of travel or to encourage the shift to alternative modes of travel to the single-occupancy vehicle (i.e. flexible workdays and road pricing (toll collection))
- **Transportation System Management (TSM)** – low-cost capital investments to reduce congestion, improve traffic flow, and measures to optimize performance of the existing transportation infrastructure (i.e. intersection improvements, signal coordination and timing, lane control (reversible lanes) and high-occupancy vehicle (HOV) lanes)
- **Intelligent Transportation System (ITS) Applications** – technology-based programs to actively manage the roadway system (i.e. providing travel information on roadway conditions to daily commuters via message boards, etc.)
- **Mass Transit** – rail or bus service along the US 31 Corridor
- **Highway Build Alternatives**
 - **Non-Freeway Alternatives** – geometric design options for upgrading existing US 31 and options involving upgrading portions of U.S. 31 on existing and new alignments
 - **Freeway Alternatives** – geometric design options for replacing existing US 31 with a full access control facility

In addition to the potential non-freeway solutions that were developed for this project, nine preliminary freeway alternatives, Alternatives A through I, were initially investigated. During the purpose and need development and identification of alternatives phase of the project, an Interagency Review meeting and project tour was held on May 15, 2003, with various federal and state environmental resource agencies. This Interagency Review meeting and project tour generated two additional preliminary freeway alternatives (Alternatives J and K). It also resulted in a slight shift of Alternative H to follow a segment of an existing high transmission powerline corridor. Figure ES.4.2 shows the eleven preliminary freeway alternatives consisting of five western alternatives (Alternatives A, B, C, D and E); four eastern alternatives (Alternatives G, H, I and K) and two central alternatives (Alternatives F and J) that utilized large portions of the existing US 31 alignment.

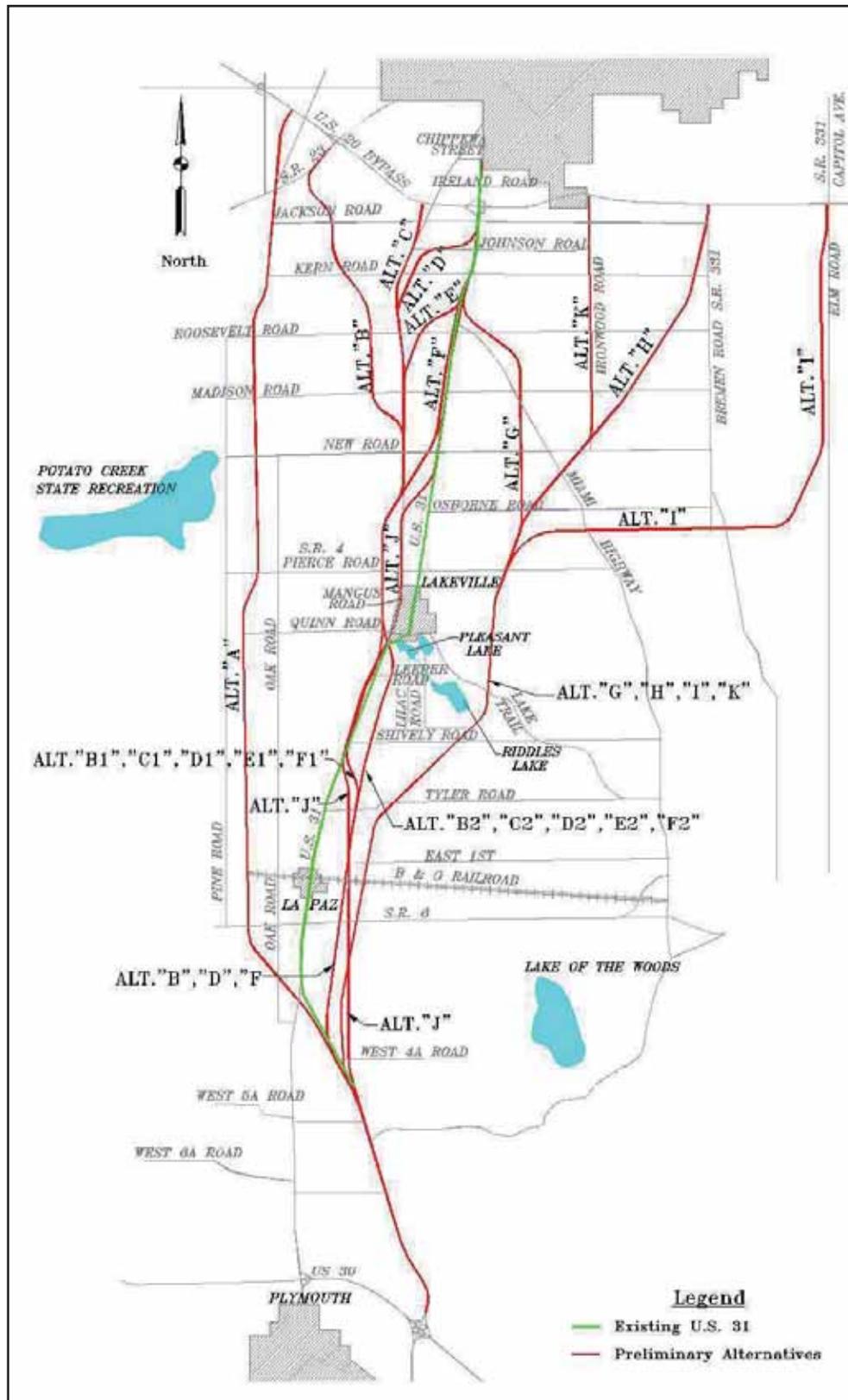


Figure ES.4.2: Preliminary Freeway Alternatives (A-K)



In order to narrow the number of preliminary alternatives under consideration for further analysis, screening measures were developed for use in evaluating the overall performance and impacts associated with each preliminary alternative. During this initial screening process, each of the preliminary alternatives developed for the US 31 Improvement Project, from Plymouth to South Bend, was evaluated to determine if it would be carried forward for evaluation in the DEIS. A two-phase process was used to screen each alternative. Phase 1 screened alternatives with respect to purpose and need, while Phase 2 screened alternatives with respect to potential social and environmental impacts. Only those alternatives that met the purpose and need of the project in the Phase 1 analysis were advanced to Phase 2 of the screening process. The screening process is further described below.

Phase 1: Purpose and Need

The first phase of the screening process analyzed the alternatives with respect to the Purpose and Need Statement for this project. To meet the purpose and need for this project, an alternative would have to meet the first two purposes and needs. An alternative would not be eliminated solely based on the third purpose and need statement. To satisfy the first purpose and need for this project, an alternative would have to reduce congestion on existing US 31 by providing the capacity to meet the forecasted travel demand for 2030 at an acceptable LOS. A secondary measure of comparison related to congestion for an alternative would be the reduction in the amount of congested vehicle-miles of travel (VMT) and congested vehicle-hours of travel (VHT) in the South Bend Metropolitan Area. To satisfy the second purpose and need for this project, an alternative would have to improve safety on existing US 31 between US 30 and US 20. This equates to a reduction in the risk of fatal, injury, and property damage only (PDO) accidents to crash rate levels at or below statewide averages for this type of facility associated with travel on existing US 31 between US 30 and US 20.

It should be noted that the focus of this project is to address transportation problems related to the US 31 corridor and not to address all transportation problems in the South Bend-Elkhart Metropolitan Area. Therefore, the evaluation of alternatives focuses on the effectiveness of alternatives in addressing the needs along the US 31 corridor. Addressing the transportation problems in the entire metropolitan area is a very important issue and is the purpose of the MACOG Long Range Transportation Plan, which identifies the need to improve the US 31 corridor from South Bend to Plymouth. That Long Range Transportation Plan identifies many other transportation improvement projects aimed at addressing other transportation needs in the metropolitan area, and considers the most effective combination of transportation improvement projects (including the US 31 improvement) to address the transportation needs of the metropolitan area.

For the third purpose and need for this project, alternatives were evaluated to determine consistency with the INDOT 2000-2025 Long Range Transportation Plan for Statewide Mobility Corridors as well as consistency with the MACOG Transportation Plan. Alternatives were not required to meet the third criterion in order to satisfy purpose and need.

If an alternative clearly did not satisfy the project's purpose and need, it was not advanced to Phase 2 of the screening process. Alternatives that did meet the project's purpose and need were advanced to Phase 2 of the screening process.

During Phase 1 of the screening process, TDM, TSM, ITS, Mass Transit, Non-Freeway Alternatives, and Freeway Alternatives A, B, H, I and K did not meet the purpose and need of the project and were not advanced to Phase 2 of the screening process. Even though the No-Build Alternative would not address the purpose and need for this project, it was carried forward for evaluation throughout the development of the Environmental Impact Statement and served as a baseline when comparing the effectiveness and potential impacts of other alternatives; however, it is not considered the preferred alternative. Alternatives C, D, E, F, G, and J met the project purpose and need and were advanced to Phase 2 of the screening process (Table ES.4.1). The No-Build Alternative would not address the purpose and need for this project; however, this alternative was carried forward for evaluation throughout this study and served as a baseline when comparing the effectiveness and potential impacts of other alternatives.



Table ES.4.1: Phase 1: Purpose and Need Evaluation				
Alternative	Reduces Congestion On Existing US 31 (Acceptable LOS for all segments) ¹	Improves Safety ²	Consistent with INDOT & MACOG Transportation Plans ³	Advanced to Phase 2 Screening
No-Build Alternative	NO	NO	NO	YES ⁴
TDM	NO	NO	NO	NO
TSM	NO	NO	NO	NO
ITS	NO	NO	NO	NO
Mass Transit	NO	NO	NO	NO
Non-Freeway Alternatives	NO	YES	NO	NO
Freeway Alternatives				
Alternative A	NO	NO	YES	NO
Alternative B	NO	NO	YES	NO
Alternative C	YES	YES	YES	YES
Alternative D	YES	YES	YES	YES
Alternative E	YES	YES	YES	YES
Alternative F	YES	YES	YES	YES
Alternative G	YES	YES	YES	YES
Alternative H	NO	NO	YES	NO
Alternative I	NO	NO	YES	NO
Alternative J	YES	YES	YES	YES
Alternative K	NO	YES	YES	NO

NOTES: Alternatives recommended for advancement to Phase 2 screening shaded.

1. An LOS C is the minimum acceptable for rural segments. An LOS D is the minimum acceptable for urban segments.
2. Crash rates at or below Indiana average for rural principal arterials.
3. Alternatives were not eliminated solely on their ability to meet this criterion.
4. No-Build Alternative – does not meet purpose and need of the project; however, it will be carried forward for detailed study in the DEIS.



It should be noted that a Non-Freeway Alternative that includes interchanges at some major intersections, but achieves only partial access control along the balance of the corridor, performs no better than the Non-Freeway Alternative that bypasses LaPaz and Lakeville and achieve partial access control. Thus, preliminary Freeway Alternative F (described later) best reflects an upgrade of existing US 31 with the addition of interchanges to achieve full access control. It should also be noted that a Non-Freeway Alternative that includes combinations of various transportation management (TM) alternatives (TDM, TSM, ITS, mass transit, etc.) performs only slightly better than the Non-Freeway Alternative that bypasses LaPaz and Lakeville. Due to the low-density rural character of the corridor, the Non-Freeway Alternative in combination with TM alternatives considered for this project are expected to only minimally reduce traffic volumes on US 31 and would not result in improvements to levels of service on US 31.

Phase 2: Environmental Impacts

Phase 2 of the screening process analyzed the socio-economic and environmental impacts of the alternatives that were advanced from the purpose and need evaluation in Phase 1 of the screening process (Table ES.4.2). Environmental information used in this phase of the screening process was collected from existing sources and preliminary windshield and field surveys. A 300-foot wide “working alignment” (using the approximate centerline of each 2000-foot wide “corridor”) was used to determine potential impacts to social, economic, and environmental resources for each alternative. Depending on the expected type of interchange, a 500-foot or 1000-foot radius circle was incorporated into the working alignment at the potential interchange location. This circle represents an approximation of an interchange footprint to be included in the area studied for potential impacts. The majority of the environmental screening was done using Geographic Information System (GIS) data. Preliminary windshield and field surveys were also used to collect information.

Socio-Economic and/or Environmental Measure	Alternative Location									
	Western						Central			Eastern
	C1	C2	D1	D2	E1	E2	F1	F2	J	G
Preliminary Average Cost Estimate (million \$) (Year 2003 Dollars)	253	245	263	255	278	266	325	313	346	283
New Right-of-Way (acres)	1050	1071	1130	1152	985	1008	917	961	857	1043
Forest (acres)	162	196	146	178	114	148	75	111	55	117
Wetlands (acres)	77	85	74	81	74	82	48	57	28	43
Floodplains (acres)	11	11	11	11	11	11	11	11	11	35
Streams Impacted	11	12	12	13	11	12	8	9	8	12
Potential 4(f) Property Impacts	2	0	2	1	5	3	5	3	5	4
Managed Land Impacts	5	7	6	8	6	8	5	7	4	5
Unique Geological/ Ecological Area ¹	M	M	M	M	M	M	L	L	L	L
Farmland (acres)	824	810	809	797	755	742	727	731	702	833



Table ES.4.2: Potential Socio-Economic and Environmental Impact Evaluation For Alternatives Advanced to Phase 2 of Screening Process (Continued)										
Socio-Economic and/or Environmental Measure	Alternative Location									
	Western						Central			Eastern
	C1	C2	D1	D2	E1	E2	F1	F2	J	G
Notable Wildlife Habitat (IDNR)	2	2	2	2	2	2	1	1	0	1
Residential Relocations	78	48	155	125	146	116	202	172	235	113
Farm Relocations	8	4	8	4	8	4	10	6	10	8
Business Relocations	11	8	46	43	84	81	94	91	86	80
Environmental Justice Issues	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Well-Head Protection Area Impacts	4	4	4	4	3	3	2	2	2	0
Archaeology Impacts (Previously Surveyed)	4	2	4	2	4	2	4	2	3	2
Historic Property Impacts (on NR or PE) ²	2	2	0	0	1	1	1	1	2	2
Cemeteries Impacted	0	0	0	0	2	2	4	4	4	2
Potential Residential Noise Impacts	69	54	115	101	82	66	105	88	146	66
Hazardous Material Site Impacts	0	0	6	6	10	10	11	11	13	10
Carried Forward for Detailed Study in DEIS ³	No	Yes	No	No	No	Yes	No	Yes	No	Yes

NOTES: Alternatives recommended for further study shaded.

Alternatives' recommendations are discussed in detail in Chapter 3.1.

1. Unique geological / ecological area evaluations (M-Medium, L-Low) indicate that the impact of the alternatives relative to each other.
2. Historic Property Impacts include those properties listed on or potentially eligible for the National Register, that fall within the 2000-foot corridor for each alternative. These numbers are representative of potential Section 106 impacts.
3. No-Build Alternative – does not meet purpose and need of the project; however, it was carried forward for detailed study.

It is important to note that the US 31 Improvement Project has been a dynamic process. The information contained in Table ES.4.2 was from the best-known existing secondary source data and conceptual design parameters available at the time that the preliminary screening was conducted. Additional information was identified during detailed field reviews later in the progress of the study, and the numbers contained in the detailed analysis of the alternatives studied further in the FEIS, may be slightly different than those contained in Table ES.4.2.

Freeway Alternatives B to F each consist of two options and are listed in the tables as B1, B2, C1, etc. The options are located south of Lakeville and each is approximately 3.4 miles in length. Option 1 follows existing US 31 from Shively Road to Quinn Road, for approximately 1.7 miles, before leaving the existing US 31 alignment just south of Lakeville. Option 2 follows the abandoned railroad corridor east of US 31, then crosses to the west of the existing US 31 alignment south of Lakeville. Option 1 would retain the existing southbound US 31 lanes as a



two-way local service road, incorporate the northbound lanes into the freeway, and add a two-way frontage road from Shively Road to Leeper Road on the east side of the new freeway. The screening process for Options 1 and 2 differed from that of the individual freeway alternatives in that the differences in purpose and need measures are expected to be negligible. Thus, if a freeway alternative met the purpose and need identified for the project, both options were directly advanced to Phase 2 of the screening process, and were viewed in terms of advantages and disadvantages. If a freeway alternative did not meet the purpose and need identified for the project, the alternative, including both Options 1 and 2, was not advanced to Phase 2 of the screening process and was eliminated from further consideration. This was the case for Alternative B, which did not meet the purpose and need for the project, and therefore, was not advanced to Phase 2 of the screening process. Alternatives C to F did meet the purposes and needs for the project and were advanced to Phase 2 of the screening process. Given the higher residential, farm, and business relocations, impacts to potential historic sites, and higher overall cost, Option 1 of Alternatives C to F was not advanced for further study. Thus, Option 2 was used for the further screening of Alternatives C through F.

In Phase 2 of the screening process, Alternative D was eliminated from further consideration due to environmental impacts when compared to the other alternatives. Alternative D crosses through the large Whispering Hills subdivision, resulting in a high number of residential relocations and neighborhood impacts. Alternative D also connects to existing US 31 approximately 1/3 of a mile south of the existing US 20 interchange through very tight curves from the proposed Kern Road interchange. The proximity to the existing interchange and tight curves makes it extremely difficult for existing US 31 traffic to enter the freeway north of the proposed Kern Road. Due to the insufficient geometrics in the vicinity of the US 20/US 31 interchange, high relocations and neighborhood impacts, Alternative D was eliminated from further consideration.

In Phase 2 of the screening process, Alternative J was also eliminated from further consideration due to environmental impacts when compared to the other alternatives. Alternative J was one of the best performers with regard to the purpose and need measures. Generally, the more an alternative utilized portions of existing US 31, the better it performed; and Alternative J utilized more of the existing US 31 alignment than any other alternative. Alternative J also generally had the lowest impacts to the natural environment, as less new right-of-way would be required. However, this alternative also had the highest residential relocations and the highest cost among the alternatives. Alternative J would require 235 residential relocations; 2 to 6 times more residential relocations than any of the other freeway alternatives, as well as 86 business relocations. In addition, it would significantly impact two closely situated Local Historical Landmarks along existing US 31; the Italianate-style Ullery/Farneman House (c. 1860), which has been deemed eligible for listing in the National Register, and the Southlawn Cemetery (including the small caretaker's building). Alternative J is adjacent to both Newton Park in Lakeville and LaVille Jr.-Sr. High School. Shifting Alternative J to the west to avoid the park and school would make it essentially the same as Alternatives B, C, D, E, and F, of which Alternatives C, E, and F have been carried forward for further analysis. In conclusion, Alternative J, although a high performer in regard to purpose and need, was eliminated due to the high relocations, significant impacts to Local Historic Landmarks, impacts to Newton Park and the LaVille Jr.-Sr High School, and high cost.

Based on the findings of the Preliminary Alternatives Analysis and Screening, the No-Build Alternative, Alternative C, Alternative E, Alternative F, and Alternative G were advanced for further analysis in the DEIS.

Modifications of Alternatives Recommended for Further Analysis

The following data is from the information and conceptual design parameters available at each of the phases in the evaluation and screening of alternatives process. As the study progressed, additional information was collected and analyzed, more specific design parameters and details were developed, and the associated impacts were revised and



updated. As the project continued to progress, the study team continually investigated potential modifications to the alternatives that would avoid and/or minimize impacts to both the natural and human environment. Often these modifications were initiated by comments received from the public, local officials and/or resource agencies. The modifications ranged from slight shifts in the alignment to the development of “hybrid” alternatives. The goal of alternative modifications was to avoid and/or minimize environmental and socio-economic impacts.

Following the completion of the Preliminary Alternatives Analysis and Screening, comments from the public and resource agencies were received and additional field data was collected for Alternatives C, E, F, and G. As the field data and public and resource agency comments were analyzed and preliminary engineering further developed, a more accurate measure of social and environmental impacts of each of the alternatives was determined. A review of these social and environmental impacts raised concerns within the study team, which included resource agencies and consulting parties involved with the project. These concerns focused on both socio-economic and environmental impacts, particularly concerns related to wetland impacts, residential and business relocations, and historic property impacts.

Along with the socio-economic and environmental concerns, there were also engineering concerns, particularly related to two historically significant sites that impact three of the four recommended preliminary freeway alternatives. These sites are located along existing US 31, in an area just south of the US 31 and Kern Road intersection. The first historically significant site is known as the Ullery/Farneman House. This site is an Italianate-style house, c. 1860, a Local Historic Landmark that is Potentially Eligible (PE) for the National Register of Historic Places (NR) and a likely Section 4(f) issue. The Ullery/Farneman House is located on the west side of US 31. The second historically significant site is situated directly east of and across US 31 from the Ullery/Farneman House. This site is the Southlawn Cemetery and also a potential Section 4(f) issue. The engineering concerns related to these two potential Section 4(f) properties arose due to the close proximity of these two historically significant properties. It would be difficult to construct a freeway facility in this area without significant impacts to one or both properties. Alternatives E, F, and G all pass between these historic sites, along existing US 31, and would have major impacts to both properties.

Following the completion of the Preliminary Alternatives Analysis and Screening, Alternatives C, E, F, and G were modified due to major concerns raised by the study team, public, elected officials, resource agencies and Section 106 consulting parties. These concerns focused on both socio-economic and environmental impacts, particularly concerns related to wetland impacts, residential and business relocations, and historic property impacts. The goal of the modifications was to minimize these impacts.

Modifications to Alternative F

Modifications to Alternative F were investigated just south of the Ullery/Farneman House and the Southlawn Cemetery, and came about in an attempt to minimize impacts to the sites and to eliminate the likely Section 4(f) impacts. Modified Alternative F in this area involved a shift to the west in order to go to the west side of (behind) the Ullery/Farneman House. Westward modifications to Alternative F would significantly impact two residential subdivisions; one just north of Madison Road and west of US 31 and the other at Roosevelt Road and west of US 31. Further modifications to Alternative F that involved the relocation of the alternative further west to avoid these two subdivisions would essentially place the modified Alternative F on top of Alternative E and/or Alternative Es. For this reason, modified Alternative F was eliminated from further consideration. Additionally, due to the potential Section 4(f) issues associated with Alternative F and the two historically significant structures discussed above, and the presence of prudent and feasible alternatives without potential Section 4(f) issues, Alternative F was also eliminated from further consideration.



Modifications to Alternatives C and E

Alternatives C and E follow the same alignment from the US 30 and US 31 interchange to just north of Madison Road. Any modification made to either of these alternatives in this area, aimed at minimizing impacts, would be made to both of the alternatives. Just north of Madison Road, Alternatives C and E diverge and follow separate alignments northward to US 20. Thus, modifications made to one alternative or the other north of Madison Road would be independent. Each of the alternatives contains three separate areas in which modifications were made in an attempt to minimize impacts.

- The southern segment of the modifications to Alternatives C and E extends from West 4A Road to the south edge of Lakeville. This alignment modification involved the shift of Alternative C, to be called Alternative Cs, and Alternative E, to be called Alternative Es, to the east. The modified Alternatives Cs and Es were shifted to follow Alternative G from West 4A Road to just south of Tyler Road.
 - These modifications reduced wetland impacts by 50% (from 26 acres to 13 acres) in this area while having a modest impact on relocations (one additional residential relocation) and no impact to historic properties
 - These alignment modifications were included in the alternatives carried forward for detailed study in the DEIS
- The central segment of the modifications to Alternatives C and E extends from SR 4 (Pierce Road) to just north of Osborne Road. This modification involved the shift of the two alternatives to the east. Alternatives Cs and Es continue northward and connect with Alternatives C and E just north of Osborne Road.
 - These modifications reduce the wetland impacts by one acre (from three acres to two acres) and had no impact on residential relocations or to historic properties. The one acre of wetland reduction in this segment is a particularly high quality wetland
 - These alignment modifications were included in the alternatives carried forward for detailed study in the DEIS
- The northern segment of the modifications to Alternative C, called Alternative Cs, extends from just north of Madison Road to US 20. This modification involved the shift of the alternative to the east
 - This modification increased the wetland impacts by seven acres (from 31 acres to 38 acres) and had no impact on residential relocations or to historic properties
 - This modification to Alternative C was not included in the alternative carried forward for more detailed study in the DEIS
- The northern segment of the modifications to Alternative E, called Alternative Es, extends from just north of Madison Road to US 20. This modification involved the shift of the alternative to the west
 - This modification, relocating it to the west and behind the Ullery/Farneman House, reduced the wetland impacts by 12 acres (from 26 acres to 14 acres), decreased residential relocations by 23 (from 73 to 50) and business relocations by 20 (from 46 to 26), and eliminated the Section 4(f) issue related to historic properties
 - This modification to Alternative E were included in the alternatives carried forward for detailed study in the DEIS



Modifications to Alternatives G

Two separate modifications to Alternative G were investigated, Alternatives Gs and G-C. Both of the modified alternatives follow Alternative G from the existing US 30 and US 31 interchange to Lake Trail, just east of Riddles Lake. At that point, the alternatives diverge as Alternative G goes northeast while Alternatives Gs and G-C continue northward on a common alignment, just east of and parallel to Kenilworth Road. Just north of Miller Road and south of Turkey Trail, Alternatives Gs and G-C turn to the northwest and parallel Turkey Trail. As these two alternatives approach existing US 31 they diverge. Alternative Gs turns northward and ties into existing US 31 at Roosevelt Road. It continues northward along existing US 31 connects to Alternative G south of Kern Road and terminates at the existing US 31 and US 20 interchange. Alternative G-C continues northwest, crosses existing US 31 near Roosevelt Road and ties into Alternative C near Kern Road. From that point, Alternative G-C continues northward, following the same alignment as Alternative C, and terminates at US 20.

The socio-economic and environmental impacts of modified Alternatives Gs and G-C were compared to those of Alternative G.

- Alternative Gs reduced the wetland impacts by four acres (from 34 acres to 30 acres), increased residential relocations by 33 (from 97 to 130) and business relocations by two (from 52 to 54), and reduced the historic impacts to those structures located within the area of potential impact (APE) by three (from 8 to 5 properties). It did not eliminate the Section 4(f) issue related to the Ullery/Farneman House and the Southlawn Cemetery
 - Due to increases in both residential and business relocations and the failure to eliminate the potential Section 4(f) issue related to historic properties, Alternative Gs was eliminated from further consideration. Additionally, due to the potential Section 4(f) issues associated with Alternative G and the two historically significant structures discussed above, and the presence of prudent and feasible alternatives without potential Section 4(f) issues, Alternative G was also eliminated from further consideration
- Alternative G-C increased wetland impacts by nine acres (from 34 acres to 43 acres), a 26% increase. However, it reduced residential relocations by 31 (from 97 to 66), a 32% reduction and business relocations by 43, (from 52 to 9), an 83% reduction. Alternative G-C reduced the historic impacts to those structures located within the APE by two (from 8 to 6) and it eliminated the Section 4(f) issue related to the Ullery/Farneman House and Southlawn Cemetery
 - Due to reductions in both residential and business relocations and the elimination of the potential Section 4(f) issue related to historic properties, Alternative G-C was carried forward for more detailed study in the DEIS

Evaluation of Hybrid Alternatives

Following publication of the DEIS, comments were received from resource agencies and the public that requested a review of modifications to alternatives that would maximize the use of the existing US 31 corridor and would also avoid impacts to natural resources. Public comments also requested the investigation of the combination of Alternatives Es and G-C north of Roosevelt Road. In response to these comments, a “hybrid” alternative, Alternative G-E was developed.



Alternative G-E is a hybrid alternative consisting of a combination of the southern portion of Preliminary Alternative G-C and the northern portion of Preliminary Alternative Es. Additional analysis indicated that the hybrid alternative resulted in a reduction of wetland impacts, and avoidance of many high quality wetland complexes west of existing US 31, a reduction in forest impacts, was a good traffic performer, was an alternative that utilized more of the existing US 31 corridor, and had relocation impacts and cost estimates that were consistent with the other alternatives being studied in the DEIS. Therefore, the range of reasonable alternatives in the decision-making process was expanded to include Alternative G-E, along with the No-Build Alternative and Alternatives Cs, Es and G-C.

Modifications to Alternatives G-C and G-E

During one of many field investigations aimed at collecting additional data for Alternatives Cs, Es, G-C and G-E, a team of environmental scientists identified a high quality wetland complex that was being impacted by Alternatives G-C and G-E. This wetland complex was located between the eastward extension of SR 4 (Pierce Road) and Miller Road, just south of New Road. The team of environmental scientists coordinated with a team of engineers to investigate potential modifications in the form of shifts in the alignment of Alternatives G-C and G-E to the east, called G-Cs and G-Es. Again, the goal of these modifications was avoidance and/or minimization of impacts to the natural and human environment.

The modifications or shifts to Alternatives G-C and G-E, called G-Cs and G-Es, provided positive results as impacts to both the human and natural environments were further reduced. This included a slight reduction in residential relocations and further reductions to wetlands and forests. This particular avoidance/minimization measure also provided an opportunity to avoid the high quality wetland complex associated with both of the alternatives. Due to the positive results related to impact reductions seen by this shift in the alignments, Alternatives G-C and G-E were eliminated from further consideration and Alternatives G-Cs and G-Es were added to the range of reasonable alternatives in the decision-making process, that includes the No-Build Alternative and Alternatives Cs, Es, G-Cs and G-Es.

Consideration of Alternative G – Ironwood Road Connection

During resource agency meetings and in comments received during the comment period on the DEIS, it was requested that a review of options not fully considered in the DEIS be completed. Identified, in particular, were modifications to Alternative G that would terminate at the existing US 20 and Ironwood Road interchange, as was the case for the previously eliminated Preliminary Alternative K. In response to those comments, INDOT and FHWA considered Alternative G - Ironwood Road Connection. Alternative G – Ironwood Road Connection follows the same alignment as Alternative G-Cs from the existing US 30 and US 31 interchange to New Road. At that point, the alternatives diverge. Alternative G-Cs continues northward just east of and parallel to Kenilworth Road. The Modified Alternative G – Ironwood Road Connection turns northeast and ties into Ironwood Road, near Kern Road. From that point, it continues northward, following Ironwood Road, and terminates at the existing US 20 and Ironwood Road interchange. The US 20 and Ironwood Road interchange was the north terminus of Preliminary Alternative K that was eliminated from further consideration during the initial Preliminary Alternatives Analysis and Screening due to its failure to meet the purpose and need of the project.

The additional analysis included an investigation of the alternative, including additional major roadway improvements to existing roadway facilities that would be required to make the alternative meet the purpose and need of the project. It was found that in addition to construction of the new freeway Alternative G – Ironwood Road Connection, two additional major roadway improvement projects would be required to meet the minimum LOS D for the alternative and satisfy the purpose and need of the project. The first major additional roadway improvement project would consist of the improvement of Ironwood Road from US 20 northward to SR 933 (Lincolnway)



(approximately 2-miles) from an existing four-lane facility to a seven-lane facility. The second major additional roadway improvement project would consist of the improvement of existing US 31 from Roosevelt Road northward to US 20 (approximately 2-miles) from an existing four-lane facility to a seven-lane facility.

For Alternative G – Ironwood Road Connection, data related to socio-economic and environmental impacts was also examined. In regards to potential historic impacts to properties eligible or potentially eligible for the National Register of Historic Places (NR), local historic landmarks and adverse impacts requiring mitigation, it was found that the alternative would have a direct impact on one historic property that is eligible for the NR (a Section 4(f) issue), the Ullery/Farneman House, which is located on the west side of existing US 31 just south of Kern Road. The alternative would also have direct impacts on two properties that are potentially eligible for the NR as well as adverse effects on several properties that would require mitigation. In regards to socio-economic impacts, it was found that the alternative would directly impact the St. Joseph County Fairgrounds, would require from 1.75 to 4 times more residential relocations than any other alternative and would have a total cost that was from 15% to 50% higher than any of the other alternatives. In regards to potential environmental impacts, it was found that the alternative slightly reduced forest and wetland impacts but it slightly increased farmland impacts.

Modified Alternative G – Ironwood Road Connection, as a stand-alone alternative, fails to address the first purpose and need for the project (i.e., reduced congestion). In order for the Alternative G – Ironwood Road Connection to adequately address the purpose of reducing congestion on the existing US 31, the residual traffic on US 31 requires further major roadway investment projects, besides the cost of the alternative itself, to achieve acceptable traffic operating conditions. These improvements include the widening of existing US 31 from a four-lane to a seven-lane section from Roosevelt Road to US 20 to reach a minimum LOS D and the widening of Ironwood Road from four to seven lanes from US 20 to SR 933 (Lincolnway) to reach a minimum LOS D. A combination of these two roadway investment projects along with the alternative would provide an acceptable LOS.

In Phase 2 of the screening process, it was found that while the wetland and forest impacts associated with Alternative G – Ironwood Road Connection were slightly less than those of the alternatives to be studied further. However, they were still higher than the wetland and forest impacts associated with the hybrid Alternative G-Es.

As discussed above, Alternative G – Ironwood Road Connection had a much higher associated total cost; higher residential relocations; higher potential historic impacts; including a Section 4(f) issue; and higher farmland impacts. Based on these considerations, FHWA and INDOT concluded that Alternative G – Ironwood Road Connection was not a reasonable alternative and was not added to the range of reasonable alternatives to be considered in the decision-making process.

Description of the Alternatives Selected for Detailed Study

Following the modifications made to the preliminary alternatives throughout the study process, as detailed above, the range of reasonable alternatives in the decision-making process was expanded to include the No-Build Alternative and four Freeway Alternatives Cs, Es, G-Cs and G-Es (see Figure ES.4.3).

No-Build Alternative

The No-Build Alternative includes “capacity expansion” projects in the South Bend Metropolitan Area (St. Joseph, Marshall and Elkhart counties) as reported in the MACOG Transportation Improvement Program (2003-2005 TIP) and the balance of Indiana as reported in the Indiana Statewide Transportation Improvement Program (INSTIP). Capacity expansion projects include major roadway investments, such as a major widening that add through traffic lanes, the extension of existing roadways or construction of new roadways, new interchanges, and major roadway realignments or reconstructions that add through traffic carrying capacity.

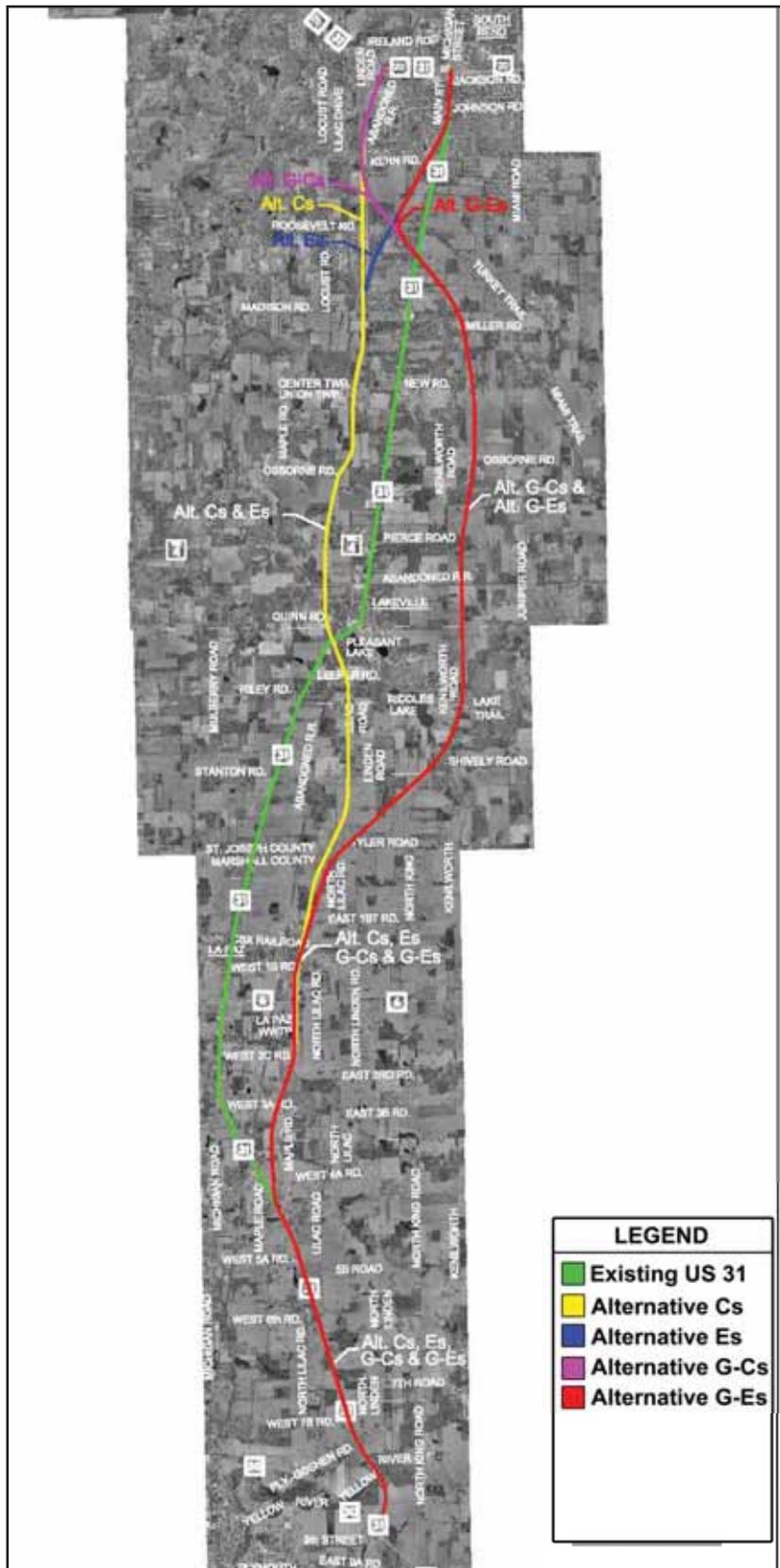


Figure ES.4.3: Preliminary Alternatives Cs, Es, G-Cs and G-Es



When capacity expansion projects that are programmed for construction or that have been completed since the year 2000 are added to the existing roadway network, the resulting roadway network constitutes the No-Build Alternative (or Existing-Plus-Committed Network). It is assumed that these committed improvements will be completed independent of any decision regarding the improvement of US 31 from Plymouth to South Bend.

Even though the No-Build Alternative does not address the purpose and need for this project, it is carried forward and also serves as a baseline when comparing the effectiveness and potential impacts of other alternatives.

Alternative Cs (Freeway Alternative)

Alternative Cs begins at the existing US 31 and US 30 interchange, utilizing the existing cloverleaf configuration, and proceeds northward along the existing US 31 alignment to just south of West 4A Road in Marshall County, just south of LaPaz. It then continues northward on new alignment east of LaPaz and parallels existing US 31. Just south of Lakeville, in St. Joseph County, it crosses existing US 31 and continues northward, west of Lakeville, paralleling existing US 31. It terminates at US 20, approximately one mile west of the existing US 31 and US 20 interchange.

The proposed facility would require existing intersections and access points to be converted to interchanges, overpasses (grade-separations) or access closures. It is anticipated that there will be five new interchanges along Alternative Cs, not including the use of the existing interchange at US 30 and US 31 or the modifications required at the existing US 31 and US 20 interchange. All anticipated interchange locations and types are conceptual and will be refined in later phases of the project development. Likely interchange locations and types would be:

- Utilize existing interchange at US 30
- Diamond Interchange at the Marshall County proposed extension of 7th Road
- Diamond interchange at US 6 (with provisions for a potential future partial cloverleaf)
- Diamond interchange at SR 4 (Pierce Road)
- Diamond interchange at Kern Road
- Trumpet Interchange at US 20
- Modify existing interchange at existing US 31 and US 20

There will be grade separations (overpasses) and local service (frontage) roads for many public roads intersecting with US 31 and not listed as a likely interchange location. It is anticipated that there will be 14 grade separations along Alternative Cs, including an additional reconstruction of the existing grade separation at Linden Road over US 20 due to the addition of ramp lanes along US 20 associated with the new interchange; however, the details of access will be refined as the project advances through the development phases. Likely grade separation locations would be:

- Plymouth-Goshen Trail
- Lilac Road/West 6th Road
- West 4A Road



- West 3A Road
- East 1st Road
- Tyler Road
- Leeper Road
- Existing US 31 just south of Lakeville
- Quinn Road
- New Road
- Madison Road
- Roosevelt Road
- Johnson Road
- Linden Road over US 20 reconstruction

There will be public roads that are not listed as a likely interchange or grade separation (overpass) locations. When two public roads are close to one another, a grade separation may be provided at one road and the other road relocated to use the same grade separation. Frontage or local service roads are provided where land may be landlocked by full access control of the alternative. It is anticipated that there will be four such public roads along Alternative Cs that will likely be relocated to an adjacent overpass. However, the details of access will be refined as the project advances through the development phases. Likely road relocation locations to an alternate site of access would be:

- Maple Road connection to existing US 31 near West 4A Road
- Maple Road connection to West 2C Road
- Quinn Trail connection to existing US 31
- Linden Road connection to Johnson Road

There will be public roads that are not listed as a likely interchange or grade separation (overpass) locations or listed as a road likely to be relocated to an alternate access point. Access across the new freeway for these roads will be eliminated and a cul-de-sac constructed on either side of the new freeway. It is anticipated that there will be seven such public roads along Alternative Cs; however, the details of access will be refined as the project advances through the development phases. Roadways likely to lose access and be terminated with a cul-de-sac would be:

- West 7B Road
- West 5A Road



- Existing US 31 near 4A Road
- West 2C Road
- West 1B Road
- Shively Road
- Osborne Road

In addition to the likely locations of interchanges, grade separations, and road closures, there would also be two grade separations for railroad crossings at the following locations:

- CSX Railroad on the north edge of LaPaz, between West 1B Road and East 1st Road
- Abandoned Railroad corridor just south of US 20

Alternative Es (Freeway Alternative)

Alternative Es begins at the existing US 31 and US 30 interchange, utilizing the existing cloverleaf configuration, and proceeds northward along the existing US 31 alignment to just south of West 4A Road in Marshall County, just south of LaPaz. It then continues northward on new alignment east of LaPaz and parallels existing US 31. Just south of Lakeville, in St. Joseph County, it crosses existing US 31 and continues northward, west of Lakeville, paralleling existing US 31. Just north of Madison Road the alternative assumes a northeasterly direction and ties into existing US 31 just north of Kern Road. It then terminates at the existing US 31 and US 20 interchange. It should be noted that Alternative Es between Kern Road and the US 31/US 20 interchange was modified to be an “at grade” facility and not an elevated roadway, constructed on retaining walls as presented in the DEIS.

The proposed facility would require existing intersections and access points to be converted to interchanges, overpasses (grade-separations) or access closures. It is anticipated that there will be four new interchanges along Alternative Es, not including the use of the existing interchange at US 30 and US 31 and the reconstruction of the existing interchange at US 31 and US 20. All anticipated interchange locations and types are conceptual and will be refined in later phases of the project development. Likely interchange locations and types would be:

- Utilize existing interchange at US 30
- Diamond Interchange at the Marshall County proposed extension of 7th Road
- Diamond interchange at US 6 (with provisions for a potential future partial cloverleaf)
- Diamond interchange at SR 4 (Pierce Road)
- Diamond interchange at Kern Road
- Reconstruction of existing interchange at US 20

There will be grade separations (overpasses) and local service (frontage) roads for many public roads intersecting with US 31 and not listed as a likely interchange location. It is anticipated that there will be 16 grade separations along Alternative Es. However, the details of access will be refined as the project advances through the development phases. Likely grade separation locations would be:



- Plymouth-Goshen Trail
- Lilac Road/West 6th Road
- West 4A Road
- West 3A Road
- East 1st Road
- Tyler Road
- Leeper Road
- Existing US 31 just south of Lakeville
- Quinn Road
- New Road
- Madison Road
- Roosevelt Road
- Main Street
- Johnson Road
- Johnson Road bridge over Main Street
- Jackson Road

There will be public roads that are not listed as a likely interchange or grade separation (overpass) locations. When two public roads are close to one another, a grade separation may be provided at one road and the other road relocated to use the same grade separation. Frontage or local service roads are provided where land may be landlocked by full access control of the alternative. It is anticipated that there will be seven such public roads along Alternative Es that will likely be relocated to an adjacent overpass. However, the details of access will be refined as the project advances through the development phases. Likely road relocations to an alternate site of access would be:

- Maple Road connection to existing US 31 near West 4A Road
- Maple Road connection to West 2C Road
- Quinn Trail connection to existing US 31
- Existing US 31 connection to Main Street north of Kern Road
- Existing US 31 connection to Hildebrand Street south of Johnson Road



- Connection between Johnson Road and W. Ritter Avenue to Main Street
- Main Street connection to Jackson Road

There will be public roads that are not listed as a likely interchange or grade separation (overpass) location or listed as a road likely to be relocated to an alternate access point. Access across the new freeway for these roads will be eliminated and a cul-de-sac constructed on either side of the new freeway. It is anticipated that there will be 10 such public roads along Alternative E. However, the details of access will be refined as the project advances through the development phases. Roadways likely to lose access and be terminated with a cul-de-sac would be:

- West 7B Road
- West 5A Road
- Existing US 31 near 4A Road
- West 2C Road
- West 1B Road
- Shively Road
- Osborne Road
- Louise Drive
- Roycroft Road
- Jewell Avenue

In addition to the likely locations of interchanges, grade separations, and road closures, there would also be a grade separation for a railroad crossing at the following location:

- CSX Railroad on the north edge of LaPaz, between West 1B Road and East 1st Road

Alternative G-Cs (Freeway Alternative)

Alternative G-Cs begins at the existing US 31 and US 30 interchange, utilizing the existing cloverleaf configuration, and proceeds northward along the existing US 31 alignment to just south of West 4A Road in Marshall County, just south of LaPaz. It then continues northward on new alignment east of LaPaz and parallels existing US 31. Just south of the Marshall-St. Joseph County line, the alternative assumes a northeasterly direction around the east side of Riddles Lake, where it then continues in a northerly direction bypassing Lakeville on the east and paralleling existing US 31. Near Miller Road, the alternative turns in a northwesterly direction and crosses to the west side of existing US 31 just south of Roosevelt Road. The alternative then turns in a northerly direction, paralleling existing US 31, and terminates at US 20, approximately one mile west of the existing US 31 and US 20 interchange.



The proposed facility would require existing intersections and access points to be converted to interchanges, overpasses (grade-separations), or access closures. It is anticipated that there will be five new interchanges along Alternative G-Cs, not including the use of the existing interchange at US 30 and US 31 or modifications required at the existing US 31 and US 20 interchange. All anticipated interchange locations and types are conceptual and will be refined in later phases of the project development. Likely interchange locations and types would be:

- Utilize existing interchange at US 30
- Diamond Interchange at the Marshall County proposed extension of 7th Road
- Diamond interchange at US 6 (with provisions for a potential future partial cloverleaf)
- Diamond interchange at SR 4 (Pierce Road)
- Diamond interchange at Kern Road
- Trumpet Interchange at US 20
- Modify existing interchange at existing US 31 and US 20

There will be grade separations (overpasses) and local service (frontage) roads for many public roads intersecting with US 31 and not listed as a likely interchange location. It is anticipated that there will be 14 grade separations along Alternative G-Cs, including an additional reconstruction of the existing grade separation at Linden Road over US 20 due to the addition of ramp lanes along US 20 associated with the new interchange; however, the details of access will be refined as the project advances through the development phases. Likely grade separation locations would be:

- Plymouth-Goshen Trail
- Lilac Road/West 6th Road
- West 4A Road
- West 3A Road
- East 1st Road
- Tyler Road
- Kenilworth Road
- Lake Trail
- New Road
- Miller Road
- Existing US 31 south of Kern Road



- Roosevelt Road
- Johnson Road
- Linden Road over US 20 reconstruction

There will be public roads that are not listed as a likely interchange or grade separation (overpass) locations. When two public roads are close to one another, a grade separation may be provided at one road and the other road relocated to use the same grade separation. Frontage or local service roads are provided where land may be landlocked by full access control of the alternative. It is anticipated that there will be four such public roads along Alternative G-Cs that will likely be relocated to an adjacent overpass. However, the details of access will be refined as the project advances through the development phases. Likely road relocation locations to an alternate site of access would be:

- Maple Road connection to existing US 31 near West 4A Road
- Maple Road connection to West 2C Road
- North Lilac Road connection to Tyler Road
- Linden Road connection to Johnson Road

There will be public roads that are not listed as a likely interchange or grade separation (overpass) location or listed as a road likely to be relocated to an alternate access point. Access across the new freeway for these roads will be eliminated and a cul-de-sac constructed on either side of the new freeway. It is anticipated that there will be nine such public roads along Alternative G-Cs; however, the details of access will be refined as the project advances through the development phases. Roadways likely to lose access and be terminated with a cul-de-sac would be:

- West 7B Road
- West 5A Road
- Existing US 31 near 4A Road
- West 2C Road
- West 1B Road
- Linden Road
- Rockstroth Road
- Quinn Road
- Osborne Road

In addition to the likely locations of interchanges, grade separations and road closures, there would also be two grade separations for railroad crossings at the following locations:



- CSX Railroad on the north edge of LaPaz, between West 1B Road and East 1st Road
- Abandoned Railroad corridor just south of US 20

Alternative G-Es (Freeway Alternative)

Alternative G-Es begins at the existing US 31 and US 30 interchange, utilizing the existing cloverleaf configuration, and proceeds northward along the existing US 31 alignment to just south of West 4A Road in Marshall County, just south of LaPaz. It then continues northward on new alignment east of LaPaz, paralleling existing US 31. Just south of the Marshall-St. Joseph County line, the alternative assumes a northeasterly direction east of Riddles Lake, and then continues north, east of Lakeville, paralleling existing US 31. Near Miller Road, the alternative turns in a northwesterly direction and crosses existing US 31 just south of Roosevelt Road. As the alternative approaches Kern Road, it assumes a northeasterly direction and ties into existing US 31, just north of Kern Road. It then follows existing US 31 northward and terminates at the existing US 31 and US 20 interchange location. It should be noted that Alternative G-Es between Kern Road and the US 31/US 20 interchange includes the same modifications as those made to Alternative Es to be an “at grade” facility and not an elevated roadway, constructed on retaining walls.

The proposed facility would require existing intersections and access points to be converted to interchanges, overpasses (grade-separations), or access closures. It is anticipated that there will be five new interchanges along Alternative G-Es, not including the use of the existing interchange at US 30 and US 31 or modifications required at the existing US 31 and US 20 interchange. All anticipated interchange locations and types are conceptual and will be refined in later phases of the project development. Likely interchange locations and types would be:

- Utilize existing interchange at US 30
- Diamond Interchange at the Marshall County proposed extension of 7th Road
- Diamond interchange at US 6 (with provisions for a potential future partial cloverleaf)
- Diamond interchange at SR 4 (Pierce Road)
- Diamond interchange at Kern Road
- Reconstruction of the existing interchange at existing US 31 and US 20

There will be grade separations (overpasses) and local service (frontage) roads for many public roads intersecting with US 31 and not listed as a likely interchange location. It is anticipated that there will be 16 grade separations along Alternative G-Es; however, the details of access will be refined as the project advances through the development phases. Likely grade separation locations would be:

- Plymouth-Goshen Trail
- Lilac Road/West 6th Road
- West 4A Road
- West 3A Road



- East 1st Road
- Tyler Road
- Kenilworth Road
- Lake Trail
- New Road
- Miller Road
- Existing US 31 south of Kern Road
- Roosevelt Road
- Main Street
- Johnson Road
- Johnson Road bridge over Main Street
- Jackson Road

There will be public roads that are not listed as a likely interchange or grade separation (overpass) locations. When two public roads are close to one another, a grade separation may be provided at one road and the other road relocated to use the same grade separation. Frontage or local service roads are provided where land may be landlocked by full access control of the alternative. It is anticipated that there will be seven such public roads along Alternative G-Es that will likely be relocated to an adjacent overpass. However, the details of access will be refined as the project advances through the development phases. Likely road relocation locations to an alternate site of access would be:

- Maple Road connection to existing US 31 near West 4A Road
- Maple Road connection to West 2C Road
- North Lilac Road connection to Tyler Road
- Existing US 31 connection to Main Street north of Kern Road
- Existing US 31 connection to Hildebrand Street south of Johnson Road
- Connection between Johnson Road and W. Ritter Avenue to Main Street
- Main Street connection to Jackson Road

There will be public roads that are not listed as a likely interchange or grade separation (overpass) location or listed as a road likely to be relocated to an alternate access point. Access across the new freeway for these roads will be eliminated and a cul-de-sac constructed on either side of the new freeway. It is anticipated that there will be 10 such



public roads along Alternative G-Es; however, the details of access will be refined as the project advances through the development phases. Roadways likely to lose access and be terminated with a cul-de-sac would be:

- West 7B Road
- West 5A Road
- Existing US 31 near 4A Road
- West 2C Road
- West 1B Road
- Linden Road
- Rockstroth Road
- Quinn Road
- Osborne Road
- Jewell Avenue

In addition to the likely locations of interchanges, grade separations and road closures, there would also be a grade separation for a railroad crossing at the following location:

- CSX Railroad on the north edge of LaPaz, between West 1B Road and East 1st Road



ES.5 Summary of Impacts and Selection of the Preferred Alternative

Following the modifications made to the preliminary alternatives throughout the study process, as detailed above, and based on the following findings, the range of reasonable alternatives in the decision-making process included the No-Build Alternative and four Freeway Alternatives Cs, Es, G-Cs and G-Es (see Figure ES.4.3). Following the DEIS public comment period, the Public Hearing and additional fieldwork, this FEIS has been prepared. The US 31 Improvement Project has been a dynamic process, and the following data is from the information and conceptual design parameters available at each of the phases in the screening of alternatives process. As the study progressed, additional information was collected and analyzed, more specific design parameters and details were developed, and the associated impacts were revised and updated.

A comparison of the remaining freeway alternatives, Alternatives Cs, Es, G-Cs and G-Es identified different types of impacts related to each alternative. Some generalizations related to the impacts of the alternatives included (note that the generalizations are based on data shown in Table ES.5.3):

- The alternatives that were west of existing US 31 (Alternatives Cs, Es and the northern most portion of G-Cs) exhibited higher impacts to the natural environment, particularly wetlands and forests
- The alternatives that were east of existing US 31 (Alternatives G-Cs and G-Es) exhibited higher farmland impacts but had lower wetland and forest impacts
- The alternatives that utilized more of the existing US 31 corridor (Alternatives Es and G-Es) exhibited higher impacts to the human environment, particularly residential and business relocations
- The alternatives that utilized more of the existing US 31 corridor (Alternatives Es and G-Es) generally exhibited higher total costs than those that were largely new terrain corridors
- The alternatives that utilized more of the existing US 31 corridor (Alternatives Es and G-Es) were generally better traffic performers; however, all remaining freeway alternatives meet the projects purpose and need and the associated performance measures
- Following the identification of Alternative G-Es as the Preferred Alternative, additional, in-depth studies were performed on the alternative. These additional studies included, but were not limited to, refinement of local access plan and proposed right-of-way requirements, wetland delineations, Phase 1a Archaeological Review, etc. This more refined data is included in the Final Preferred Alternative G-Es column.

Table ES.5.3: Comparison of Impacts for Preliminary Alternatives Cs, Es, G-Cs,G-Es, and Final Preferred Alternative G-Es

Socio-Economic/Environmental Measure	ALTERNATIVE ¹				
	Cs	Es	G-Cs	G-Es	Final Pref. Alt. G-Es ²
COSTS (Total) (Mil. Of \$) (year 2005 dollars)	324.7 to 327.9	362.3 to 365.9	332.2 to 339.7	366.9 to 374.4	371.0 to 378.3
Length (Miles)	19.5	19.9	20.3	20.5	20.5
No. of New Interchanges (Total Interchanges)	5 (7)	5 (6)	5 (7)	5 (6)	5 (6)
No. of Grade Separations (Overpass/Underpass)	16	16	16	16	16
No. of Grade Separations (Railroad Crossings)	2	1	2	1	1
CONSTRUCTION COSTS (Mil. of \$)	208.6 to 211.8	218.2 to 221.3	213.4 to 220.9	221.7 to 228.7	223.2 to 230.2



Table ES.5.3: Comparison of Impacts for Preliminary Alternatives Cs, Es, G-Cs,G-Es, and Final Preferred Alternative G-Es (Continued)

Socio-Economic/Environmental Measure	ALTERNATIVE ¹				
	Cs	Es	G-Cs	G-Es	Final Pref. Alt. G-Es ²
RECONSTRUCTION of US 20 Right-of-Way & Construction (Mil. of \$)	29.6	21.1	29.6	21.1	21.1
LOCAL & STATE ROAD IMPROVEMENT PROJECTS Right-of-Way & Construction (Mil. Of \$)	3.6	11.5	5.8	13.7	13.6
US 31 MAINLINE RIGHT-OF-WAY COSTS (Mil. of \$)	44.7	70.7	47.1	70.9	72.5
ENGINEERING COSTS (Mil. of \$)	13.7	18.1	13.9	18.3	18.3
UTILITY RELOCATION COSTS (Mil. of \$)	17.2	17.2	17.2	17.2	17.2
MITIGATION COSTS (Mil. of \$)	7.3	5.5 to 6.0	5.2	4.0 to 4.5	5.1 to 5.4
TRAFFIC PERFORMANCE					
Meet Purpose and Need	Yes	Yes	Yes	Yes	Yes
Performance (Compared to Other Alternatives, 1 is Best Performer)	3	1	4	2	2
LAND USE	961 Ac.	968 Ac.	1,012 Ac.	1,011 Ac.	1,061 Ac.
Agricultural (row crop)	390 Ac.	395 Ac.	504 Ac.	503 Ac.	537 Ac.
Commercial	15 Ac.	23 Ac.	16 Ac.	23 Ac.	23 Ac.
Church/Religious	2 Ac.	2 Ac.	2 Ac.	2 Ac.	2 Ac.
Herbaceous Cover	51 Ac.	48 Ac.	68 Ac.	52 Ac.	53 Ac.
Open Water	<1 Ac.	<1 Ac.	<1 Ac.	<1 Ac.	<1 Ac.
Pasture	14 Ac.	12 Ac.	3 Ac.	4 Ac.	4 Ac.
Transportation	213 Ac.	220 Ac.	217 Ac.	222 Ac.	226 Ac.
Residential	51 Ac.	86 Ac.	55 Ac.	77 Ac.	82 Ac.
Scrub/Shrub	38 Ac.	46 Ac.	31 Ac.	36 Ac.	37 Ac.
Woodland (Wetland & Non-Wetland) (Forests)	186 Ac.	135 Ac.	115 Ac.	91 Ac.	96 Ac.
RELOCATIONS					
Residences Acquired	50	128	59	124	131
Businesses Acquired ³	7	40	5	39	39
Businesses Damaged	5	13	5	13	13
Churches Acquired	1	1	1	1	1
HISTORIC PROPERTIES (Listed or Eligible)					
SECTION 4(f) PROPERTIES	0	0	0	0	0
PROPERTIES WITHIN A.P.E.	5	4	9	8	8



Table ES.5.3: Comparison of Impacts for Preliminary Alternatives Cs, Es, G-Cs, G-Es, and Final Preferred Alternative G-Es (Continued)

Socio-Economic/Environmental Measure	ALTERNATIVE ¹				
	Cs	Es	G-Cs	G-Es	Final Pref. Alt. G-Es ²
PROPERTIES ADVERSELY AFFECTED BUT NO SUBSTANTIAL LOSS OF INTEGRITY	0	0	1	1	1
ARCHAEOLOGICAL SITES					
Within Alignment	2	3	2	3	3
TOTAL WETLANDS (NWI + FARMED)	51.6 Ac.	35.6 Ac.	30.7 Ac.	23.9 Ac.	29.93 Ac.⁴
WETLANDS (From NWI Maps)	49.6 Ac.	33.7 Ac.	27.8 Ac.	21.1 Ac.	
Forested	21.8 Ac.	17.8 Ac.	17.7 Ac.	14.8 Ac.	13.21 Ac.
Scrub/Shrub	3.0 Ac.	1.6 Ac.	1.4 Ac.	0.0 Ac.	1.45 Ac.
Emergent	24.0 Ac.	13.6 Ac.	8.7 Ac.	6.3 Ac.	15.27 Ac.
Aquatic Bed	0.8 Ac.	0.7 Ac.	0.0 Ac.	0.0 Ac.	0.0 Ac.
ESTIMATED FARMED WETLANDS	2.0 Ac.	1.9 Ac.	2.9 Ac.	2.8 Ac.	0.44 Ac.⁵
STREAM IMPACTS (No. of Impact Locations) (USGS)	18	19	18	17	17
WILDLIFE HABITAT AREAS					
Potato Creek State Park & Swamp Rose Nature Preserve	0	0	0	0	0
Notable Wildlife Habitat (IDNR)	2	1	0	0	0
Classified Wildlife Habitat (IDNR)	4	3	0	0	0
Classified Forest (IDNR)	2-3	2-3	1-2	1-2	1-2
Conservation Reserve Program (CRP) (NRCS)	1	2	2	1	1
Wetland Reserve Program (WRP) (NRCS)	1	1	0	0	0
Partners for Fish and Wildlife Program (USFWS)	2	1	0	0	0
INDIRECT IMPACTS					
Farmland	115 Ac.	50 Ac.	105 Ac.	45 Ac.	45 Ac.
Wetland	3 Ac.	3 Ac.	3 Ac.	3 Ac.	3 Ac.
Forests	30 Ac.	25 Ac.	10 Ac.	10 Ac.	10 Ac.

NOTES: The final impacts associated with Preferred Alternative G-Es are Shaded

1. No-Build Alternative – does not meet purpose and need of the project; however, it was carried forward for detailed study.
2. Following the identification of Alternative G-Es as the Preferred Alternative, additional, in-depth studies were performed on the alternative. These additional studies included, but were not limited to, refinement of local access plan and proposed right-of-way requirements, wetland delineations, Phase 1a Archaeological Review, etc. This more refined data is included in this column.
3. Businesses acquired include large farming operations
4. Delineations of wetlands resulted in 29.93 acres of wetlands impacted, of which, 25.51 acres were jurisdictional and 4.42 acres were isolated wetlands.
5. One farmed wetland area was identified. This area met the three U.S. Army Corps of Engineers wetland criteria and was considered an emergent wetland. This farmed wetland was included in the emergent wetland total.



Direct impacts are defined by the Council on Environmental Quality (CEQ) Regulation as “effects which are caused by the action and occur at the same time and place.” For this project, the direct impacts are the result of the right-of-way needs for the project. Impacts such as these may be permanent or temporary, and positive or negative in nature. Temporary direct impacts typically occur in the right-of-way during construction activities. They usually result in physical effects but do not cause permanent alteration of the land or water bodies. Temporary easements, for example, may be required for access and storage of equipment on site. Indirect impacts are those that occur as a result of a project action but are removed from the immediate right-of-way. The FHWA defines indirect impacts as those that are “caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induce changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” Cumulative impacts are “the impact on the environment that results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (FHWA Executive Order 13274)

The No-Build Alternative did not address the purpose and need for this project; however, it was carried forward for evaluation throughout the development of the Environmental Impact Statement and served as a baseline when comparing the effectiveness and potential impacts of other alternatives. The No-Build Alternative, while having no *direct* construction costs or impacts, would result in indirect economic and quality of life impacts that can be expected from the continued deterioration of system capacity as identified in the Purpose and Need Statement. The No-Build Alternative fails to address existing and future congestion in the US 31 Corridor. Traffic growth over the next 30 years results in deterioration of the LOS along all US 31 roadway segments, signalized intersections and major unsignalized (two-way stop-controlled) intersections. In fact, while LOS C is the minimum acceptable standard, an LOS of E or F results on all US 31 roadway segments from Michigan Road to the US 20 Bypass, all signalized intersections, and all but one unsignalized intersection.

Purpose and Need - Although Alternatives Cs, Es, and G-Cs and G-Es all meet the purpose and need of the project, they perform at different levels with regard to reduction in congestion.

- Alternative Es is the best traffic performer, as it provides existing US 31 with an LOS of A from the southern terminus at the US 30 interchange to Roosevelt Road. From Roosevelt Road to the northern termini at US 20, the alternative provides an LOS of B
- Alternative G-Es performs very similarly to Alternative Es as it provides existing US 31 with an LOS of A from the southern terminus at the US 30 interchange to Roosevelt Road. From Roosevelt Road to the northern termini at US 20, the alternative provides an LOS of B. The difference between the performance of Alternatives Es and G-Es is that Alternative G-Es has a future daily traffic volume that is approximately 1,150 vehicles per day higher than that of Alternative Es
- Alternative Cs provides existing US 31 with an LOS of A from the southern terminus at the US 30 interchange to Roosevelt Road. From Roosevelt Road to the northern termini at US 20, the alternative provides an LOS of D, the minimum acceptable LOS for an urban section, along existing US 31
- Alternative G-Cs performs very similarly to Alternative Cs as it provides existing US 31 with an LOS of A from the southern terminus at the US 30 interchange to New Road. From New Road to Roosevelt Road, the alternative provides an LOS of B. From Roosevelt Road to the northern termini at US 20, the alternative provides an LOS of D, the minimum acceptable LOS for an urban type section



Agricultural Land/Farmland Impacts - Farmland (row crop) impacts were based on 2002 aerial photographs:

- Alternatives Cs will impact an estimated 390 acres
- Alternative Es will impact an estimated 395 acres
- Alternative G-Es will impact an estimated 503 acres, approximately 115 acres more than Alternatives Cs and Es
- Alternative G-Cs will impact an estimated 504 acres, approximately 115 acres more than Alternatives Cs and Es

Natural Resource Impacts

Alternatives Cs and Es traverse an area of complex glacial drift in the northwestern quarter of the study area, from approximately the north edge of Lakeville to US 20, formerly the Maxinkukee Moraine. The glacial deposits in this area are also unique from a wildlife habitat perspective. These areas are less conducive to agriculture, thus many forested and wetland communities remain. The majority of threatened and endangered species records from the Indiana Natural Heritage Data Center are from this area, as are many of the notable wildlife habitat areas as identified by the Indiana Department of Natural Resources (IDNR), and lands enrolled in state and federal programs that promote and manage wildlife habitat. Alternative G-Cs avoids this area for the most part, with the exception of the northern most portion, from approximately Roosevelt Road to its northern terminus at US 20. Alternative G-Es is located east of and avoids this complex glacial drift area.

Wetland delineations were performed from the Preferred Alternative G-Es during July - October 2004. A total of 29.93 acres of wetland were delineated within the Preferred Alternative G-Es footprint. Representatives from the United States Army Corps of Engineers (USACE) and the Indiana Department of Environmental Management (IDEM) reviewed the potential wetland impacts for the Preferred Alternative G-Es during a field review on November 4-6, 2004. In a jurisdictional determination letter dated February 24, 2005, the USACE identified 25.51 acres as falling under federal jurisdiction and 4.42 acres as isolated wetlands. Isolated wetland impacts will likely fall under state jurisdiction under the Indiana Department of Environmental Management (IDEM) Isolated Wetlands Regulatory Program.

Based on calculations from the National Wetland Inventory (NWI) Maps and an estimate of farmed wetland impacts:

- Alternative G-Es has the least amount of estimated wetland impacts at 29.93 acres
- Alternative G-Cs has an estimated 30.7 acres of wetland impacts
- Alternative Es has an estimated 35.6 acres of wetland impacts
- Alternative Cs has the highest amount at 51.6 acres

Forest (woodland) impacts were based on 2002 aerial photographs:

- Alternative G-Es has the least estimated forest (woodland) impacts with 91 acres
- Alternative G-Cs has an estimated 115 acres of forest (woodland) impacts



- Alternative Es has an estimated 135 acres of forest (woodland) impacts
- Alternative Cs also has the highest estimated forest (woodland) impacts with 196 acres

Based on calculations from digital Federal Emergency Management Agency (FEMA) floodplain data:

- Alternatives Cs and Es have the least amount of potential floodplain impacts at 1,400 and 1,450 feet in length of impacts, respectively, along with 10.3 and 9.9 acres in area
- Alternatives G-Cs and G-Es have similar potential floodplain impacts at 1,995 and 2,045 feet in length of impacts, respectively, along with 11.4 acres in area

Related to the floodplain impacts is the number of water crossings noted for each of the build alternatives:

- Alternative G-Es is estimated to cross 17 streams.
- Alternatives Cs and G-Cs are estimated to cross 18 streams.
- Alternative Es is estimated to cross 19 streams.

Residential/Commercial Relocations - Relocations for each of the four build alternatives vary:

- Alternative Cs has the fewest residential relocations at 50.
- Alternative G-Cs has 59 residential relocations.
- Alternative G-Es has 125 residential relocations.
- Alternative Es has the most residential relocations with 128.

Differences in commercial relocations indicate that Alternatives Es and G-Es are substantially higher than Alternatives Cs and G-Cs.

- Alternative G-Cs has the least impacts to businesses with an estimated five businesses acquired and five businesses damaged.
- Alternative Cs has an estimated seven associated businesses acquired and five businesses damaged.
- Alternatives Es and G-Es impact a commercial corridor as they join existing US 31 from just north of Kern road to US 20. Commercial relocations for Alternative Es are estimated at 40 businesses acquired and 13 businesses damaged. For Alternative G-Es, commercial relocations are estimated at 39 businesses acquired and 13 businesses damaged.

Historic and Archaeological Resources - Section 106 of the National Historic Preservation Act (“Section 106”) requires consultation with the State Historic Preservation Officer (SHPO) and other consulting parties to develop and evaluate alternatives or modifications that could avoid, minimize, or mitigate historic and archaeological effects. Consulting parties have been contacted on an ongoing basis in order to avoid and minimize the impacts of the undertaking on historic and archaeological properties. Mitigation of impacts may mean avoiding the



impact altogether, minimizing the impact, rectifying the impact, reducing or eliminating the impact over time, or compensating for the impact.

- Alternatives Es and Cs have the lowest estimated number of Historic Properties (listed or eligible for the NR) within the Area of Potential Effects (APE) with five and four, respectively. Neither alternative has any associated properties adversely affected.
- Alternatives G-Cs and G-Es have the highest estimated number of Historic Properties (listed or eligible for the NR) within the Area of Potential Effects (APE) with nine and eight, respectively. Both alternatives have one property adversely affected. The FHWA finding of effects for the project is “Historic Properties Affected- Adverse Effect.” There will be adverse effects to the W.O. Bunch Farm.

Thirty-one previously recorded archaeological sites were identified within an area extending one mile on either side of the alignments. These sites include two prehistoric loci of unidentified cultural affiliation and one reported historic farmstead, none of which is considered eligible for listing in the (NR).

- Alternatives Cs and G-Cs would impact two previously recorded sites.
- Alternatives Es and G-Es would impact three previously recorded sites.

Following a Phase 1a archaeological field reconnaissance and analysis of other available information, the proposed project should have no effect on significant archaeological resources meeting the criteria established for inclusion in the Indiana Register of Historic Sites and Structures (IRHSS) or the NR.

Air Quality – The US 31 Improvement Project appears in the MACOG 2025 Transportation Plan Update (March 18, 2002) as New Road Construction from the US 20 Bypass to the St. Joseph County Line. It is further described as a limited access road with interchanges at several locations that would continue to US 30 in Marshall County. As part of the Long Range Plan (LRP) Update, MACOG conducted transportation air quality conformity analyses, and FHWA and Federal Transit Administration (FTA) jointly determined the LRP meet transportation conformity requirements. The US 31 Improvement Project has also been included in the MACOG Transportation Improvement Plan (TIP) for 2003-2005, and the associated transportation conformity analysis has also been approved by FHWA and FTA. As the US 31 Improvement Project is in an adopted LRP and TIP that have met transportation conformity requirements, the project will not jeopardize MPO air quality conformity with the applicable mobile source emission budgets established in the SIP for St. Joseph and Elkhart counties.

On October 26, 2004, MACOG performed an air quality conformity analysis of the adopted LRP with the alignment and proposed interchanges of the preferred final Alternative G-Es, and demonstrated compliance with applicable SIP emission budgets. Because the SIP emission budgets are based on tons of emissions per day, the demonstration of air quality conformity applies to both designation of St. Joseph and Elkhart Counties as a “maintenance” area for the one-hour standard for VOCs and NOX and as a “nonattainment” area for the eight-hour standard for VOCs and NOX.

On March 30, 2005, MACOG performed another Air Quality Transportation Conformity analysis for the new *2030 Long Range Transportation Plan* and the *FY 2005-2007 Transportation Improvement Program* that were adopted by MACOG on April 13, 2005. The 2030 Long Range Transportation Plan continues to include the preferred final Alternative G-Es for US 31 Improvement Project, and the air quality conformity analysis using MOBLE 6.2 resulted in slightly lower emissions (5.52 tons per day of VOC and 5.35 tons per day of NOX) than the analysis of October 26, 2004. On May 24, 2005, the FTA and FHWA concluded that the criteria of the conformity rule have been met by the MACOG conformity analysis.



Hot spot air quality analysis for carbon monoxide (CO) was completed along all of the proposed Freeway Build Alternatives and the No-Build Alternative using the CAL3QHC mobile source air dispersion model for the one-hour standard of 35.0 ppm. Results of the Air Quality Analysis show that no alternative will exceed the 35.0 ppm hour emission standard for the nearest receptor within 15 feet of the edge of pavement. Thus, the less stringent 8-hour emissions standard of 9.0 ppm will not be exceeded either.

Noise – In accordance with INDOT Traffic Noise Policy, a noise impact occurs when one or both of the following criteria are met:

- The predicted design year hourly L_{eq} approaches or exceeds the appropriate noise abatement criteria (NAC). Approach means that the future levels are higher than 1 dBA $L_{eq}(h)$ below the appropriate NAC.
- The predicted design year hourly L_{eq} substantially exceeds existing noise levels. Substantially exceeds means that predicted levels are 15 dBA or more above existing levels.

Noise impacts for each of the four build alternatives indicate no conclusive advantage for any one of the alternatives. Each of the alternatives is close to some suburban neighborhoods in the north end of the project area.

- Alternative Es impacts approximately 51 residences, three businesses and four recreational areas including two baseball and two soccer fields
- Alternative G-Es impacts approximately 53 residents, two businesses and four recreational areas including two baseball fields and two soccer fields
- Alternative G-Cs impacts approximately 64 residents, no business and four recreational areas including two baseball and two soccer fields
- Alternative Cs is higher than the others with approximately 78 residences impacted one business and four recreational areas including two baseball and two soccer fields impacted. It should be noted that approximately 30 of the residences impacted by Alternative Cs are in very close proximity to each other as they are all located within the Sun Communities Mobile Home Park off of Locust Road.

At all sensitive receivers where traffic noise impacts are predicted under the freeway alternatives, 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. Additional noise abatement measures (altering vertical or horizontal alignment, eliminating truck traffic, and reducing vehicle speed limits) were evaluated and found to be either unwarranted or not feasible for any of the freeway alternatives.

Farmland - Impacts to agricultural lands resulting from direct conversion to transportation use were assessed in terms of prime farmland impacts (Farmland Conversion Impact Rating system), total number of existing farmland acres converted, and the potential annual loss in crop cash receipts. Coordination with the USDA-NRCS regarding assessment of farmland conversion impacts in accordance with the Farmland Protection Policy Act was initiated with a request to the USDA-NRCS Indianapolis state headquarters office. The following summarizes the assessment of anticipated impacts to farmland (agricultural, row crops) based on the USDA-NRCS evaluation of the alternatives:

- Alternative Cs would impact an estimated 390 acres of farmland.
- Alternative Es would impact an estimated 395 acres of farmland.



- Alternative G-Es would impact an estimated 503 acres of farmland.
- Alternative G-Cs has the greatest impact farmland acreage with 504 acres

Section 4(f) Resources - This project involves no Section 4(f) use of any Section 4(f) resources.

Compatibility with Local Land Use Plans

- The Plymouth Comprehensive Plan includes the upgrade of US 31
- The Marshall Thoroughfare Plan assumes the upgrade of existing US 31 throughout Marshall County
- The South Bend and St. Joseph County Comprehensive Plan incorporates the land use plan for the local MPO, MACOG. The MPO land use plan identifies that area immediately south of the existing US 31 and

Indirect Impacts

- Alternative G-Es had the lowest amount of indirect land conversion, with 58 acres. Of this, 45 acres are farmland, 10 acres are forest, and 3 acres of wetlands
- Alternative Es is estimated to have 78 acres of land conversion indirect impacts. Of this, 50 acres are farmland, 25 acres are forest, and 3 acres of wetland
- Alternative G-Cs is estimated to have 118 acres of land conversion indirect impacts. Of this, 105 acres are farmland, 10 acres are forest, and 3 acres of wetland
- Alternative Cs is estimated to have the greatest amount of land conversion as indirect impacts, with a total of 148 acres. Of this, 115 acres are farmland, 30 acres are forest, and 3 acres of wetlands

Total Costs - Total costs associated with each of the four build alternatives studied in detail range from \$264.1 to \$343.1 million. These preliminary total costs include construction costs associated with the alternative, required reconstruction of US 20, local road improvement projects, right-of-way costs and preliminary engineering (design) costs. The costs are in year 2005 dollars.

- Alternative Cs has the lowest total cost between \$300.2 and \$303.4 million
- Alternative G-Cs has a total cost between \$309.8 and \$317.3 million
- Alternative Es has a total cost between \$339.6 and \$342.7 million
- Alternative G-Es has the highest total cost between \$345.7 and \$352.7 million.

A comparison of construction costs indicates:

- Alternative Cs has the lowest construction cost between \$208.6 and \$211.8 million
- Alternatives G-Cs and Es have essentially the same construction costs with Alternative G-Cs between \$213.4 and \$220.9 million, and Alternative Es between \$218.2 and \$221.3 million
- Alternative G-Es has the highest construction cost between \$221.7 and \$228.7 million



US 20 interchange as an area expected to see residential growth in the future. It also identifies the portion of US 31 included in the study area as an area that would benefit from further study

Following publication of the DEIS, local officials in Marshall County and Plymouth expressed concerns with the local access plan associated with the preliminary alternatives within the county and met with the Project Management Team on two occasions to discuss these access issues. These issues focused on interchange, overpass/underpass and cul-de-sac locations. Through the course of discussions at these meetings, Marshall County, Plymouth and INDOT officials were able to modify the Marshall County local access plan and produce a plan that was in the best interest of both parties. The most significant change related to the revised Marshall County local access plan involved the elimination of a proposed interchange at West 5A Road and the addition of an interchange at 7th Road. This change in local access is consistent with the Marshall County Comprehensive Plan and the Plymouth Comprehensive Plan. No interchange had been proposed at the 7th Road location initially as no intersecting roadway currently exists at 7th Road and US 31. Due to the lack of a connecting roadway at the 7th Road interchange location, Marshall County officials made a written commitment to complete a 7th Road extension project that would begin at Michigan Road and extend eastward to the western limits of the proposed US 31 interchange at 7th Road. It would then begin on the east side of the proposed 7th Road interchange and continue eastward to 7th Road. This commitment included funding associated with preliminary engineering, environmental studies, right-of-way acquisition and construction costs.

The difference in construction costs associated with the alternatives is largely due to the differences in length of the alternatives as the longest alternative, Alternative G-Es, is one mile longer than the shortest alternative, Alternative Cs.

A comparison of right-of-way cost indicates:

- Alternative Cs also has the lowest right-of way costs at approximately \$44.7 million.
- Alternative G-Cs has a right-of-way cost of approximately \$47.1 million, only slightly higher than Cs despite its longer length.
- Alternatives Es and G-Es have the highest right-of-way costs with Alternative Es at approximately \$70.7 and Alternative G-Es at approximately \$70.9 million.

Differences in the right-of way costs are largely due to the number and type of relocations associated with each alternative.

Utility relocation costs associated with Alternatives Cs, Es, G-Cs and G-Es are estimated at \$17.2 million. An estimate of wetland, noise and stream mitigation costs associated with Alternative G-Es ranges from \$4.0 to \$4.5 million. Mitigation costs associated with Alternatives G-Cs and Es are similar and estimated at \$5.2 million and ranging from \$5.5 and \$6.0 million, respectively. Alternative Cs has the highest estimated mitigation costs at \$7.3 million.

Selection of the Preferred Alternative

The Preferred Alternative was selected through a multi-stage process that involved extensive analysis of traffic performance, environmental impacts and costs, as well as consideration of input from resource agencies, local elected and appointed officials and the public. Following the evaluation of alternatives, five alternatives remained for further review (See Figure ES.4.3):

- No-Build Alternative



- Alternative Cs (Freeway Alternative)
- Alternative Es (Freeway Alternative)
- Alternative G-Cs (Freeway Alternative)
- Alternative G-Es (Freeway “Hybrid” Alternative)

The No-Build Alternative did not address the purpose and need for this project; however, it was carried forward for evaluation throughout the development of the Environmental Impact Statement and served as a baseline when comparing the effectiveness and potential impacts of other alternatives. A comparative evaluation of the data contained in Table ES.5.3 above resulted in the identification of Alternative Cs as a Non-Preferred Alternative. The impacts associated with Alternatives Cs and G-Cs were very similar with respect to both social and environmental impacts, particularly costs, relocations and land use. A comparison of Alternatives Cs and G-Cs revealed that Alternative Cs had a slightly lower associated engineering (total) cost, slightly lower residential impacts and significantly lower agricultural (row crops) impacts. However, its associated business impacts were slightly higher and environmental impacts to wetlands and forests (woodland) were significantly higher than those associated with Alternative G-Cs. In fact, the impacts to wetlands and forests associated with Alternative Cs were the highest among the remaining freeway alternatives. Alternative Cs was considered a Non-Preferred Alternative due to its higher relative environmental impacts to wetlands and forests while exhibiting similar impacts to residences and businesses.

A comparative evaluation of the data contained in Table ES.5.3 above also resulted in the identification of Alternative Es as a Non-Preferred Alternative. The impacts associated with Alternatives Es and G-Es were very similar with respect to both social and environmental impacts, particularly costs, relocations and land use. A comparison of Alternatives Es and G-Es revealed that Alternative Es had slightly lower engineering (total) cost and significantly lower agricultural (row crops) impacts; however, its residential and business impacts were slightly higher and environmental impacts to wetlands and forests were significantly higher than those associated with Alternative G-Es. Alternative Es was considered a Non-Preferred Alternative due to its higher relative environmental impacts to wetlands and forests while exhibiting similar impacts to residences and businesses.

Following the initial comparative evaluation of the data contained in ES.5.3, Alternatives Cs and Es were identified as Non-Preferred Alternatives. Alternatives G-Cs and G-Es remained as alternatives to be further evaluated. Since these alternatives follow the same alignment from US 30 northward to near Roosevelt Road, the FHWA and the INDOT agreed that additional field data should be collected and analyzed, roadway engineering and associated costs should be refined and further developed and the human and natural environmental impacts should be re-assessed. The additional analysis focused on the area in which Alternatives G-Cs and G-Es did not follow a common alignment, essentially from Roosevelt Road northward to US 20. Some of the additional items included in the additional analysis of Alternatives G-Cs and G-Es from Roosevelt Road to US 20:

- Delineation and quality evaluation of wetland complexes and refinement of wetland impacts;
- Refinement of forest and farmland impacts;
- Further conceptual design and cost update for the US 31 and US 20 interchange associated with each of the alternatives including reconstruction of US 20 within the interchange limits;
- Further conceptual design and cost update of local access issues, particularly related to Alternative G-Es from Kern Road to US 20 and northward to Ireland Road;
- Refinement of residential and business relocations and the associated costs; and
- Determination of potential mitigation measures and estimation of associated mitigation costs – wetland mitigation and bridging of wetlands, context sensitive solutions and noise mitigation.



Table ES.5.4 contains the results of the additional analysis that focused on the area in which Alternatives G-Cs and G-Es did not follow a common alignment, essentially from Roosevelt Road northward to US 20.

Table ES.5.4: Comparison of Preliminary Alternatives G-Cs and G-Es		
SOCIO-ECONOMIC/ENVIRONMENTAL MEASURE	ALTERNATIVE	
	G-Cs	G-Es
COST (Without Mitigation) (Mil. Of \$) (Year 2005 Dollars)	309.8 to 317.3	345.7 to 352.7
CONSTRUCTION COSTS (Mil. Of \$)	213.4 to 220.9	221.7 to 228.7
RECONSTRUCTION OF US 20 Right-of-Way & Construction (Mil. Of \$)	29.6	21.1
LOCAL AND STATE ROAD IMPROVEMENT PROJECTS Right-of-Way & Construction (Mil. Of \$)	5.8	13.7
US 31 MAINLINE RIGHT-OF-WAY COSTS (Mil. Of \$)	47.1	70.9
ENGINEERING (DESIGN) FEES (Mil. Of \$)	13.9	18.3
* MITIGATION COST (Mil. Of \$)	32.8 to 36.2	21.0 to 24.0
WETLAND MITIGATION (Mil. Of \$)	3.6 to 4.1	2.0 to 2.5
BRIDGING OF WETLANDS (Mil. Of \$)	10.7	0.0
CONTEXT SENSITIVE SOLUTIONS (Mil. Of \$)	16.8 to 19.7	17.5 to 20.0
NOISE MITIGATION (Mil. Of \$)	1.7	1.5
TOTAL PROJECT COSTS (Mil. Of \$)	342.6 to 353.5	366.7 to 376.7
TRAFFIC PERFORMANCE		
Meet Purpose and Need	Yes	Yes
Traffic Operational Problems with US 31 and US 20 Interchange	Yes	No
RELOCATIONS		
Residences Acquired	58	124
** Businesses Acquired	5	39
Businesses Damaged	5	13
Churches Acquired	1	1
*** WETLANDS (NWI + FARMED)	30.7 Ac.	23.9 Ac.
FORESTS	115 Ac.	91 Ac.
FARMLAND (ROW CROPS)	504 Ac.	503 Ac.

NOTES: * Wetland Mitigation Ratios are based off of the INDOT MOU signed January 28, 1991, and investigators professional judgment on quality. Costs estimates associated with Mitigation for Bridging Wetlands only include those areas north of Roosevelt Road.

** Businesses Acquired Includes Large Farming Operations.

*** Wetland Impacts are from NWI Maps and estimated Farmed Wetlands are calculated as 2% of all Hydric Soils on agricultural land. The percentage is an estimate based on coordination with the Natural Resources Conservation Service (NRCS).



A comparative evaluation of the data contained in Table ES.5.4 resulted in the identification of Alternatives G-Cs as a Non-Preferred Alternative and Alternative G-Es as the Preferred Alternative. Alternative G-Cs had lower associated total project cost and lower residential and business impacts than those associated with Preferred Alternative G-Es. While residential and business impacts associated with Preferred Alternative G-Es are higher than those for Alternative G-Cs, this FEIS found that it appears that there is sufficient availability of comparable housing to accommodate the expected number of residential relocations. This FEIS also found that the availability of commercial real estate is most prevalent in the South Bend area at the north end of the corridor (near the US 20 Bypass) and that there appears to be adequate availability of commercial property. It is anticipated that there will be opportunities for many of the relocated businesses to rebuild in the same general vicinity with little or no loss in business in the long-term.

The traffic performance of Alternative G-Cs was not as good as Preferred Alternative G-Es. Alternative G-Cs utilized very little of existing US 31, although it did meet the purpose and need of the project and the associated performance measures. As a more detailed conceptual design of the interchange of Alternative G-Cs with US 20 developed, engineers expressed concerns with operational problems associated with the interchanges proximity to the existing US 31 and US 20 interchange. The operation problems associated with the interchange configuration focused on insufficient traffic weaving lengths for several traffic movements. Traffic weaving lengths are essentially a distance that a driver has to weave through other lanes of traffic in order to get to an appropriate lane that allows the traffic movement that a driver desires. Inadequate weaving lengths or lengths near minimum allowable values tend to lead to traffic congestion and generally less safe driving conditions as driver actions become less predictable. The proposed interchange at US 20 for Preferred Alternative G-Es consists of the reconstruction of the existing interchange and did not exhibit operational problems.

The associated environmental impacts to wetlands and forests for Alternative G-Cs were higher than those for Preferred Alternative G-Es. Alternative G-Cs had severe impacts on several high quality wetland complexes located north of Roosevelt Road, south of US 20 and west of existing US 31. Wetlands in this portion of the study area are among the highest quality wetland complexes within the entire study area. Impacts to these wetland complexes would be very difficult to mitigate as they are in many cases forested wetlands that cannot be reconstructed and take many years to develop. Bridging of these wetlands as a mitigation measure was evaluated but this method of mitigation is relatively expensive and often still results in the destruction of considerable amounts of forested wetlands. By utilizing the existing US 31 alignment north of Kern Road, Preferred Alternative G-Es does not impact these high quality wetland complexes. In comments received during the DEIS Public Comment Period, the U.S. Environmental Protection Agency (USEPA) emphasized the importance of selecting a preferred alternative in accordance with the wetlands permitting requirements under Section 404 of the Clean Water Act. In particular, the USEPA mentioned the need to ensure consistency with the Section 404(b)(1) Guidelines, which require (in the context of Section 404 permit decisions) selection of the “least environmentally damaging practicable alternative” or “LEDPA”. A LEDPA consistency analysis was completed as part of the FEIS. This alternative would also have resulted in a higher loss of forestland and the fragmentation of forest habitat.

Description of the Preferred Alternative

Preferred Alternative G-Es (see maps contained in Appendix A) begins at the existing US 31 and US 30 interchange, utilizing the existing cloverleaf configuration, and proceeds northward along the existing US 31 alignment to just south of West 4A Road in Marshall County, just south of LaPaz. It then departs the existing US 31 alignment and continues northward on new alignment east of LaPaz, paralleling existing US 31. Just south of the Marshall-St. Joseph County line, the alternative assumes a northeasterly direction east of Riddles Lake, and then continues north, east of Lakeville, paralleling existing US 31. Near Miller Road, Preferred Alternative G-Es turns in a northwesterly direction and crosses existing US 31 just south of Roosevelt Road. As the Preferred Alternative G-Es approaches Kern Road, it assumes a northeasterly direction and ties into existing US 31. It then uses the existing US 31 alignment northward and terminates at the existing US 31 and US 20 interchange location. Proposed interchange locations include the use of the existing interchange at US 30, new interchanges at the proposed extension of 7th Road,



and at US 6 in Marshall County; as well as at Pierce Road (extension of SR 4), at Kern Road and a reconfiguration of the existing US 31 and US 20 interchange (see Appendix S) in St. Joseph County. The alternative is approximately 20.5 miles in length.

Following the identification of Alternative G-Es as the Preferred Alternative, additional, in-depth studies were performed on the alternative. These studies included, but were not limited to, refinement the of local access plan and proposed right-of-way requirements, wetland delineations, wetland quality evaluations, Phase 1a Archaeological Review, etc. Table ES.5.5 summarizes some of the impacts associated with the Preferred Alternative G-Es.

Table ES.5.5: Impacts Associated with Preferred Alternative G-Es	
Socio-Economic/Environmental Measure	ALTERNATIVE G-Es
COSTS (Total) (Mil. Of \$) (year 2005 dollars)	371.0 to 378.3
Length (Miles)	20.5
No. of New Interchanges (Total Interchanges)	5 (6)
No. of Grade Separations (Overpass/Underpass)	16
No. of Grade Separations (Railroad Crossings)	1
CONSTRUCTION COSTS (Mil. of \$)	223.2 to 230.2
RECONSTRUCTION of US 20 Right-of-Way & Construction (Mil. of \$)	21.1
LOCAL & STATE ROAD IMPROVEMENT PROJECTS Right-of-Way & Construction (Mil. Of \$)	13.6
US 31 MAINLINE RIGHT-OF-WAY COSTS (Mil. of \$)	72.5
ENGINEERING COSTS (Mil. of \$)	18.3
UTILITY RELOCATION COSTS (Mil of \$)	17.2
MITIGATION COSTS (Mil of \$)	5.1 to 5.4
TRAFFIC PERFORMANCE	
Meet Purpose and Need	Yes
Performance (Compared to Other Alternatives (Cs, Es and G-Cs), 1 is Best Performer)	2
LAND USE	1,061 Ac.
Agricultural (row crop)	537 Ac.
Commercial	23 Ac.
Church/Religious	2 Ac.
Herbaceous Cover	53 Ac.
Open Water	<1 Ac.
Pasture	4 Ac.
Transportation	226 Ac.
Residential	82 Ac.
Scrub/Shrub	37 Ac.
Woodland (Wetland & Non-Wetland) (Forests)	96 Ac.
RELOCATIONS	



Table ES.5.5: Impacts Associated with Preferred Alternative G-Es (Continued)	
Socio-Economic/Environmental Measure	ALTERNATIVE G-Es
Residences Acquired	131
Businesses Acquired ¹	39
Businesses Damaged	13
Churches Acquired	1
HISTORIC PROPERTIES (Listed or Eligible)	
SECTION 4(f) PROPERTIES	0
PROPERTIES WITHIN A.P.E.	8
PROPERTIES ADVERSELY AFFECTED BUT NO SUBSTANTIAL LOSS OF INTEGRITY	1
ARCHAEOLOGICAL SITES	
Within Alignment	3
TOTAL WETLANDS (DELINEATED)²	29.93 Ac.
Forested	13.21 Ac.
Scrub/Shrub	1.45 Ac.
Emergent	15.27 Ac.
Aquatic Bed	0.0 Ac.
ESTIMATED FARMED WETLANDS³	0.44 Ac.
STREAM IMPACTS (No. of Impact Locations) (USGS)	17
WILDLIFE HABITAT AREAS	
Potato Creek State Park & Swamp Rose Nature Preserve	0
Notable Wildlife Habitat (IDNR)	0
Classified Wildlife Habitat (IDNR)	0
Classified Forest (IDNR)	1-2
Conservation Reserve Program (CRP) (NRCS)	1
Wetland Reserve Program (WRP) (NRCS)	0
Partners for Fish and Wildlife Program (USFWS)	0
INDIRECT IMPACTS	
Farmland	45 Ac.
Wetland	3 Ac.
Forests	10 Ac.

NOTES:

1. Businesses acquired include large farming operations
2. Delineations of wetlands resulted in 29.93 acres of wetlands impacted, of which, 25.51 acres were jurisdictional and 4.42 acres were isolated wetlands.
3. One farmed wetland area was identified. This area met the three U.S. Army Corps of Engineers wetland criteria and was considered an emergent wetland. This farmed wetland was included in the emergent wetland total.



The Preferred Alternative G-Es is a freeway alternative that will have full access control. Control of access refers to the regulation of public access rights to and from properties abutting the highway. With full control of access, preference is given to through traffic on US 31 by providing access connections with selected public roads only at interchanges, by prohibiting crossings at grade utilizing stop controlled or traffic signalized intersections, and by prohibiting direct private and commercial driveway connections.

Refined roadway typical cross sections, as approved by INDOT, will be determined during subsequent project design phases. For use in this study, the rural section of the Preferred Alternative G-Es from US 30 to just south of West 4A Road in Marshall County is shown in Figure ES.5.4. This segment consists of an upgrade of existing US 31 and the rural typical section will consist of a four-lane freeway with two lanes in each direction. It will have a depressed grass median that will vary in width from 50 to 76 feet from north of the US 30 interchange to the bridge over the Yellow River. The grass median will be 76 feet north of the Yellow River Bridge. It will have 4-foot paved inside shoulders, 12-foot paved outside shoulders, on a total of approximately 300 feet of right-of-way, with a design speed of 70 mph. The existing median in this segment was widened to a total of 84 feet in order to provide adequate room for the potential expansion of the facility to a six-lane freeway, with three lanes in each direction. This would be accomplished, if warranted by future traffic volumes, with the addition of the third lane in the median of both the northbound and southbound sides and would result in a 60-foot (required minimum median width) median following the expansion.

The rural section of the Preferred Alternative G-Es from just south of West 4A Road in Marshall County to the proposed interchange at Kern Road in St. Joseph County is shown in Figure ES.5.5. In this segment, the rural typical section will consist of a four-lane freeway with two-lanes in each direction. It will have an 76-foot depressed grass median width, 4-foot paved inside shoulders, 12-foot paved outside shoulders, on a total of approximately 300 feet of right-of-way, with a design speed of 70 mph. The median in this segment was widened to a total of 84 feet in order to provide adequate room for the potential expansion of the facility to a six-lane freeway, with three lanes in each direction. This would be accomplished, if warranted by future traffic volumes, with the addition of the third lane in the median of both the northbound and southbound sides and would result in a 60-foot (required minimum median width) median following the expansion.

The section of the Preferred Alternative G-Es between Kern Road and US 20 is considered an urban section as shown in Figures ES.5.6 and ES.5.7. The urban section of the Preferred Alternative G-Es between the Kern Road interchange and the Johnson Road overpass is shown in Figure ES.5.6. In this segment, the urban typical section will consist of an eight-lane freeway with four lanes in each direction. This section will have a 30.5-foot depressed grass median, 12-foot paved inside shoulders, 14-foot paved outside shoulders with concrete median barrier, on a total of approximately 300 feet of right-of-way, with a design speed of 55 mph. The median width in this section is sufficient for an additional future travel lane.

The urban section of Preferred Alternative G-Es between Johnson Road and the US 20 interchange is shown in Figure ES.5.7. In this segment, the urban typical section will have five through lanes (three northbound through lanes and two southbound through lanes). In addition to these through lanes, five auxiliary lanes will also be provided, (two northbound and three southbound auxiliary lanes). This section will have a 30.5-foot depressed grass median, 12-foot paved inside shoulders, 14-foot paved outside shoulders with concrete median barrier, on a total of approximately 300 feet of right-of-way, with a design speed of 55 mph. The median width in this section is sufficient for an additional future travel lane.

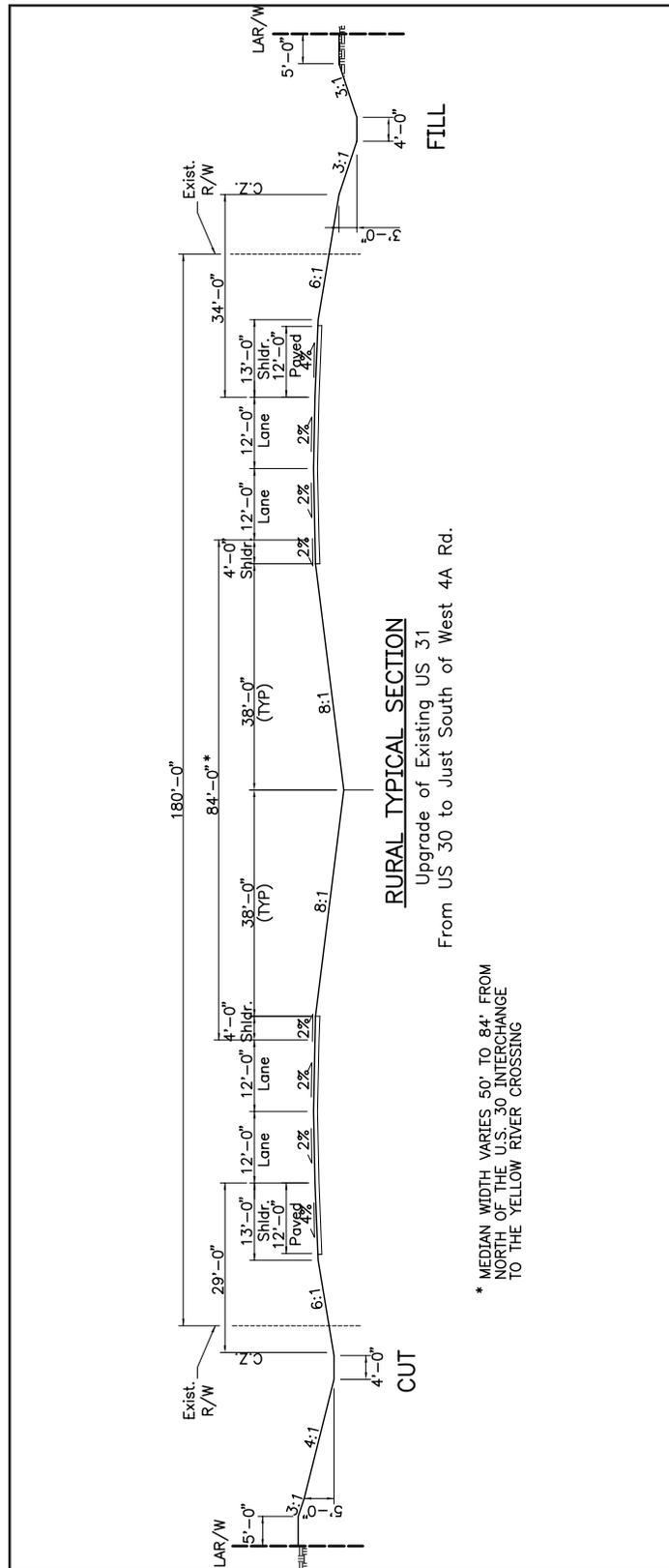


Figure ES 5.4: Rural Typical Section (From US 30 to Just South of West 4A Road)

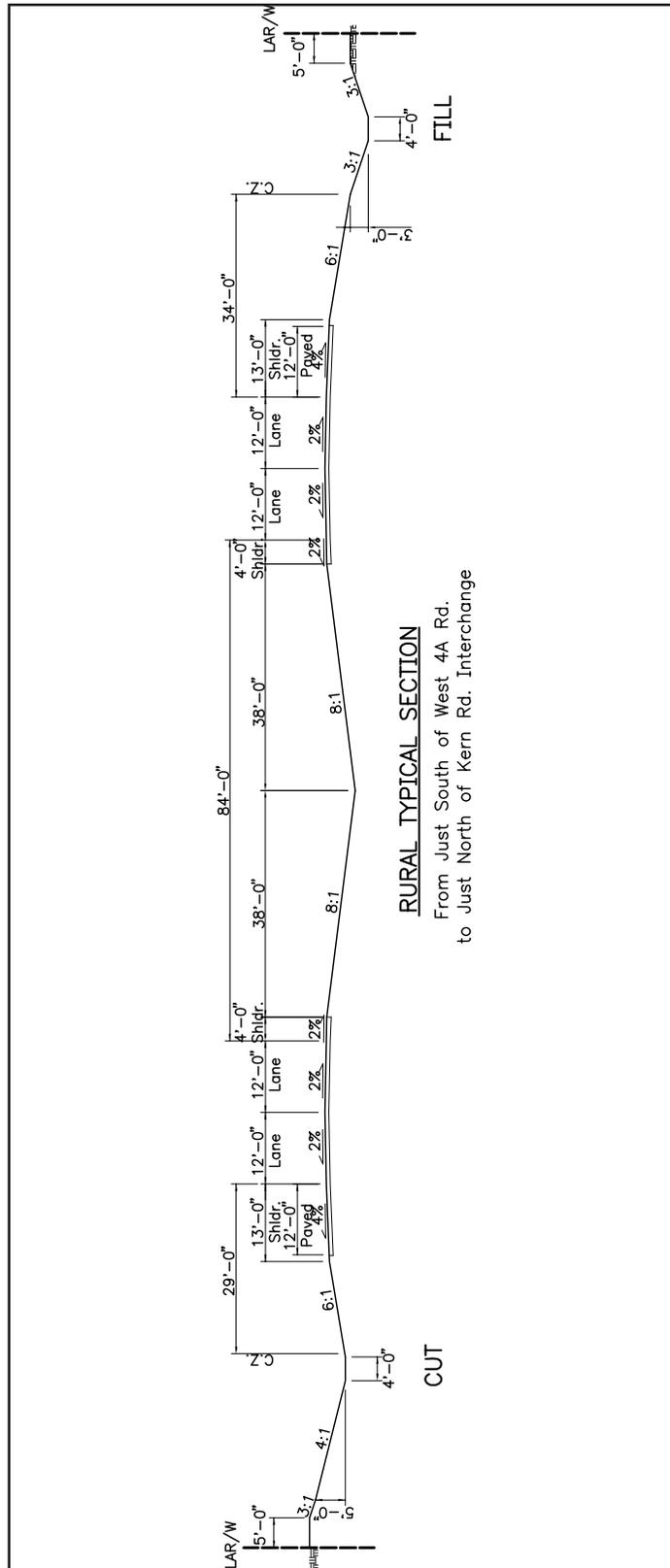


Figure ES 5.5: Rural Typical Section (From Just South of West 4A Road to Just North of the Kern Road Interchange)

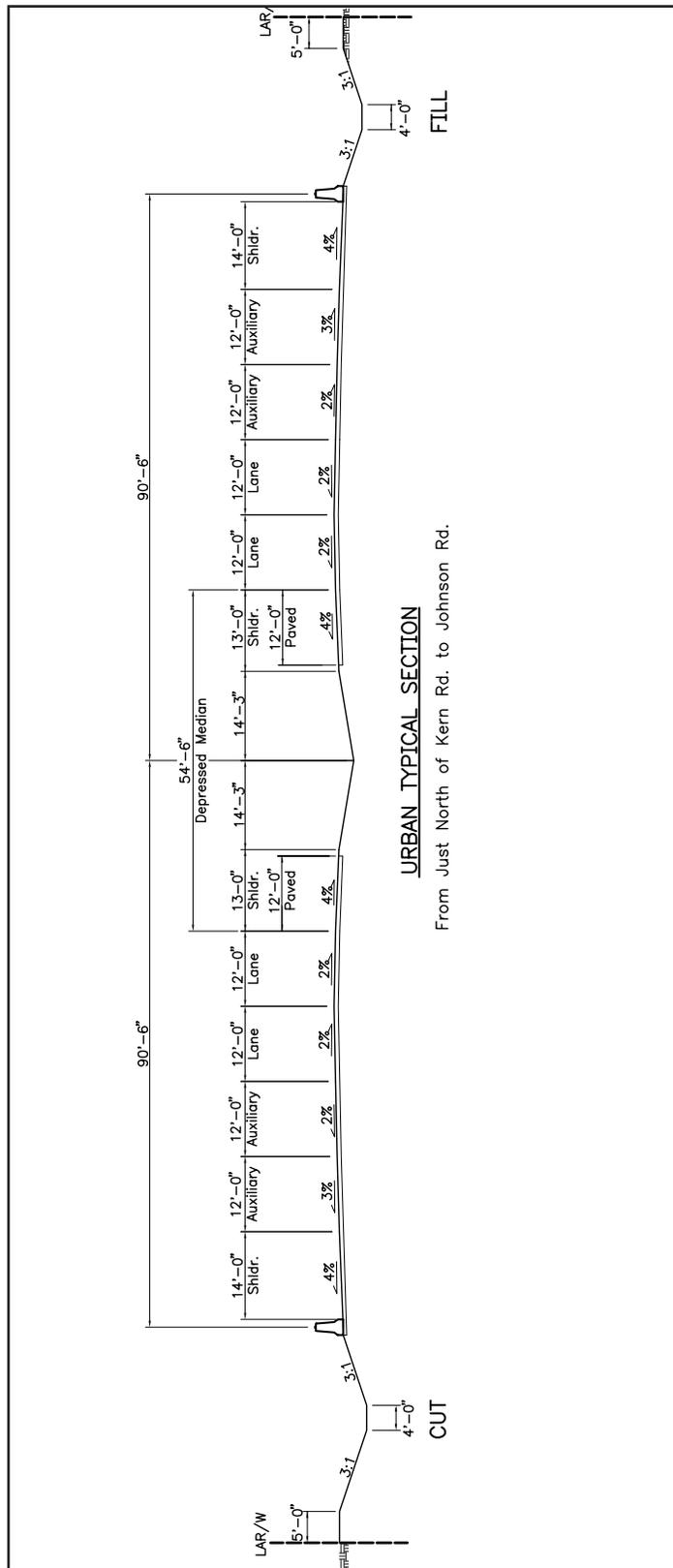


Figure ES 5.6: Urban Typical Section (From Just North of the Kern Road Interchange to Johnson Road)



ES.6 Local Road Improvement Projects

The conversion and/or replacement of a partial or no access control non-freeway facility, such as existing US 31, to a freeway facility with full access control, as is the case with each of the four build alternatives studied in detail (Alternatives Cs, Es, G-Cs and G-Es) will often have dramatic effects on the local traffic patterns. These types of projects will often concentrate the flow of local traffic to the lower-level local roadways that feed upper-level local and state roadways that provide access to the freeway. There is often a substantial increase in traffic volumes associated with the traffic migration to the local or state roadways that have access to the new freeway facility. This increase in traffic volumes can often change the facility type and functional classification of the local or state roadway and accelerate the need to improve the local or state roadway.

The upgrade of US 31 to a freeway facility with full access control will affect the flow of local traffic, as local commuters will redirect their routes to roadways with access to the freeway. These changes in traffic patterns will affect the traffic volume and change the type of facility or some of the local or state roadways that will access the new freeway. This will drive the need for expansion of the local or state roadways, the need for which is accelerated by the improvements to US 31. Local roadway improvements identified for the US 31 Improvement Project include:

- US 6 Upgrade to four-lanes from just east of the existing US 31 and US 6 intersection, eastward to the proposed interchange – Alternatives Cs, Es, G-Cs and G-Es;
- SR 4 (Pierce Road) Extension from existing US 31 to new US 31 – Alternatives G-Cs and G-Es;
- Fellows Street Extension southward over existing US 20 from Ireland Road to Jackson Road – Alternative G-Es;
- Scott Street Extension northward over existing US 20 from Jackson Road to Ireland Road – Alternative G-Es; and
- 7th Road Extension in Marshall County from Michigan Road eastward to the new US 31 and 7th Road interchange and further eastward to existing 7th Road – Alternatives Cs, Es, G-Cs and G-Es.
 - Following publication of the DEIS, local officials in Marshall County and Plymouth expressed concerns with the local access plan associated with the preliminary alternatives within the county and met with the Project Management Team on two occasions to discuss these access issues. These issues focused on interchange, overpass/underpass and cul-de-sac locations. Through the course of discussions at these meetings, Marshall County and INDOT officials were able to modify the Marshall County local access plan and produce a plan that was in the best interest of both parties. The most significant change related to the revised Marshall County local access plan and the resulting local roadway improvement project, involved the elimination of a proposed interchange at West 5A Road and the addition of an interchange at 7th Road for Alternatives Cs, Es, G-Cs and G-Es. This change in local access is consistent with the Marshall County Comprehensive Plan and Plymouth Comprehensive Plan. No interchange had been proposed at the 7th Road location initially as no intersecting roadway currently exists at 7th Road and US 31.

Due to no existing connecting roadway at the 7th Road interchange location, Marshall County officials made a written commitment to complete a 7th Road extension project that would begin at Michigan Road (Old US 31) and extend eastward to the western limits of the proposed US 31 interchange at 7th Road. It would then begin on the east side of the proposed 7th Road interchange and continue eastward to 7th Road. This commitment included funding associated with preliminary engineering, environmental studies, right-of-way acquisition and construction costs. Preliminary Alternatives Cs, Es, G-Cs and G-Es may need this local road improvement project. For the 7th Road extension, no socio-economic and environmental impacts were determined. It should be noted that



the graphical representation of the 7th Road extension is a conceptual representation developed for this EIS only. The final alignment of the 7th Road extension is to be determined by Marshall County officials during the design of the local roadway project

It is anticipated that Marshall County will utilize Federal funding for the construction of the 7th Road Extension Project, which will require the associated environmental evaluation to follow the NEPA process. It should be noted that while the US 31 and 7th Road interchange, including the US 31 Bridge over 7th Road and the associated interchange ramps, is identified as a part of this EIS, the timing of the construction of the interchange is directly related to the timing of the construction of the 7th Road Extension Project. Construction of the interchange ramps that will provide access to and from US 31 at 7th Road will not be completed by INDOT prior to the completion of the 7th Road Extension NEPA process and the construction of the 7th Road Extension Project by the county.

The upgrade of US 31 to a freeway facility with full access control will affect the flow of local traffic, as local commuters will redirect their routes to roadways with access to the freeway. These changes in traffic patterns will affect the traffic volume and change the type of facility or some of the local or state roadways that will access the new freeway. This will drive the need for expansion of the local or state roadways, the need for which is accelerated by the improvements to US 31. Table ES.6.6 summarizes the local roadway improvements identified for the US 31 Improvement Project for Alternatives Cs, Es, G-Cs and G-Es.

Table ES.6.6: Summary of Local Roadway Improvement Projects for Alternatives Cs, Es, G-Cs & G-Es (Costs include Preliminary Engineering (Design), Right-of-Way and Construction) (Preferred Alternative G-Es shaded)				
Local Roadway Improvement Project	ALTERNATIVE			
	Cs	Es	G-Cs	G-Es
US 6 Extension (Mil. of \$) (Year 2005 Dollars)	4.2	4.2	4.2	4.2
Construction Costs and Preliminary Engineering Fees (Mil. of \$)	2.6	2.6	2.6	2.6
Right-of-Way Costs and Right-of-Way Engineering Fees (Mil. of \$)	1.6	1.6	1.6	1.6
SR 4 (Pierce Road) Upgrade (Mil. of \$) (Year 2005 Dollars)	N/A	N/A	2.2	2.2
Construction Costs and Preliminary Engineering Fees (Mil. of \$)	N/A	N/A	1.4	1.4
Right-of-Way Costs and Right-of-Way Engineering Fees (Mil. of \$)	N/A	N/A	0.8	0.8
Fellows Street Extension (Mil. of \$) (Year 2005 Dollars)	N/A	4.6	N/A	4.6
Construction Costs and Preliminary Engineering Fees (Mil. of \$)	N/A	2.8	N/A	2.8
Right-of-Way Costs and Right-of-Way Engineering Fees (Mil. of \$)	N/A	1.8	N/A	1.8
Scott Street Extension (Mil. of \$) (Year 2005 Dollars)	N/A	2.6	N/A	2.6
Construction Costs and Preliminary Engineering Fees (Mil. of \$)	N/A	2.2	N/A	2.2
Right-of-Way Costs and Right-of-Way Engineering Fees (Mil. of \$)	N/A	0.4	N/A	0.4
* 7th Road Extension (Mil. of \$) (Year 2005 Dollars)	* N/A	* N/A	* N/A	* N/A
ALTERNATIVE TOTAL (Mil. of \$) (Year 2005 Dollars)	4.2	11.4	6.4	13.6

NOTE: * Marshall County officials have made a written commitment to complete a 7th Road extension project.



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 4th 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.



ES.8 Major Issues Raised in Agency and Public Comments

The FHWA and the INDOT recognize that a key component in the success of any transportation project depends on many factors, none of which are more essential than the involvement of the local elected and appointed officials, community members and resource agencies. An open line of communication between local officials, the public, resource agencies, and the Project Management Team was a key component in developing a transportation plan that will best address the concerns of the community. The public involvement process begins with the gathering of information from the local officials and community members that will live with the project upon its completion. The process continues by providing information to these same stakeholders and keeping them informed of the project's progress and direction. This exchange of information is a dynamic process that continues throughout the life of the project.

The US 31 Plymouth to South Bend Project includes an extensive Public Involvement Program. Elements of this program consist of a project web site (www.us31study.org), a project toll-free hotline (800.731.8731), a series of public meetings, a Public Hearing, Community Advisory Committee (CAC) meetings, stakeholder meetings, news releases, elected officials briefings, and resource agency coordination.

A Public Hearing to discuss the findings of the DEIS for the US 31 – Plymouth to South Bend Study was held on Thursday, March 18, 2004. INDOT published an official public notice of the public hearing that identified the date, time, location and format of the hearing, as well as the methods and deadline for making a comment. The public hearing was held in order to provide citizens an opportunity to learn about the project and also to offer all interested persons an opportunity to comment on the project. INDOT held two separate sessions as a part of this Public Hearing. Session One of the March 18th Public Hearing was held at the Old Lakeville School Project – Newton Center, located at 601 N. Michigan Street in Lakeville. Doors opened to the public at 1:00pm with the formal presentation beginning at 2:00pm and a public comment session, which extended to 4:30pm. Approximately 450 people were in attendance at Session One. Session Two of the March 18th Public Hearing was held at the LaVille Jr.-Sr. High School, located at 69969 US 31 South, in Lakeville. Doors opened to the public at 6:00pm with the formal presentation beginning at 7:00pm and a public comment session, which extended to 9:30pm. Approximately 550 people were in attendance at Session Two.

Each session of the public hearing featured an “Open House” area, a formal presentation, and a public comment session. The format, information presented, and display materials were identical at each session. Project officials from INDOT and FHWA were on hand to accept comments and discuss concerns. Project area maps, displays, and handouts were available for public inspection during both sessions. Upon arrival, attendees were asked to sign in and were briefed on the meeting format. Attendees were then free to view the exhibits at their own pace and ask questions of study team representatives (including FHWA and INDOT personnel) on a one-on-one basis. Additional information available at the hearing included copies of the DEIS Executive Summary and relocation assistance information. In the presentations, study team members explained the significance of the hearing, reviewed the information presented in the DEIS, and explained how to make an official comment. Meeting participants could comment for the official hearing record either in writing or by participating in a public statement session. Comment forms were available at both hearings. An audio recorder was available to take comments for the official record. In addition to submitting written comments at the hearing, attendees were informed that they could mail written comments, and that the deadline for making a comment was Monday, April 26, 2004. All comments submitted during this comment period were reviewed, evaluated, and substantive comments are addressed in the FEIS. Copies of the sign-in sheets and comments are included in the official transcript to the public hearing.

The public hearing received extensive coverage in the local newspapers and television stations and attendance at the two sessions totaled approximately 1000 people. The US 31 – Plymouth to South Bend DEIS Public Comment Period ended on Monday, April 26, 2004. INDOT received over 2,300 comment letters during the DEIS Public



Comment Period. All comments submitted during this comment period have been reviewed, evaluated, and substantive comments are addressed in the FEIS. From the DEIS comments and many additional comments received during public meetings and resource agency reviews, a wide range of issues emerged. Many of the comments focused on several common issues that are addressed in this document. These issues are grouped and addressed under the following broad categories:

- Safety and local access to neighborhoods and businesses,
- Modify alternatives to reduce environmental impacts (wetlands, forests and forest fragmentation, threatened and endangered species, etc.),
- Impacts to the natural environment, particularly wetland and forest impacts,
- Visual, noise and aesthetics impacts associated with the proposed elevated roadway between Kern Road and US 20,
- Maximize use of existing US 31 corridor.

The comments contained in the following sections are examples of some of the recurring comments received during the DEIS Public Comment Period. There were many comments from different individuals that were very similar in their content. A representative comment has been selected and utilized in this summary to provide an example of some of the common issues that emerged during the comment period.

Safety and Local Access to Neighborhoods and Businesses

Public Comments:

Comment 1A: Comment from Mr. Carl Littrell, City of South Bend Engineer, at the March 18, 2004, Public Hearing:

“We’re very concerned on E shifted that there’s no connectivity between the Gilmer Park neighborhood and Jewel Wood neighborhood to reestablish the connection northward into Ireland Road. As I understand the interchange being considered from the shifted alignment, the frontage road would not connect to Ireland so people in Gilmer Park or Jewel Wood would have to go to either Miami, Linden or Locust to intersect then with Ireland Road and north into the City of South Bend.”

Comment 1B: Comment from Mayor Steve Luecke, City of South Bend, in April 6, 2004 comment:

“We also have concerns about the frontage roads for Es. We believe that a twenty-one foot width is too narrow for the traffic they should handle. Furthermore, they do not appear to provide access from either Ireland Road or Michigan Street. Therefore, the elevated road effectively isolates commercial and residential areas on both sides of its alignment. Our public safety response would be hindered. Other city services and day-to-day commuting would also become a significant challenge. How would an ambulance quickly get from our station on Ireland to a traffic accident on Main Street, south of US 20? How would a resident of Gilmer Park get to the movies on Chippewa? The circuitous routes that would be required would not only inconvenience residents, they could also be life threatening because of delayed emergency response time.”



- Response 1: There were several meetings, continued coordination between INDOT and local agencies, including emergency service personnel, as well as a substantial amount of engineering and traffic analysis involved in addressing local access issues from Kern Road to US 20. 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 (east of US 31) southward over existing US 20 to Jackson Road and the extension of Scott Street (west of US 20) 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.
- Comment 2: In a comment dated April 15, 2004, from the Marshall County Commissioners, an alternative proposal for access in Marshall County was presented that identified interchanges at US 6 and at 7A Road, as well as overpasses at several locations.
- Response 2: A meeting was held on Thursday, July 1, 2004, with officials representing INDOT, FHWA, Marshall County and the City of Plymouth present. Discussions focused on alternative access locations (overpass/underpass locations, interchange locations, etc.) as proposed in their comment letter on the DEIS. The meeting ended with a revised access plan for Marshall County as shown in Appendix A. Of particular interest is the relocation of the DEIS proposed interchange location at West 5A Road to 7th Road. There currently is no intersection at 7th Road and US 31; however, the Marshall County Comprehensive Plan identifies a future roadway at this location. INDOT agreed to identify the 7th Road location as an interchange in this study with Marshall County committing in writing that they will construct 7th Road prior to or in conjunction with the US 31 construction project. This commitment would include the new 7th Road alignment from Michigan Road, approximately 1.5 miles to the east to the western limits of the new interchange location and from the eastern limits of the new interchange location approximately 0.25 miles to the east to Linden Road. In making this commitment to construct the new portion of 7th Road, Marshall County must also agree to complete all preliminary engineering, required environmental studies, all land acquisition activities and any other items that are required as related to this new roadway.
- Comment 3: Approximately 1,550 form letters were received from Marshall County residents that endorsed a local access plan that had been proposed during the DEIS Public Comment Period by the Marshall County Commissioners. This form letter stated the following:
- “.....several accommodations/changes should be incorporated into the current plan (DEIS access). If left unchanged, the current proposal would do irreparable economic damage to Marshall County and adversely affect the emergency services ability to appropriately and timely respond to sections of our county.”
- “Please consider accepting the changes proposed by the Marshall County Commissioners and endorsed by each community and many emergency service organizations in Marshall County.”
- Response 3: See Response 2 above under Public Comments.
- Comment 4: There were several comments related to local access in both Marshall and St. Joseph Counties. These comments focused on interchange types and locations; grade separation (overpass/underpass) locations; emergency services access; access for school busses; access to properties split by the new



freeway, particularly farms; and changes in the traffic flow patterns associated with local roadways and access to the new US 31.

Response 4: Local access comments were evaluated for feasibility and for local connectivity. The local access plan contained in the DEIS was revisited and revised as deemed necessary to meet these concerns. Also, refer to Public Comments 1 and 2 above for additional responses related to local access issues.

Impacts to the Human Environment, Particularly Residential and Business Relocations

Public Comments:

Comment 1: Comment from Mayor Steve Luecke, City of South Bend, in April 6, 2004 comment:

“We believe that constructing a ten foot high elevated road at this location [the section of alternative Es from Kern Road to US 20] would not only eliminate existing businesses along this stretch, but would also squelch further development south of US 20. This is an area that we look to for long-term growth for the City of South Bend, having already extended utilities south beyond Kern Road, nearly to Roosevelt.”

Response 1: The segment of Alternative G-Es from Kern Road to US 20 was originally proposed to be an elevated urban section constructed on retaining walls with east-west access across the new freeway facility via underpasses (local roadways going under the elevated freeway). In response to comments received, this segment of the Preferred Alternative G-Es is no longer planned to be an elevated section with the exception of the segment around and just north of Kern Road where an elevated section will be required for an interchange at Kern Road and an underpass connecting Main Street to existing US 31 just north of Kern Road. While most of the businesses along existing US 31 in the segment from near Pulling Street northward to US 20 will likely be displaced due to the required additional right-of-way, INDOT will provide assistance to these businesses in locating a new business location and also assist with their relocation. It is anticipated that many of the existing businesses will relocate in close proximity to their existing locations. Additionally, modifications made to the local access plan for Alternative G-Es should provide a local roadway network in the area south of US 20 that will attract further development and long-term growth in the area.

Comment 2: The following comments are examples of those that were received during the DEIS Public Comment Period related to impacts to residences and businesses:

“Both Cs and G-C entail an interchange with U.S. 20 less than one mile west of the existing U.S. 31 interchange and both would disrupt or destroy several neighborhoods, including Whispering Hills, Baneberry Hills, Crown Ridge, Sycamore Hills, and other nearby residences.” (March 19, 2004, Burch)

“The Berliner and Marx meat processing plant is closed, yet it appears an effort was made to run the road around the plant, increasing the impact to nearby homes. Why not remove a facility that is no longer used and lessen the impact to the area homes.” (March 21, 2004, Rosinski)

“It appears that many of the homes that account for the increase in the loss of homes in option Es (versus Cs) is due to Es running through a Southern Acres subdivision just north of Madison. It would seem to be viable to move Es slightly to the west at this point for a very short distance to reduce this impact.” (March 21, 2004, Rosinski)



“In looking at cost in another way, this plan will eliminate homes and businesses currently contributing to the tax base of the township/city of South Bend, the county and the state. And that is just property tax. It does not take into account income tax on the individual and businesses located in this route. Centre Township and more recently the City of South Bend have included this income as part of the tax bases and the proposal will almost certainly costs the loss of at least some of that income for local governments.” (April 23, 2004, Jemielity)

“If you choose either of the other two routes [alternatives Cs and G-C], you will damage some very nice subdivisions that are on the South side of South Bend, and it will have a very negative impact on the ability of South Bend to improve and develop the South side.” (April 25, 2004, Martin)

Response 2: During the process of identifying a final preferred alternative for a project such as this, there are many impacts that are studied and analyzed. Some of the impacts analyzed include, but are not limited to, the traffic performance of the alternatives and their ability to meet the purpose and need of the project; indirect and cumulative impacts; residential and business impacts; project costs (engineering, construction, right-of-way, etc.); economic impacts (local tax revenue, local business economic impacts, etc.); highway user benefits; neighborhood impacts; local access for emergency service providers and school busses; historic and archeological resource impacts; air quality impacts; noise impacts; impacts to the natural environment – wetlands, farmlands, forests, wildlife, threatened and endangered species, water resources, streams, etc.; hazardous material sites; visual and aesthetic resources; etc. During the course of this study, several attempts were made to avoid and/or minimize impacts to both the human and natural environments. These avoidance and minimization measures were generally shifts in the alignment of the alternatives to miss, for example, a subdivision, or a wetland complex, or a forest area, or an historical or archeological resource, etc. The impacts of each of these shifts were evaluated and advanced for further study or eliminated from the study based on this analysis. Often, an avoidance and/or minimization measure aimed at avoiding or reducing impacts to one element would increase the impacts to another element. For example, a shift in the alignment of an alternative to miss a wetland complex might have moved the alignment into a residential area and increased the residential relocations substantially. For each of the alternatives studied, avoidance and/or minimization measures were investigated until a “balance” among all of the impacts was obtained.

Modify Alternatives to Reduce Environmental Impacts (Wetlands, Forests and Forest Fragmentation, Threatened and Endangered Species, Etc.)

Agency Comments:

Comment 1: Comment from US Department of the Interior, U.S. Fish and Wildlife Service (FWS) in May 24, 2004 comment:

“The proposed project is within the range of the federally endangered Indiana bat (*Myotis sodalists*), the threatened bald eagle (*Haliaeetus leucocephalus*), the northern copperbelly water snake (*Nerodia erythrogaster neglecta*), and the candidate eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*). The expected status of each of these four species within the proposed project area is discussed in the DEIS (section 5.9.5). The FWS agrees that the proposed project is not likely to adversely affect the bald eagle, northern copperbelly or eastern massasauga. However, the presence or absence of the Indiana bat within the project area is not currently known. The DEIS indicated that surveys for the Indiana bat will be conducted in 2004 after the preferred alternative is selected.”

Response 1: 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. Potential mitigation measures are further discussed in Chapter 6 of this FEIS.

Comment 2: Comment from USEPA in May 11, 2004 comment:

“The potential adverse impacts to water resources, including wetlands, from this project must be considered in light of the massive historic loss of wetlands and alteration of water resources in this area.....With this has come a loss of wetland systems’ natural contributions to clean water, flood water storage and wildlife habitat.....Using existing wetlands inventories is acceptable for DEIS, including the National Wetlands Inventory and farmed wetland data. For the FEIS several other sources of information need to be examined as well, to avoid adversely impacting ongoing wetlands protection efforts. In recent years many acres of wetlands have been restored in Indiana by the Wetlands Reserve Program of the Natural Resources Conservation Service. These carry long term or permanent easements to protect these wetlands. Any Wetland Reserve projects in the study area that would be affected by the alternatives under consideration must be identified along with the type of easement granted. In addition, any wetland compensatory mitigation sites required by past 404 permits issued by the Corps of Engineers and 401 permits issued by the Indiana Department of Environmental Management must be identified. Any impacts the alternatives under consideration are likely to have on these wetland mitigation sites must be identified.”

Response 2: 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 for this project identified wetlands and estimated impacts based on the estimated right-of-ways for the alternatives. Since the publication of the DEIS, several avoidance and/or minimization measures in the form of shifts in the alignment have been made to the preferred alternative in order to reduce wetland impacts. Additionally, since the publication of the DEIS, wetlands within the Preferred Alternative G-Es have been delineated and mapped using USACE guidelines to determine precise areas. Coordination with the agencies continued as representatives of the study team met with the permitting agencies (USACE and IDEM) from Monday, October 4, 2004, to Wednesday, October 6, 2004. This meeting was a field review in which management team, USACE and IDEM representatives walked the previously delineated wetlands and made adjustments to the delineations as necessary. A “Waters of the US” verification report detailing wetland impacts has been prepared and submitted to the USACE and IDEM. 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. Additional information related to wetland impacts and potential mitigation measures can be found in Chapter 6 of this FEIS.



Comment 3A: Comment from USEPA in May 11, 2004 comment:

“...had hoped to see an alternative analyzed in detail and carried forward....that would have had less adverse impact on natural resources, particularly wetlands.” Additionally, “....has issues regarding the loss of forest land and fragmentation of forest habitat.” “....the loss of remaining forest land and core forests in the study area is significant and all reasonable efforts should be made to avoid impacts to forest lands.” Finally, the USEPA stated that they rate the DEIS EO-2 (Environmental Objection – insufficient information). This rating was due to “significant impacts to wetlands and aquatic resources and wildlife habitat.”

Comment 3B: Comment from USEPA, in May 11, 2004 comment:

“Section 404 [U.S. Army Corps of Engineers (Corps) Clean Water Act (CWA) Section 404] requires the selection of the least damaging practicable alternative (LEDPA) under Section 404(b)(1) Guidelines. We are concerned that there are other alternatives that may have less wetland impacts than the three DEIS build alternatives. Therefore, the selection of one of the DEIS build alternatives as the Final EIS Preferred Alternative might not be consistent with the selection of the LEDPA during the 404 permitting process.”

Comment 3C: Comment from US Department of the Interior, FWS, in May 12, 2004 comment:

“Impacts to forestlands, both upland and wetland, would be particularly significant.” Additionally, “Any of these build alternatives (Alternatives Cs, Es and G-C) represent a substantial loss of forested uplands and wetlands in a relatively limited area....and in an area where forestland is already fragmented.”

Comment 3D: Comment from US Department of the Interior, FWS, in May 12, 2004 comment:

Request that “....the alignment of the freeway be modified wherever possible to reduce impacts to forestlands, both upland and wetland.”

Comment 3E: Comment from USACE in May 12, 2004 comment:

“Due to the magnitude of the projected wetland impacts, it may be difficult for the Corps of Engineers to grant a permit for the project as proposed. Although Alternative Es appears to have the least impact on waters and wetlands, at this time we cannot endorse any of the proposed alternatives. We advise you to continue to seek alternatives and modifications which avoid and/or reduce impacts to the aquatic environment.”

Comment 3F: Comment from IDNR in April 22, 2004 comment:

“....recommend choosing an alternative that is east of the existing US 31 to minimize impacts to the environment. In this DEIS, alternatives Cs, Es, and G-C were selected for further study. Alternative G-C, which is a modification of the previous alternative G, is located primarily east of the existing US 31. This alternative offers the best selection in terms of minimizing environmental impacts to natural resources. This alternative avoids the complex glacial drift area in the northwestern quarter of the study area, which contains the highest concentration of important habitats and listed species occurrence.” Additionally, INDR recommended modifications to the portion of Alternative G-C north of Roosevelt Road to avoid impacts to natural resources as the alternative “....passes through a sizeable block of forests just north of Roosevelt Road” and “.... passes near a recently mapped occurrence of the state endangered loggerhead shrike (*Lanius ludovicianus*).”



Response 3: During the process of identifying a final preferred alternative for a project such as this, there are many impacts that are studied and analyzed. Some of the impacts analyzed, include but are not limited to, the traffic performance of the alternatives and their ability to meet the purpose and need of the project; indirect and cumulative impacts; residential and business impacts; project costs (engineering, construction, right-of-way, etc.); economic impacts (local tax revenue, local business economic impacts, etc.); highway user benefits; neighborhood impacts; local access for emergency service providers and school busses; historic and archeological resource impacts; air quality impacts; noise impacts; impacts to the natural environment – wetlands, farmlands, forests, wildlife, threatened and endangered species, water resources, streams, etc.; hazardous material sites; visual and aesthetic resources; etc. During the course of this study, several attempts were made to avoid and/or minimize impacts to both the human and natural environments. These avoidance and minimization measures were generally shifts in the alignment of the alternatives to miss, for example, a subdivision, or a wetland complex, or a forest area, or an historical or archeological resource, etc. The impacts of each of these shifts were evaluated and advanced for further study or eliminated from the study based on this analysis. Often, an avoidance and/or minimization measure aimed at avoiding or reducing impacts to one element would increase the impacts to another element. For example, a shift in the alignment of an alternative to miss a wetland complex might have moved the alignment into a residential area and increased the residential relocations substantially. For each of the alternatives studied, avoidance and/or minimization measures were investigated until a “balance” among all of the impacts was obtained. Additionally, Preferred Alternative G-Es has the lowest environmental impacts to wetlands and forests and meets the Section 404(b)(1) Guidelines that require selection of the “least environmentally damaging practicable alternative”.

Public Comments:

Comment 1: The following comments are examples of those that were received during the DEIS Public Comment Period related to impacts to the environment:

“Although I understand there is a need to provide a new route for US 31 I would hope that the route chosen would have the least environmental impact possible, and would take inconsideration the preservation of forest and wetlands in undeveloped areas in St. Joseph County.” (April 22, 2004, Engle)

Response 1: See Response 3 above under Agency Comments.

Visual, Noise and Aesthetics Impacts Associated with the Proposed Elevated Roadway Between Kern Road and US 20

Public Comments:

Comment 1: Comment from Mayor Steve Luecke, City of South Bend, in June 8, 2004, comment:

“Es would approach South Bend along the current US 31 right-of-way, but it would be an elevated roadway; I have heard different reports ranging from twelve to eighteen feet high. It would have sheer walls, with a 21-foot wide frontage road on either side. This would be a terrible approach to our city!

..... Some communities (Milwaukee comes to mind) are removing elevated freeways from their cities because of the negative impacts they cause. I am confident that we can handle this in a more sensitive manner that reflects modern urban planning.”



- Response 1: The segment of Alternative G-Es from Kern Road to US 20 was originally proposed to be an elevated urban section constructed on retaining walls with east-west access across the new freeway facility via underpasses (local roadways going under the elevated freeway). In response to comments received, this segment of the Preferred Alternative G-Es is no longer planned to be an elevated section. It will be constructed very near to the elevation of existing US 31 in the same area with east-west roadways (Johnson and Jackson Roads) crossing over the new US 31 roadway. The exception to this is the segment of US 31 around and just north of Kern Road where an elevated US 31 section will be required for an interchange at Kern Road and an underpass connecting Main Street to existing US 31 just north of Kern Road.
- Comment 2: Comment from Mayor Steve Luecke, City of South Bend, in April 6, 2004, comment:
“We also recommend planting pine trees or other natural screening as a visual shield and sound barrier wherever the road impacts existing residential development.”
- Response 2: The noise analysis conducted for the DEIS was of sufficient detail to identify potential impact areas associated with each study alternative. A preliminary noise barrier analysis in the DEIS identified likely reasonable and feasible noise abatement measures for the two alternatives that were combined to become the Preferred Alternative G-Es. A more detailed noise barrier analysis was conducted in this FEIS and noise barriers and other abatement measures will be analyzed in more detail during the design phase. Some examples of noise abatement measures include but are not limited to the alteration of horizontal and/or vertical alignments; noise insulation of public use or non-profit institutional structures; construction of highway noise barriers or earth berms; planting of trees; etc. Final decisions on noise barrier locations and lengths will be determined in the design phase of the project. Further discussions related to noise impacts and mitigation can be found in Chapter 6 of this FEIS.
- Comment 3: The following comments are examples of those that were received during the DEIS Public Comment Period related to visual, noise and aesthetic impacts associated with the proposed elevated roadway between Kern Road and US 20:
“Our most concern is having a fence and wall put up in front of our house. The value of our house will go down. We have lived here for 40 years. We would rather have the house taken then have a wall in front of it.” (March 27, 2004, Harris)
“Noise is another concern of ours. Yes we have some noise now when semis have to stop quickly due to a light change at Johnson Road, but we don’t think that will compare to the noise of an expressway. Sound barrier walls are planned from what we have been told. We don’t believe that is enough to help the additional noise.” (April 23, 2004, Daniels)
“We at Southlawn Church take pride in our church and its appearance – I hope talk of raising Johnson and Hwy 31 Road “will not” come to pass – It will become an eyesore to us and the community – During Service the noise from it’s elevated will be such from traffic that it will be hard to concentrate on worshipping in our Sanctuary.....” (April 23, 2004, Miller)
- Response 3: See Responses 1 and 2 above, under Public Comments.



Maximize Use of Existing US 31 Corridor

Agency Comments:

Comment 1: Comment from US Department of the Interior, FWS, in May 12, 2004 comment:

“.....supports route that upgrade or closely follow an existing highway because new-terrain routes often result in the greatest loss and fragmentation of natural habitats.”

Comment 1A: Comment from USACE in May 12, 2004 comment:

The USACE “.....encourage alternatives which maximize use of.....the existing US 31 corridor.”

Response 1: The alternatives that more closely followed the existing US 31 alignment had reduced environmental impacts, particularly wetland and forest impacts; however, they exhibited much higher business and relocation impacts. For this reason, a combination of existing alignment and new-terrain alignment provided a more balanced level of impacts to both the human and natural environment. Preferred Alternative G-Es is a hybrid alternative consisting of a combination of the southern portion of Preliminary Alternative G-C and the northern portion of Preliminary Alternative Es that developed in response to many of the comments received on the DEIS. The southern portion of Preliminary Alternative G-C is located on the east side of existing US 31. Alternatives located east of existing US 31 typically exhibited lower wetland and forest impacts. The northern segment of Preliminary Alternative Es follows the existing US 31 alignment from essentially the Kern Road interchange to US 20. This northern segment exhibited a reduction of wetland impacts, and avoided many high quality wetland complexes west of existing US 31 and north of Roosevelt Road. Preferred Alternative G-Es utilized the more of the existing US 31 alignment than any of the preliminary alternatives that were studied in detail in the DEIS.



ES.9 Other Federal Actions Required For The Proposed Action

FHWA issuance of Record of Decision (ROD).

Approval of the US Army Corp of Engineers Individual 404 Permit for placement of dredged and/or fill material in Waters of the United States.

In addition to Federal requisites, a 401 Water Quality Certification, and Isolated Wetlands Permit and Rule 5 Permit from the Indiana Department of Environmental Management in addition to a Construction in a Floodway Permit from the Indiana Department of Natural Resources will be required.

Permit applications will include, where appropriate, detailed mitigation plans for wetland and stream impacts.