



3.2 Modifications of Alternatives Recommended for Further Analysis

Following the publication of the Preliminary Alternative Analysis and Screening Report on August 19, 2003, and detailed in Section 3.1, Preliminary Alternatives Analysis and Screening, there were several meetings held to discuss the screening results. These meetings included:

- Community Advisory Committee (CAC) – September 4, 2003
- Section 106 Consulting Parties – September 4, 2003
- Public Information Meeting in Lakeville – September 4, 2003
- St. Joseph County Chamber of Commerce Legislative Affairs - September 9, 2003
- Resource Agency – September 30, 2003
- Emergency Service Provider and School System – September 30, 2003
- Elkhart Chamber of Commerce – October 17, 2003
- Town of LaPaz – November 13, 2003
- Marshall County and Plymouth – December 2, 2003

In addition to information and comments received at the meetings, numerous written comments and comments from the project's website were received. The study team continued to collect and analyze data related to social and environmental impacts for each of the four preliminary freeway alternatives. A team of environmental scientists spent several weeks in the field, walking each of the alternatives and collecting field data. A team of engineers developed proposed lane configurations, interchange locations and configurations, overpass locations, more accurate proposed right-of-way limits and revised construction cost estimates for each of the alternatives.

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. Concerns focused around both socio-economic and environmental impacts, particularly related to wetland impacts, residential and business relocations, and historic property impacts (see Table 3.2.10).

It is important to again note that the US 31 Improvement Project has been a dynamic process. The information previously presented in Table 3.1.9 was from the best-known existing secondary source data and conceptual design parameters available at the time that the preliminary screening of alternatives was conducted. Additional information was identified during a detailed field review later in the progress of the study, and the numbers contained in Table 3.2.10 may be slightly different than those contained in Table 3.1.9, as well as those contained in subsequent sections of this document.

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 (see Figure 3.2.16).

The significance of the Ullery/Farneman House in local history is exemplified by the following facts and folklore:

- The Ullery family settled on Palmer’s Prairie in 1838 and built the home around 1855
- The original farm was approximately 1,000 acres, a large holding for the era
- It is located on Michigan Road, a landmark for travelers in the 1800s
- The house is symbolic of the larger trend of Gentlemen Farmers building homes in the style popularized by Andrew Jackson Downing’s Pattern Books
- According to local folklore, it was reportedly a gathering point for South Bend’s Civil War Soldiers before marching to Indianapolis to be mustered in
- Farneman was prominent in the first St. Joseph Agricultural Society, along with Schuyler Colfax, former Vice-President of the United States

Socio-Economic/ Environmental Measure	ALTERNATIVE			
	C	E	F	G
WETLANDS	68 Ac.	65 Ac.	47 Ac.	36 Ac.
RELOCATIONS				
Residential	48	101	156	100
Business	7	49	60	52
HISTORIC PROPERTIES (on NR or PE) (Within Area of Potential Effect (APE))	4	4	4	8
HISTORIC PROPERTIES (on NR or PE) (Section 4(f))	0	1	1	1

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 (see Figure 3.2.16).

The roadway preliminary typical section in the vicinity of these properties would be an urban section consisting of a six-lane freeway with a 38 to 55-foot median and 14-foot outside shoulders. It was proposed to be elevated on fill with side retaining walls and concrete barrier on both the median and outside shoulders. Local service roads (frontage road) and/or collector/distributor (C/D) roadways could be provided within the typical total right-of-way width of 260 to 300 feet. The mainline design speed is 60 or 70 mph. The urban typical section would place the



Figure 3.2.16: Potential Impacts to Ullery/Farneman House and Southlawn Cemetery



edge of the proposed roadway right-of-way between 30 and 50 feet from the front of the Ullery/Farneman House. It would require the relocation of the Southlawn Cemetery Gate House and the roadway would likely be within 10 to 20 feet of gravesites. Direct access from US 31 to both the Ullery/Farneman House and the Southlawn Cemetery would no longer exist. Along with the physical impacts related to the required roadway right-of-way, there would also be visual and noise impacts to both the Ullery/Farneman House and the Southlawn Cemetery related to the close proximity of the roadway to both sites.

The study team made a commitment to respond to comments received from the public, elected officials, involved resource agencies, and consulting parties. This was exhibited during the course of the study as new alternatives and modifications to alternatives were continually investigated, as described in Section 3.1, Preliminary Alternatives Analysis and Screening. This commitment by the study team to respond to comments continued after the publication of the Preliminary Alternatives Analysis and Screening Report on August 19, 2003. Subsequent meetings, comments and more detailed analysis of socio-economic and environmental impacts led the study team to again investigate the possibility of modifying alternatives in an attempt to avoid and/or minimize impacts.

The major concerns raised by the study team, public, elected officials, resource agencies, and consulting parties that are involved with the projects development, focused around both socio-economic and environmental impacts. These major concerns were particularly related to wetland impacts, residential and business relocations and historic property impacts (see Table 3.2.10). To address these concerns, modifications in the four remaining preliminary freeway alternatives, Alternatives C, E, F and G, were investigated. The goal of these modifications was to avoid and/or minimize impacts to the environment, residents, businesses and historic properties.

The following sections provide a general description of the modified alternatives. Additionally, the socio-economic and environmental impacts of each of the modified alternatives have been compared with the impacts of the original alternatives. Lastly, a recommendation regarding utilization of the original alternative or modified alternative for the remainder of the study is provided.

3.2.1 Alternative F Modifications

One of the main issues driving the alternative modifications was related to three of the four remaining freeway alternatives, Alternatives E, F and G. This was a historic properties issue related to the two historically significant sites located along existing US 31, in the area just south of the US 31 and Kern Road intersection. Alternatives E, F and G all pass between these historic sites, along existing US 31, and would have major impacts to both properties. The historically significant sites are the Ullery/Farneman House and the Southlawn Cemetery, discussed in detail above (see Figure 3.2.16).

Modifications to Alternatives E, F and G were investigated just south of the Ullery/Farneman House and the Southlawn Cemetery area. These modifications came about in an attempt to avoid and/or minimize impacts to the Ullery/Farneman House and Southlawn Cemetery and to eliminate the likely Section 4(f) issues related to both structures. The modifications to Alternative G in this area are discussed later in this section. The modifications to Alternative E, to be called Alternative Es, relocated Alternative E to the west side of (behind) the Ullery/Farneman House and is further discussed later in this section.

The modifications to Alternative F, to be called modified Alternative F, in this area also involved a shift to the west in order to go to the west side of (behind) the Ullery/Farneman House. As shown in Figure 3.2.17, modifications to Alternative F that involve relocating it to the west would significantly impact two residential subdivisions, one just north of Madison Road and west of US 31, the other at Roosevelt Road and west of US 31. Additional modifications to Alternative F that involve the relocation of it further to the west to avoid these two subdivisions

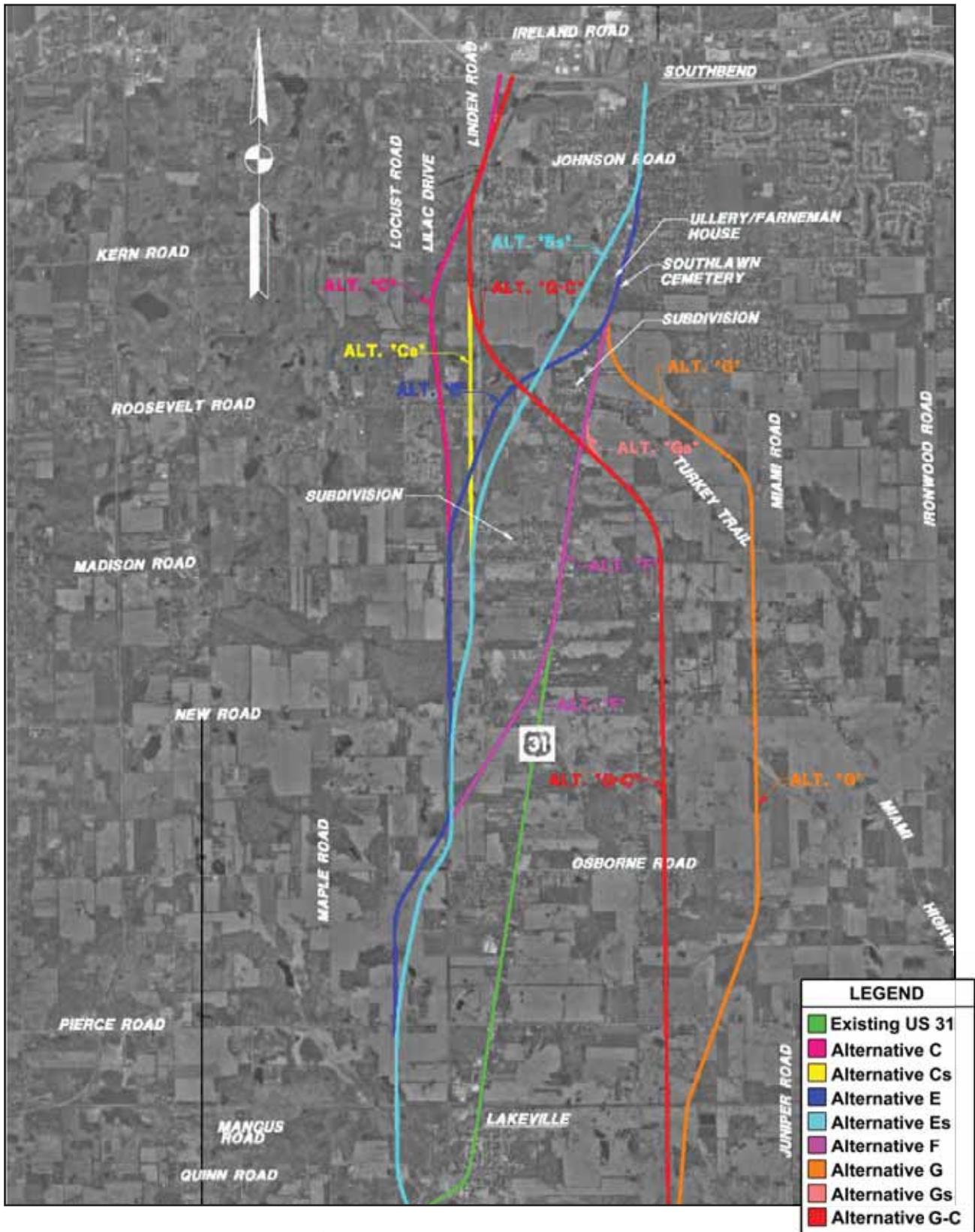


Figure 3.2.17: Alternative F Modifications



would essentially place the modified Alternative F on top of Alternative E and/or Alternative Es. For this reason, there is no modified Alternative F shown in Figure 3.2.17.

Conclusion

Modifications to Alternative F, called modified Alternative F, that would relocate it to the west of the Ullery/Farneman House, in an attempt to avoid and/or minimize impacts and eliminate the Section 4(f) issue, would essentially make the modified Alternative F the same as Alternative E and/or Alternative Es. For this reason, the 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. Section 3.3, Description of the Alternatives Selected for Detailed Study contains those alternatives selected for detailed study.

3.2.2 Alternatives C and E Modifications

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 avoiding and/or 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. Modifications made to one alternative would therefore be independent of modifications made to the other alternative.

This section discusses modifications made to both Alternatives C and E. These modifications (shifts) are identified as Alternative Cs and Alternative Es. Each of the alternatives contains three separate areas in which modifications were made in an attempt to avoid and/or minimize impacts. The corridors were divided into three segments to represent the three areas in which the alternatives were modified. For each of the three segments, an evaluation and comparison of impacts was made. Based on this comparison of impacts, a recommendation was made for each of the three segments, regarding utilization of the original alternative or the modified alternative. Table 3.3.26 summarizes the recommendation for each of the three segments.

The southern segment of the modifications to Alternatives C and E extends from West 4A Road to the south edge of Lakeville. In this southern segment, Alternatives C and E follow the same alignment and were evaluated together in Section 3.2.2.1.

The central segment of the modifications to Alternatives C and E extends from SR 4 (Pierce Road) to just north of Osborne Road. In this central segment, Alternatives C and E follow the same alignment and were evaluated together in Section 3.2.2.2.

The northern segment of the modifications to Alternatives C and E extends from Madison Road to US 20. In this northern segment, Alternatives C and E follow different alignments and were evaluated separately. Alternative C is evaluated in Section 3.2.2.3 and Alternative E is evaluated in Section 3.2.2.4.

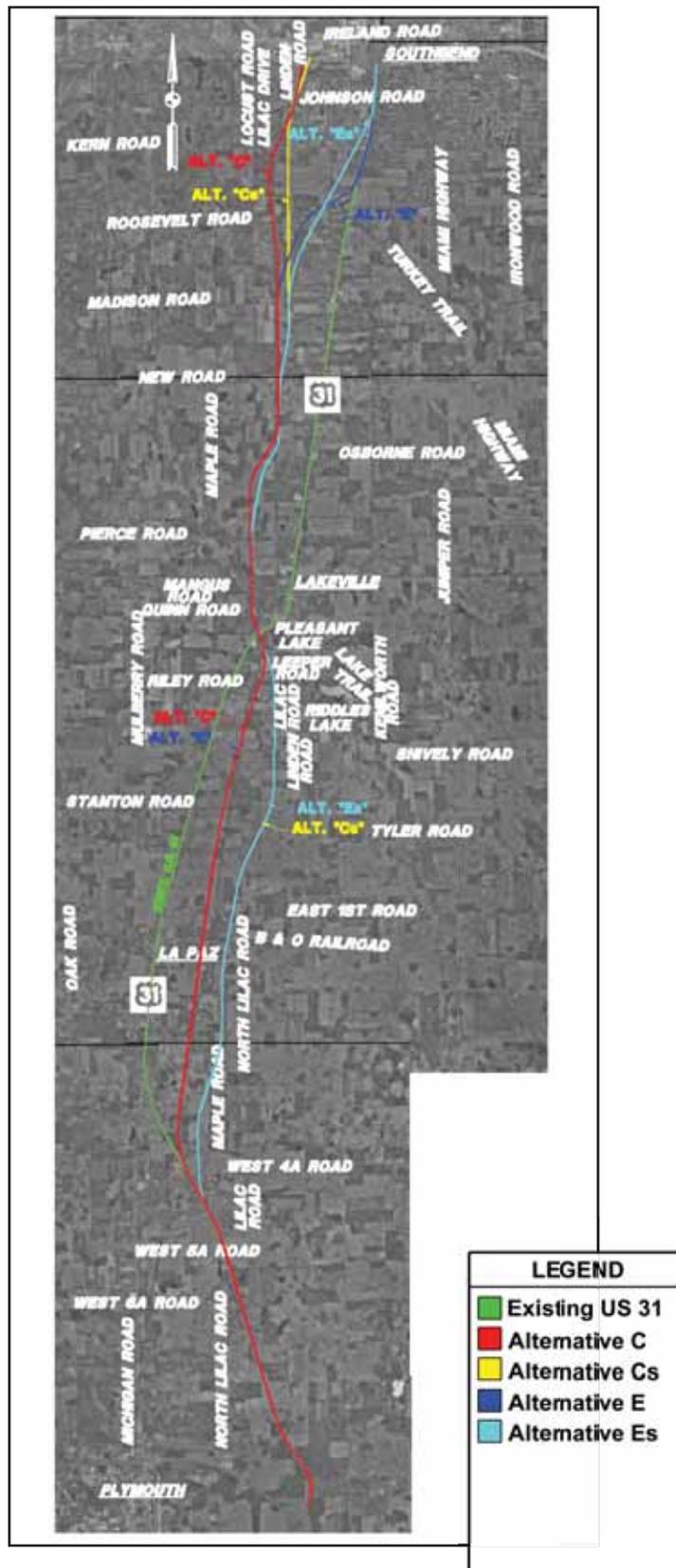


Figure 3.2.18: Alternative C and E Modifications



3.2.2.1 Alternatives C and E Modifications from West 4A Road to the South Edge of Lakeville

The southern segment of the modifications to Alternatives C and E extends from West 4A Road to the south edge of Lakeville (see Figure 3.2.19). In this southern segment, Alternatives C and E follow the same alignment and were evaluated together.

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. At that point, Alternatives Cs and Es continue northward and connect with Alternatives C and E on the south edge of Lakeville. The main goal of these alignment modifications was to avoid and/or minimize impacts to wetlands while striving to prevent any significant increase in the number of residential and business relocations.

Table 3.2.11 summarizes the socio-economic and environmental measures related to wetland impacts, residential and business relocations and historic properties impacts.

Table 3.2.11: Comparison of Alternatives C, E, Cs and Es from West 4A Road to south side of Lakeville		
Socio-Economic/Environmental Measure	ALTERNATIVE	
	C & E	CS & ES
WETLANDS	26 Acres	13 Acres
RELOCATIONS		
Residential	20	21
Business	1	2
HISTORIC IMPACTS (on NR or PE) (within APE)	0	0
HISTORIC IMPACTS (on NR or PE) (Section 4(f))	0	0

Conclusion

Modifications to Alternative C and E, called Alternatives Cs and Es, that would relocate them to the east, reduce the wetland impacts by 50% while having modest impact to relocations and no impact to historic properties. For these reasons, **in the segment from West 4A Road to the south side of Lakeville**, Alternatives Cs and Es were carried forward for more detailed study. Section 3.3 contains those alternatives selected for detailed study.

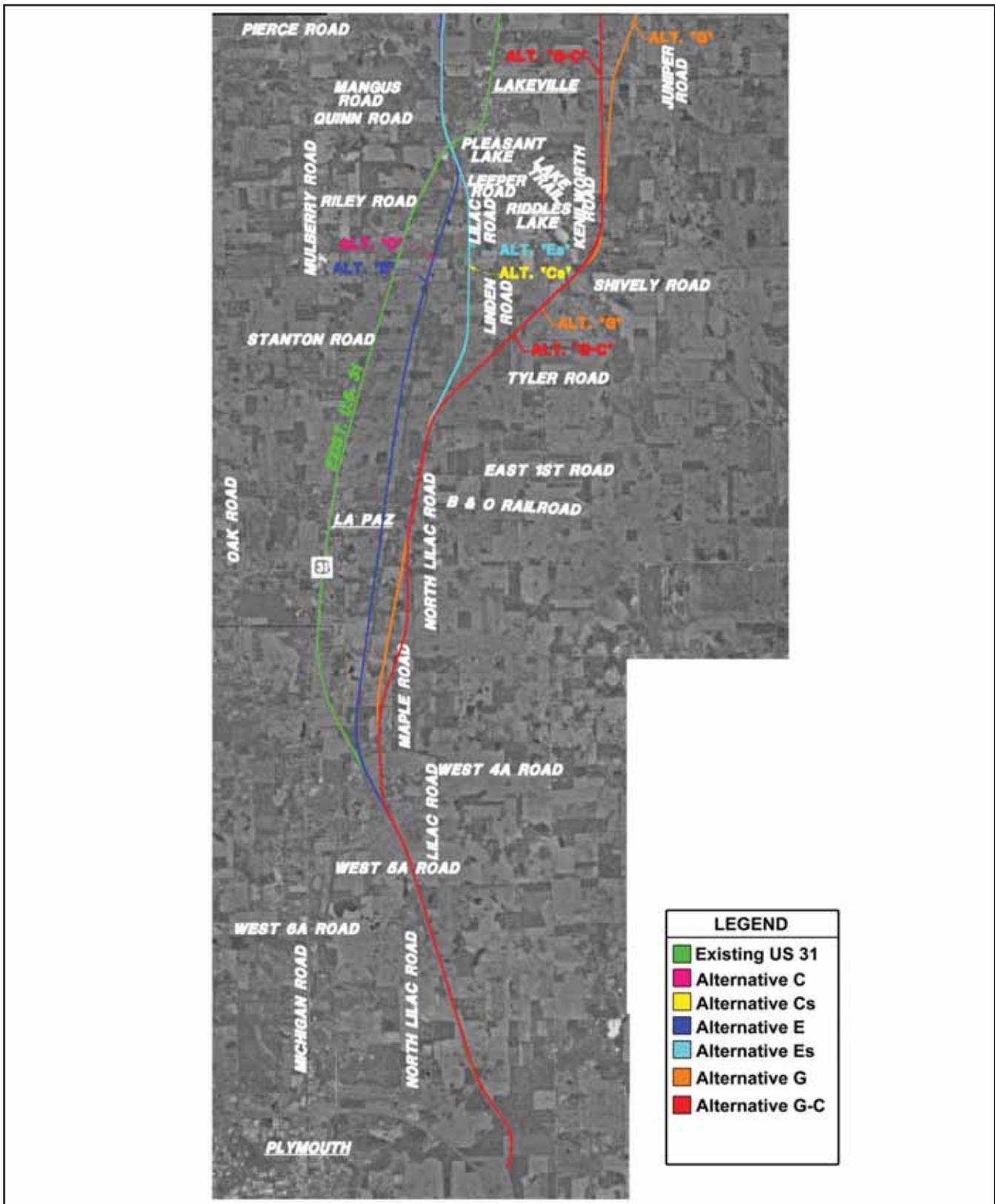


Figure 3.2.19: Alternative C and E Modifications from West 4A Road to the South Edge of Lakeville



3.2.2.2 Alternatives C and E Modifications from SR 4 (Pierce Road) to Just North of Osborne Road

The central segment of the modifications to Alternatives C and E extends from SR 4 (Pierce Road) to just north of Osborne Road (see figure 3.2.20). In this central segment, Alternatives C and E follow the same alignment and were evaluated together.

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. Alternatives Cs and Es continue northward and connect with Alternatives C and E just north of Osborne Road. The main goal of these alignment modifications was to avoid and/or minimize impacts to wetlands while striving to prevent any significant increase in the number of residential and business relocations.

Table 3.2.12 summarizes the socio-economic and environmental measures related to wetland impacts, residential and business relocations and historic properties impacts.

Table 3.2.12: Comparison of Alternatives C, E, Cs and Es from SR 4 to just north of Osborne Road		
Socio-Economic/Environmental Measure	Alternative	
	C & E	Cs & Es
WETLANDS	3 Acres	2 Acres
RELOCATIONS		
Residential	3	3
Business	0	0
HISTORIC IMPACTS (on NR or PE) (within APE)	0	0
HISTORIC IMPACTS (on NR or PE) (Section 4(f))	0	0

Conclusion

Modifications to Alternative C and E, called Alternatives Cs and Es, that would relocate them to the east, reduce the wetland impacts by one acre 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. For these reasons, **in the segment from SR 4 (Pierce Road) to just north of Osborne Road**, Alternatives Cs and Es were carried forward for more detailed study. Section 3.3 contains those alternatives selected for detailed study.

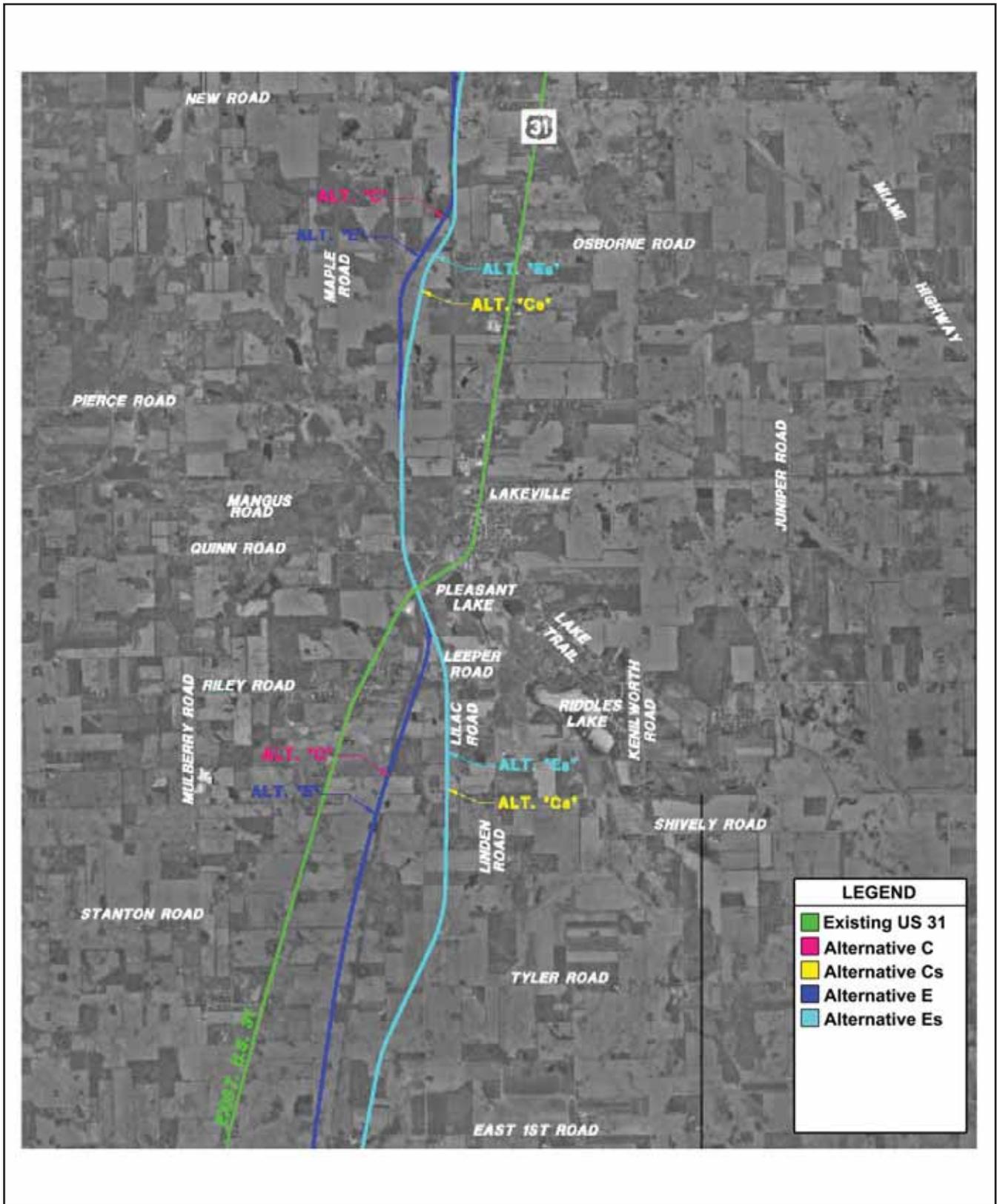


Figure 3.2.20: Alternative C and E Modifications from SR 4 (Pierce Road) to Just North of Osborne Road



3.2.2.3 Alternative C Modifications from New Road to US 20

The northern segment of the modifications to Alternatives C and E extends from New Road to US 20. In this northern segment, Alternatives C and E follow different alignments and were evaluated separately.

This alignment modification involved the shift of Alternative C, to be called Alternative Cs, to the east. Alternatives Cs continues northward and terminates at US 20 (see figure 3.2.21). The main goal of this alignment modification was to avoid and/or minimize impacts to wetlands while striving to prevent any significant increase in the number of residential and business relocations.

Table 3.2.13 summarizes the socio-economic and environmental measures related to wetland impacts, residential and business relocations and historic properties impacts.

Table 3.2.13: Comparison of Alternatives C and Cs from New Road to US 20		
Socio-Economic/Environmental Measure	Alternative	
	C	Cs
WETLANDS	31 Acres	38 Acres
RELOCATIONS		
Residential	17	17
Business	4	4
HISTORIC IMPACTS (on NR or PE) (within APE)	4	4
HISTORIC IMPACTS (on NR or PE) (Section 4(f))	0	0

Conclusion

Modifications to Alternative C, called Alternatives Cs, relocating it to the east, increased the wetland impacts by seven acres and had no impact on residential relocations or to historic properties. Due to the increases in wetland impacts, **in the segment from New Road to US 20**, Alternatives C was carried forward for more detailed study. Section 3.3 contains those alternatives selected for detailed study.

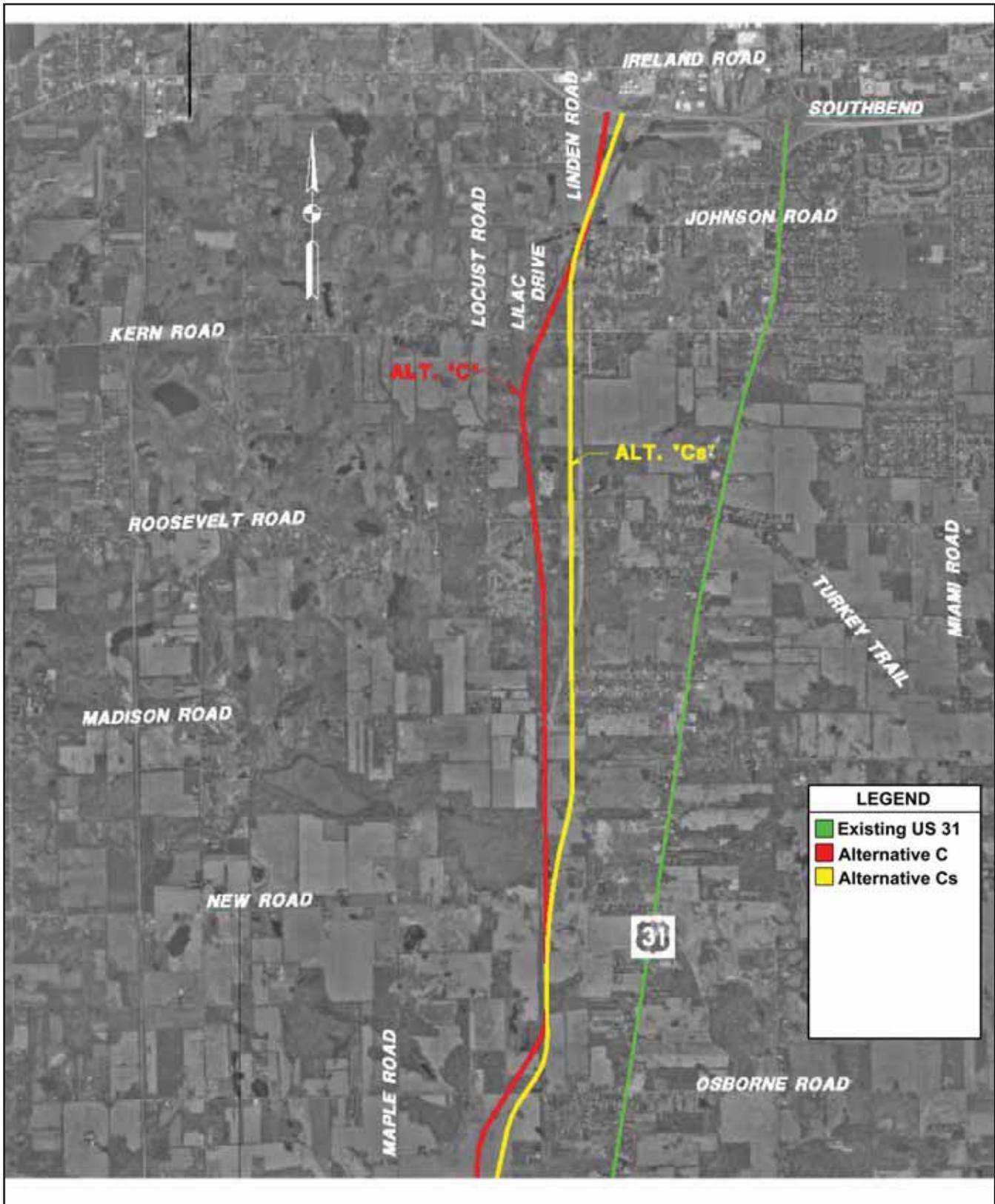


Figure 3.2.21: Alternative C Modifications from New Road to US 20



3.2.2.4 Alternative E Modifications from New Road to US 20

The northern segment of the modifications to Alternatives C and E extends from New Road to US 20. In this northern segment, Alternatives C and E follow different alignments and were evaluated separately.

Cultural Resource issues were the driving force behind the need to modify this segment of Alternative E. Two historically significant sites are located along existing US 31, in the area just south of the US 31 and Kern Road intersection. The historically significant sites are the Ullery/Farneman House and the Southlawn Cemetery, discussed in detail above (see Figure 3.2.16).

Alternative E passes between these historic sites, along existing US 31, and would have major impacts to both properties. Modifications to Alternatives E were investigated just south of the area of the two historic sites in an attempt to avoid and/or minimize impacts to the historic sites and to eliminate the likely Section 4(f) issues related to both the Ullery/Farneman House and the Southlawn Cemetery. The modifications to Alternative E, to be called Alternative Es, relocated Alternative E to the west side of (behind) the Ullery/Farneman House. Alternative Es continues northward and connects to Alternative E between Kern Road and Johnson Road (see Figure 3.2.22).

Table 3.2.14 summarizes the socio-economic and environmental measures related to wetland impacts, residential and business relocations and historic properties impacts.

Table 3.2.14: Comparison of Alternatives E and Es from New Road to US 20		
Socio-Economic/Environmental Measure	Alternative	
	E	Es
WETLANDS	26 Acres	14 Acres
RELOCATIONS		
Residential	73	50
Business	46	26
HISTORIC IMPACTS (on NR or PE) (within APE)	4	4
HISTORIC IMPACTS (on NR or PE) (Section 4(f))	1	0

Conclusion

Modifications to Alternative E, called Alternatives Es, relocating it to the east and behind the Ullery/Farneman House reduced the wetland impacts by 12 acres, decreased residential relocations by 23 and business relocations by 20, and eliminated the Section 4(f) issue related to historic properties. Due to these reasons, **in the segment from New Road to US 20**, Alternatives Es was carried forward for more detailed study. Section 3.3 contains those alternatives selected for detailed study.

Following publication of the DEIS, City of South Bend officials expressed concerns with Preliminary Alternative Es related to the proposed facility being an elevated roadway, constructed on retaining walls, from Kern Road northward to the US 31/US 20 interchange. Along with this, they were also concerned with local access to the subdivisions on the east and west sides of the alternative between Kern Road and the US 31/US20 interchange. Local officials in South Bend met with the Project Management Team on two occasions to discuss these concerns and potential modifications to Alternative Es to address these concerns. Through the course of discussions at

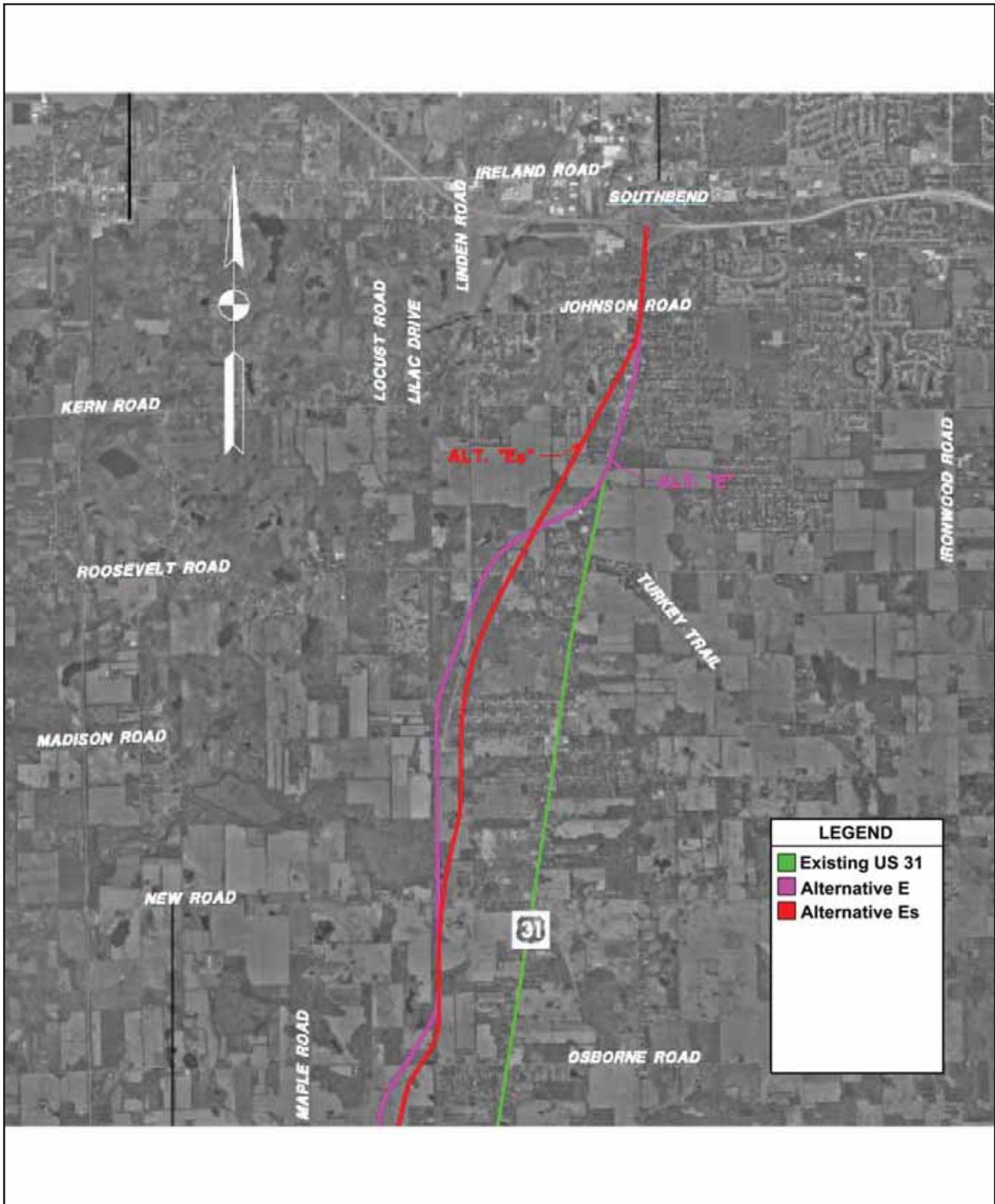


Figure 3.2.22: Alternative E Modifications from New Road to US 20



these meetings, additional modifications were made to the alternative as well as the local access plan that was in the best interests of both the City of South Bend and INDOT. These modifications included revising Alternative Es between Kern Road and the US 31/US 20 interchange to be an “at grade” facility and not an elevated roadway, constructed on retaining walls. A revised local access plan was developed to improve north-south connectivity between Kern Road and Ireland Road, just north of US 20, that included two separate grade separated crossings of US 20, one on the west side of US 31 at Scott Street and the other on the east side of US 31 at Fellows Street as further discussed in Section 3.5. East-west connectivity across US 31 was improved with the addition of grade-separated crossings at Johnson Road and Jackson Road and the extension of Main Street southward, under the proposed US 31, to existing US 31 near Kern Road.

3.2.3 Alternatives G Modifications

Alternative G is the only eastern preliminary freeway alternative that was recommended for further study. This section will discuss modifications made to Alternative G. These modifications are identified as Alternative Gs and G-C.

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 northeast, 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.

Several issues drove the modifications to Alternative G. Concerns were expressed at the September 30, 2003 resource agency meeting related to this alternative. It was suggested that Alternative G should remain closer to existing US 31. This westward modification was accomplished by continuing northward at Lake Trail, instead of diverging northeast as Alternative G does.

Concerns were also expressed at the September 4, 2003 Section 106 consulting parties meeting with regard to potential cultural resource impacts associated with Alternative G. The consulting parties had concerns related to historic properties, particularly potential impacts to several properties along the Miami Highway and Turkey Trail. Those concerns were also addressed by the westward modification at Lake Trail. This modification keeps Alternatives Gs and G-C closer to existing US 31 and further away from the Miami Highway. The northwestern turn of Alternatives Gs and G-C, just north of Miller Road, keeps both alternatives south of Turkey Trail.

Cultural Resource issues were the driving force behind the need to modify the segment of Alternative G north of Roosevelt Road. Two historically significant sites are located along existing US 31, in the area just south of the US 31 and Kern Road intersection. The historically significant sites are the Ullery/Farneman House and the Southlawn Cemetery, discussed in detail above (see Figure 3.2.16).

Alternative G passes between these historic sites, along existing US 31, and would have major impacts to both properties. The modifications made to Alternative G called Alternative Gs does not address the impacts to these properties as it turns northward and ties into existing US 31 at Roosevelt Road. Alternative Gs continues northward along existing US 31, connects to Alternative G south of Kern Road, and passes between these historic sites.



Alternative G-C was investigated in an attempt to avoid and/or minimize impacts to the historic sites and to eliminate the likely Section 4(f) issues related to both structures. Instead of turning northward and rejoining Alternative G, as Alternative Gs does just south of Roosevelt Road, Alternative G-C continues northwest, crosses existing US 31 just south of Roosevelt Road and south of the area of the two historic sites, and ties into Alternative C near Kern Road. Alternative G-C relocated Alternative G to the south (below) and west side of (behind) the Ullery/Farneman House. This modification eliminates the direct impacts to the Ullery/Farneman House and the Southlawn Cemetery.

For both Freeway Alternatives Gs and G-C, existing US 31 and its major intersections were analyzed in accordance with the Highway Capacity Manual (HCM) to determine their present and future LOS. Future Average Daily Traffic (ADT) volumes used to conduct this analysis were generated using output from the regional travel model. Between Plymouth and South Bend, existing US 31 was analyzed in eight segments as well as at four signalized intersections and at six notable two-way stop-controlled intersections (stop control for the crossroad approaches) as listed below.

US 31 Segments:

- US 30 to Michigan Road (Old US 31)
- Michigan Road to US 6
- US 6 to Tyler Road
- Tyler Road to Lake Trail
- Lake Trail to SR 4
- SR 4 to Miller Road
- Miller Road to Roosevelt Road
- Roosevelt Road to US 20

US 31 Signalized Intersections:

- US 31 and US 6
- US 31 and SR 4
- US 31 and Kern Road
- US 31 and Johnson Road

US 31 Major Unsignalized Intersections (Two-Way Stop-Controlled):

- US 31 and Plymouth-Goshen Trail
- US 31 and W 5A Road
- US 31 and Tyler Road
- US 31 and New Road
- US 31 and Madison Road
- US 31 and Roosevelt Road



Table 3.2.15 shows resulting residual traffic volumes on the existing US 31 when either of the modified freeway alternatives are constructed. The goal of the modified freeway alternatives is to divert traffic from existing US 31 on to the new alternative. Table 3.2.15 shows the extent to which each modified freeway alternative achieves an acceptable LOS in the year 2030 for the existing US 31 corridor from US 30 to US 20. Because the modified freeway alternatives are four-lane freeways in the rural area with some six-lane segments in the urban section near US 20, traffic experiences acceptable operating conditions of LOS C or better when using the modified freeway alternative in rural segments, and LOS D or better for urban segments. Accordingly, the achievement of an acceptable LOS focuses on the residual traffic remaining on the existing US 31 alignment.

Table 3.2.15: Modified Freeway Alternative Future Traffic and LOS on Existing US 31 (Daily Traffic Volumes (LOS) in Year 2030 – Unacceptable LOS* shaded)

Freeway Alternatives	Segments							
	Rural	Rural	Rural	Rural	Rural	Rural	Rural	Urban
	US 30 to Michigan Road	Michigan Road to US 6	US 6 to Tyler Road	Tyler Road to Lake Trail	Lake Trail to SR 4	SR 4 to New Road	New Road to Roosevelt Road	Roosevelt Road to US 20
No-Build	21,504(C)	28,707(E)	25,687(F)	25,911(D)	28,279(F)	29,714(F)	32,485(F)	43,512(F)
Gs	2,979(A)	6,181(A)	3,516(A)	3,761(A)	3,971(A)	4,975(A)	8,029(A)	8,992(A)
G-C	3,139(A)	6,249(A)	3,748(A)	3,993(A)	5,844(B)	7,221(A)	10,212(B)	19,409(D)

* LOS C is the minimum acceptable for rural segments. LOS D is the minimum acceptable for urban segments.

Substantiating the assessment of the relief of congestion on existing US 31 is the amount of residual vehicle-miles of travel (VMT) and vehicle-hours of travel (VHT), referring to Table 3.2.16. VMT measures the directness of route to the straight line from the origin to the destination of the trip, and VHT measures congested travel time.

Table 3.2.16: US 31 Residual Vehicle-Miles of Travel and Vehicle-Hours of Travel by Modified Freeway Alternative (in Year 2030)

Freeway Alternatives	VMT		VHT	
	Miles	% Change from No-Build	Hours	% Change from No-Build
No-Build	488,498		8,721	
Gs	63,189	-87%	1,064	-88%
G-C	94,624	-81%	1,637	-81%



A secondary consideration for assessing the effectiveness of the modified freeway alternatives in relieving congestion is the reduction of VMT and VHT in the South Bend Metropolitan Area (Elkhart, Marshall and St. Joseph counties) with an unacceptable LOS (i.e., LOS E, or F in urban areas and LOS D, E or F in rural areas). This performance measure addresses how well a single improvement addresses congestion problems throughout the Metro Area (not just congestion along US 31). VMT measures the directness of route to the straight line from the origin to the destination of the trip, and VHT measures congested travel time. As people are often more open to travel greater distances to save travel time, VHT is a more important consideration than VMT. Table 3.2.17 shows that the results for both modified alternatives.

Freeway Alternatives	VMT with Unacceptable LOS		VHT with Unacceptable LOS	
	Miles	% Change from No-Build	Hours	% Change from No-Build
No-Build	2,509,904		68,867	
Gs	2,346,618	-6.51%	65,322	-5.15%
G-C	2,339,040	-6.81%	65,059	-5.53%

For the No-Build Alternative and for both Freeway Alternatives G-s and G-C, present and projected future crash rates on five segments of US 31 were compared to the average statewide crash rates for rural principal arterials (the functional classification for US 31) as listed below:

US 31 Segments:

- US 30 to LaPaz
- Through LaPaz
- LaPaz to Lakeville
- Through Lakeville
- Lakeville to US 20

Table 3.2.18 shows the extent to which both modified freeway alternatives reduces total accidents along existing US 31 and in the Metro Area (Elkhart, Marshall and St. Joseph counties). Again, the modified freeway alternatives that divert the most traffic from existing US 31 result in the best performance. The reduction of accidents in the Metro Area is a secondary consideration that examines the extent to which this improvement project alone reduces the level of accidents throughout the Metro area (not only US 31).

It should again 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. The 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.

Table 3.2.18: Existing US 31 and South Bend Metro Area Reduction in Total Accidents by Modified Freeway Alternative (in Year 2030)

Freeway Alternatives	Existing US 31 Total Accidents		Metro Area Total Accidents	
	Crashes	% Change from No-Build	Crashes	% Change from No-Build
No-Build	375		11,242	
Gs	48	-87%	10,965	-2.46%
G-C	83	-78%	11,009	-2.07%

Table 3.2.19 shows the total crash rate for both modified freeway alternatives for residual traffic on existing US 31 segments. The total crash rate for each modified freeway alternative is compared to the Indiana average total crash rates for other rural principal arterials. The modified freeway alternatives that divert the most traffic from existing US 31 result in the lower total crash rate.

Table 3.2.19: Total Crash Rate by Modified Alternative for Existing US 31 Segments (in year 2030) (total crash rate exceeding statewide rural principal arterial of 186.57 shaded)

Freeway Alternatives	US 30 to LaPaz	Through LaPaz	LaPaz to Lakeville	Through Lakeville	Lakeville to US 20
No-Build	94.17	250.82	45.04	456.04	239.93
Gs	20.27	34.33	6.54	64.04	
G-C	20.50	36.60	6.94	94.24	107.05

Note: Assumes crash rate changes in proportion to residual daily traffic on existing US 31.

Phase 1: Purpose and Need

Reduce Congestion: Both Alternatives Gs and G-C would reduce congestion on existing US 31. For the year 2030, Alternative Gs has an LOS A for all segments and Alternative G-C ranges from LOS A - B along rural segments and LOS D for the urban segment of existing US 31. These projected LOS values meet INDOT standards.

Improve Traffic Safety: Both Alternatives Gs and G-C would improve safety on US 31 by diverting traffic from the existing facility. The estimated reduction in accidents from the No-Build is 87% for Modified Alternative Gs and 78% for Modified Alternative G-C, and all segments along existing US 31 would have crash rates at or below statewide averages for other rural principal arterials.

Consistency with Transportation Plans: Both Alternatives Gs and G-C are consistent with the INDOT 2000-2025 Long Range Transportation Plan and with the MACOG Transportation Plan.

Alternatives Gs and G-C meet the purpose and need identified for this project. These alternatives were advanced to Phase 2 of the screening process.



Phase 2: Socio-Economic and Environmental Impacts

Table 3.2.20 summarizes the socio-economic and environmental measures related to wetland impacts, residential and business relocations and historic properties impacts.

Socio-Economic/Environmental Measure	Alternative		
	G	Gs	G-C
Wetlands	34 Acres	30 Acres	43 Acres
Relocations			
Residential	97	130	66
Business	52	54	9
Historic Impacts (on NR or PE) (within APE)	8	5	6
Historic Impacts (on NR or PE) (Section 4(f))	1	1	0

Conclusion

The modifications to Alternative G, called Alternatives Gs, that would relocate it to the west, closer to existing US 31 and further away from the Miami Highway and Turkey Trail, reduced the wetland impacts by four acres, increased residential relocations by 33 and business relocations by two, and reduced the historic impacts to those structures located within the area of potential impact (APE) by three. It did not eliminate the potential Section 4(f) issue related to historic properties. 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.

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.

The modifications to Alternative G, called Alternative G-C, relocating it to the west, closer to existing US 31 and further away from the Miami Highway and Turkey Trail, as well as south (below) and west (behind) the Ullery/Farneman House, increased wetland impacts by nine acres, a 26% increase. However, it reduced residential relocations by 31, a 32% reduction, and business relocations by 43, an 83% reduction. Alternative G-C reduced the historic impacts to those structures located within the APE by two and it eliminated the potential Section 4(f) issue related to historic properties. Due to reductions in both residential and business relocations and the elimination of the potential Section 4(f) issue related to historic properties, Alternatives G-C was carried forward for more detailed study. Section 3.3 contains those alternatives selected for detailed study.

3.2.4 Summary of Modifications to Preliminary Alternatives From Screening Report

To address concerns related to impacts to both the human and natural environments, modifications in the four freeway alternatives recommended for further study in the Preliminary Alternatives Analysis and Screening Report, Alternatives C, E, F and G were investigated, as detailed in Sections 3.2.1, 3.2.2 and 3.2.3 above. The goal



of these modifications was to avoid and/or minimize impacts to the environment, residents, businesses, and historic properties. The socio-economic and environmental impacts of each of the modified alternatives were compared with the impacts of the original alternatives. Based on this comparison, a recommendation regarding utilization of the original alternative or modified alternative was provided. Table 3.2.21 summarizes the recommendations for each of the sections in which each alternative was modified, as detailed in Section 3.2, Modifications of the Alternatives Recommended for Further Analysis.

Table 3.2.21: Summary of Modified Freeway Alternatives (Recommended Alternative Segment Identified with an “X”)

SEGMENT LOCATION	FREEWAY ALTERNATIVE							
	C	Cs	E	Es	F	G	Gs	G-C
Southern Segment – From West 4A Road to Lakeville		X		X				
Central Segment – From SR 4 to North of Osborne Road		X		X				
Northern Segment – From New Road to US 20	X			X				
From West 4A Road to US 20								X

Based on the information contained in Table 3.2.21, Alternatives Cs, Es and G-C, as modified in Section 3.2 and summarized in Table 3.2.21, were recommended for further study. It should be noted that due to the potential Section 4(f) issues associated with Alternatives F, G and Gs and the two historically significant structures discussed in Section 3.2.1, and the presence of prudent and feasible alternatives without potential Section 4(f) issues, Alternatives F, G and Gs were eliminated from further consideration.

3.2.5 Evaluation of Hybrid Alternatives

During resource agency meetings and in comments received during the comment period on the DEIS, the USACE and the U.S. Department of the Interior requested a review of modifications to alternatives that would maximize the use of the existing US 31 corridor. Additionally, the Indiana Department of Natural Resources (IDNR) requested a review of potential modifications to Alternative G-C north of Roosevelt Road to 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 (see Figure 3.2.24). Table 3.2.22 compares the socio-economic and environmental impacts associated with Alternative G-E to those alternatives that were previously recommended for further study (Alternatives Cs, Es and G-C). It is important to again note that the US 31 Improvement Project has been a dynamic process. Similar impact information presented in previous sections of this document was from data and conceptual design parameters available at an earlier stage in the progress of the study. Additional information was collected and design was further developed through the progress of the study. Impact information contained in previous tables may be slightly different than those contained in Table 3.2.22. Additionally, impact information contained in subsequent sections of this document will likely be different as additional information will be collected and design will be further developed.



Additional analysis, as detailed in Table 3.2.22, indicated that the hybrid alternative resulted in a reduction of wetland impacts and avoidance of many high quality wetland complexes located 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 further. **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.**

Table 3.2.22: Comparison of Alternatives G-E with Cs, Es and G-C				
Socio-Economic/Environmental Measure	Alternative			
	Cs	Es	G-C	G-E
ENGINEERING COSTS (TOTAL) (MIL. OF \$) (Year 2003 Dollars)	204.1 to 224.0	269.8 to 289.2	206.0 to 226.5	242.1 to 262.0
NWI WETLANDS	54 Acres	38 Acres	42 Acres	33 Acres
TRAFFIC PERFORMANCE				
Meets Purpose and Need	Yes	Yes	Yes	Yes
Performance (Compared to other Alternatives, 1 is Best Performer)	3	1	4	2
RELOCATIONS				
Residences Acquired	49	110	58	107
Businesses Acquired (Includes Large Farming Operations)	8	34	5	36
Businesses Damaged	5	5	4	5
Churches Acquired	1	1	1	1
HISTORIC PROPERTIES (Compared to other Alternatives)				
Visual Impacts	Medium	Low	High	High
Noise Impacts	Medium	Low	High	High
Potential Section 4(f) Issues	0	0	0	0
Forests	189 Acres	133 Acres	135 Acres	107 Acres
Farmland (Row Crop)	390 Acres	394 Acres	471 Acres	462 Acres

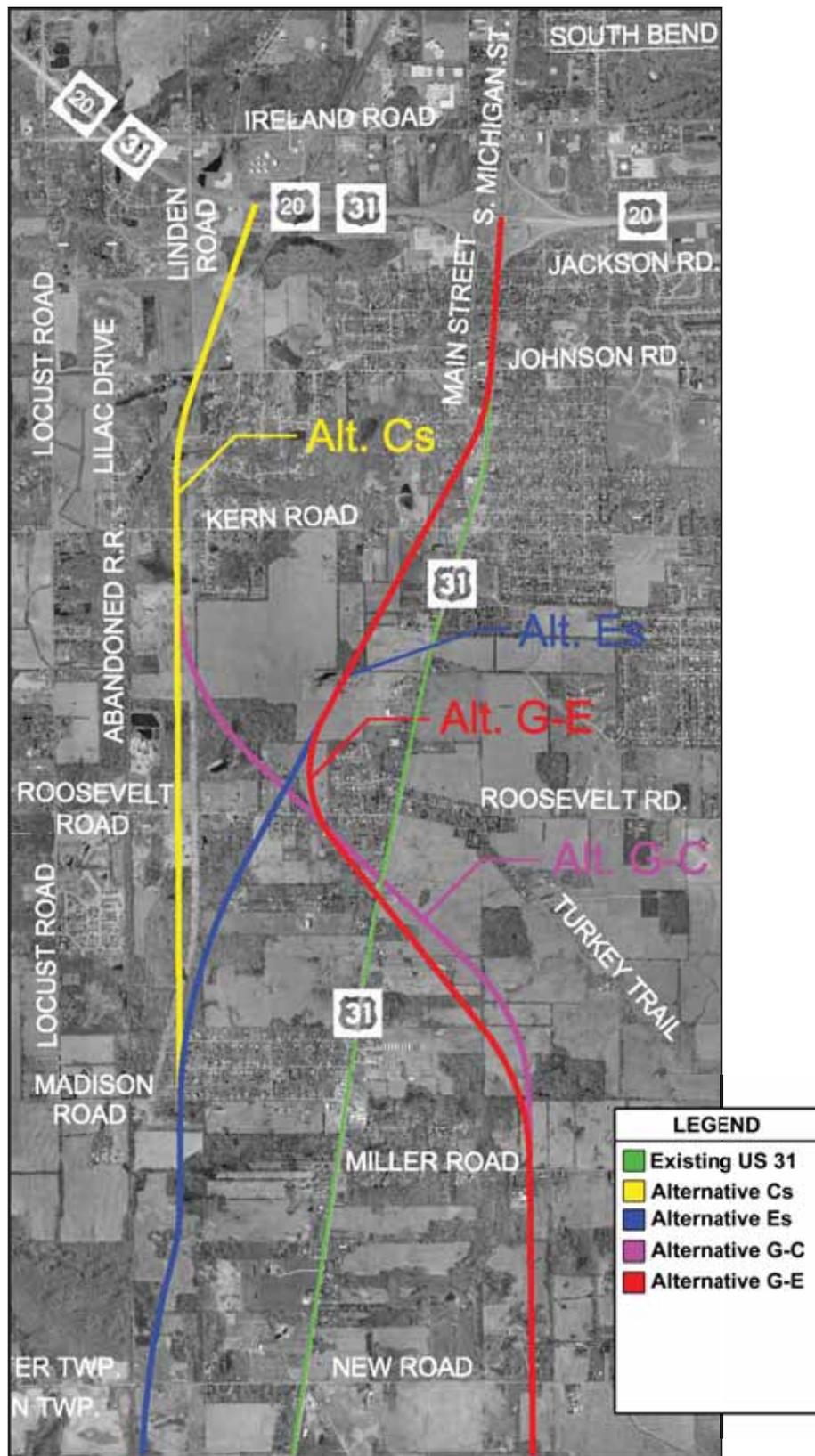


Figure 3.2.24: Preliminary Alternative G-E (“Hybrid Alternative”)



3.2.6 Modifications to Alternatives G-C and G-E

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. 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 very 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 (see Figure 3.2.25). Again, the goal of these modifications was avoidance and/or minimization of impacts to the natural and human environment.

Table 3.2.23 compares the socio-economic and environmental impacts associated with Alternatives G-C, G-E, G-Cs and G-Es. It is important to again note that the US 31 Improvement Project has been a dynamic process. Similar information previously presented was from the data and conceptual design parameters available at a particular stage in the progress of the study. Additional information was collected and design was further developed through the progress of the study. Impact information contained in previous tables may be slightly different than those contained in Table 3.2.23. Additionally, impact information contained in subsequent sections of this document will likely be different as additional information will be collected and design will be further developed.

Table 3.2.23: Comparison of Preliminary Alternatives G-C, G-Cs, G-E and G-Es				
SOCIO-ECONOMIC/ENVIRONMENTAL MEASURE	ALTERNATIVE			
	G-C	G-Cs	G-E	G-Es
ENGINEERING (TOTAL) COST (Mil. Of \$) (Year 2003 Dollars)	206.0 to 226.5	205.5 to 226.1	242.1 to 262.0	241.6 to 261.6
CONSTRUCTION COSTS (Mil. Of \$)	146.2 to 165.9	146.4 to 166.1	160.2 to 179.4	160.4 to 179.6
RIGHT-OF-WAY COSTS (Mil. Of \$)	48.2	47.6	67.5	66.9
DESIGN FEES (Mil. Of \$)	11.6 to 12.4	11.5 to 12.4	14.4 to 15.1	14.3 to 15.1
RELOCATIONS				
Residences Acquired	58	54	107	103
* Businesses Acquired	5	6	36	37
Businesses Damaged	4	4	5	5
Churches Acquired	1	1	1	1
NWI WETLANDS	42 Acres	33 Acres	33 Acres	24 Acres
FORESTS	135 Acres	124 Acres	107 Acres	96 Acres
FARMLAND (ROW CROPS)	471 Acres	494 Acres	462 Acres	485 Acres

NOTE: * Businesses Acquired Includes Large Farming Operations.

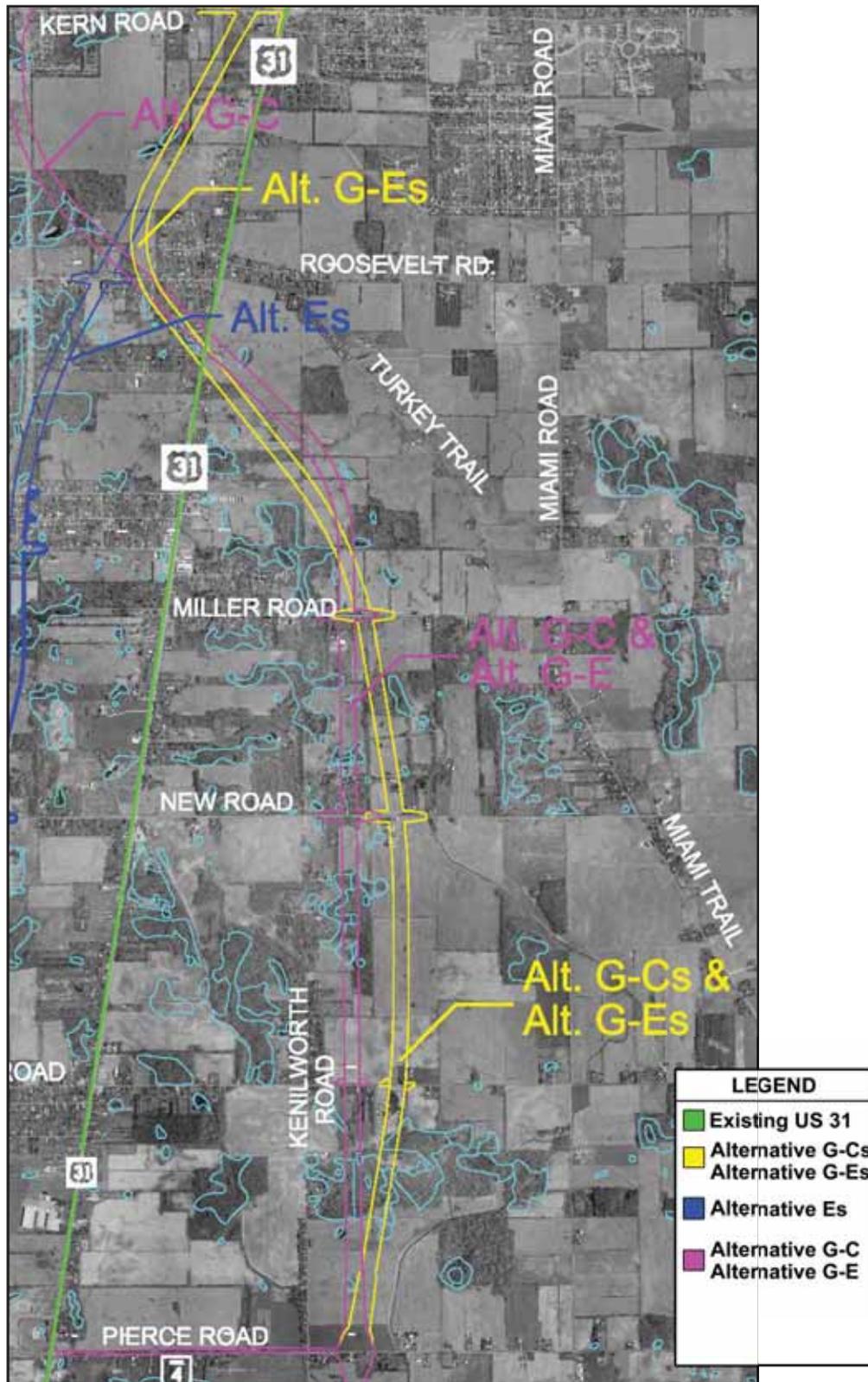


Figure 3.2.25: Modifications to Alternatives G-C and G-E



As shown in Table 3.2.23, 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.**

3.2.7 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.

Alternative G – Ironwood Road Connection follows the same alignment as the modified Alternatives Gs and G-Cs from the existing US 30 and US 31 interchange to New Road. At that point, the alternatives diverge. Modified Alternatives Gs and G-Cs continue northward on a common alignment, 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 (see Figure 3.2.26).

For Modified Freeway Alternatives G – Ironwood Road Connection, existing US 31 and its major intersections were analyzed in accordance with the Highway Capacity Manual (HCM) to determine their present and future LOS as discussed above for Modified Alternatives Gs and G-C. Future Average Daily Traffic (ADT) volumes used to conduct this analysis were generated using output from the regional travel model. Between Plymouth and South Bend, US 31 was analyzed in eight segments as well as at four signalized intersections and at six notable two-way stop-controlled intersections (stop control for the crossroad approaches) as above for Modified Alternatives Gs and G-C.

Table 3.2.24 shows resulting residual traffic volumes on the existing US 31 when the modified freeway alternative is constructed. The goal of the modified freeway alternative is to divert traffic from existing US 31 on to the new alternative. Table 3.2.24 shows the extent to which this modified freeway alternative achieves an acceptable LOS in the year 2030 for the existing US 31 corridor from US 30 to US 20. Because the modified freeway alternative is a four-lane freeway in the rural area with some six-lane segments in the urban area near US 20, traffic experiences acceptable operating conditions of LOS C or better when using the modified freeway alternative in rural segments. In the urban segment from Roosevelt Road to the US 20 interchange, traffic experiences unacceptable operating conditions of LOS F when using the modified freeway alternative. Accordingly, the achievement of an acceptable LOS focuses on the residual traffic remaining on the existing US 31 alignment.

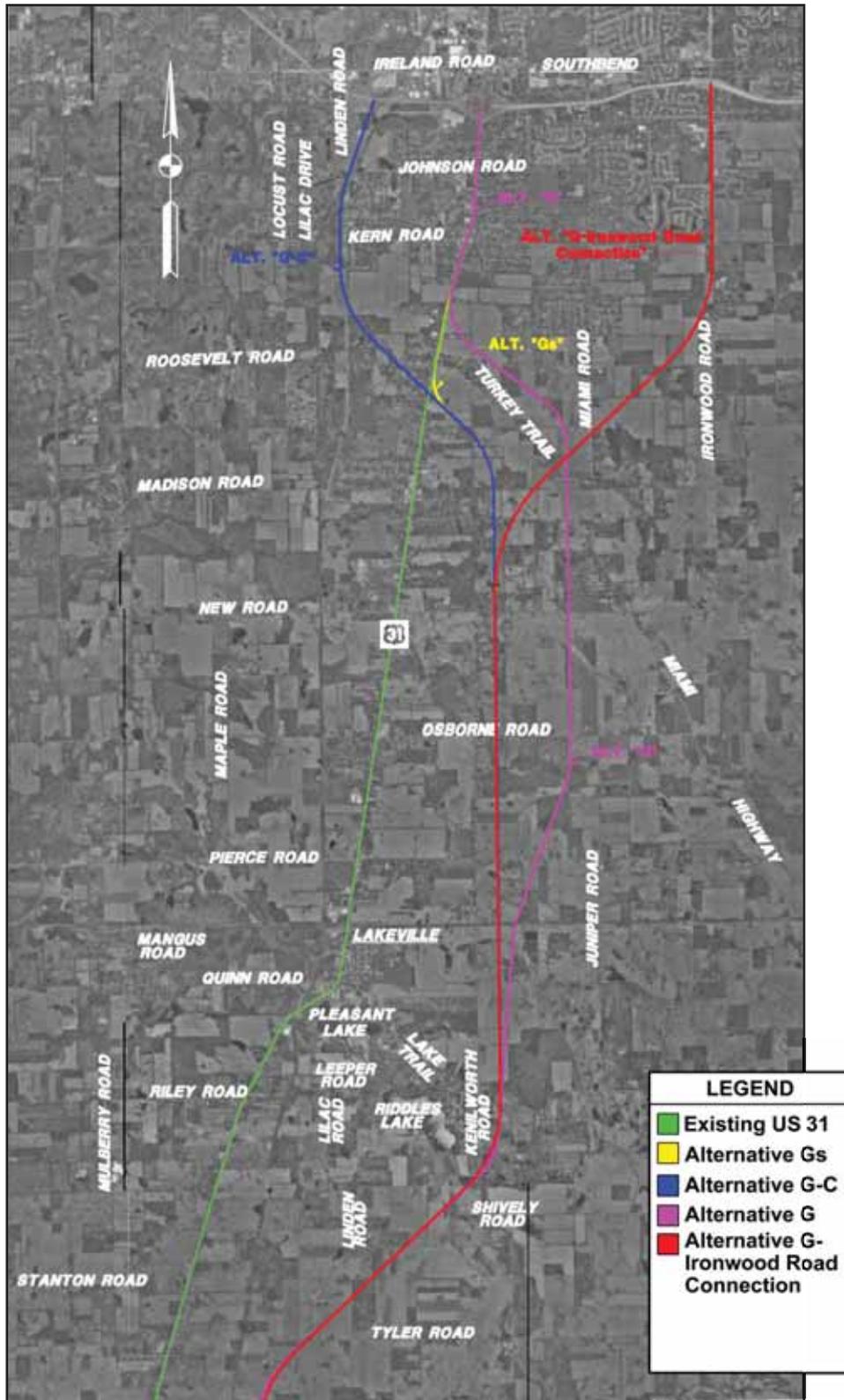


Figure 3.2.26: Alternative G – Ironwood Road Connection



Table 3.2.24: Modified Freeway Alternative Future Traffic and Level-Of-Service on Existing US 31 (Daily Traffic Volumes (LOS) in Year 2030 – Unacceptable LOS* shaded)

Freeway Alternatives	Segments							
	Rural	Rural	Rural	Rural	Rural	Rural	Rural	Urban
	US 30 to Michigan Road	Michigan Road to US 6	US 6 to Tyler Road	Tyler Road to Lake Trail	Lake Trail to SR 4	SR 4 to New Road	New Road to Roosevelt Road	Roosevelt Road to US 20
No-Build	21,504(C)	28,707(E)	25,687(F)	25,911(D)	28,279(F)	29,714(F)	32,485(F)	43,512(F)
Ironwood Road Connection	3,494(A)	7,344(A)	5,122(A)	5,344(A)	6,556(A)	7,336(A)	10,173(B)	26,120(F)

* LOS C is the minimum acceptable for rural segments. LOS D is the minimum acceptable for urban segments.

Substantiating the assessment of the relief of congestion on existing US 31 is the amount of residual VMT and VHT, referring to Table 3.2.25. VMT measures the directness of route to the straight line from the origin to the destination of the trip, and VHT measures congested travel time.

Table 3.2.25: US 31 Residual Vehicle-Miles of Travel and Vehicle-Hours of Travel by Modified Freeway Alternative (in Year 2030)

Freeway Alternatives	VMT		VHT	
	Miles	% Change from No-Build	Hours	% Change from No-Build
No-Build	488,498		8,721	
Ironwood Road Connection	107,643	-78%	1,869	-79%

A secondary consideration for assessing the effectiveness of the modified freeway alternative in relieving congestion is the reduction of VMT and VHT in the South Bend Metropolitan Area (Elkhart, Marshall and St. Joseph counties) with an unacceptable LOS (i.e., LOS E or F in urban areas and LOS D, E or F in rural areas). This performance measure addresses how well a single improvement addresses congestion problems throughout the Metro Area (not just congestion along US 31). As people are often more open to travel greater distances to save travel time, VHT is a more important consideration than VMT. Table 3.2.26 shows that the results for the modified alternative.



Table 3.2.26: South Bend Metro Area Congested Vehicle-Miles of Travel and Vehicle-Hours of Travel by Modified Freeway Alternative (in Year 2030)

Freeway Alternatives	VMT with Unacceptable LOS		VHT with Unacceptable LOS	
	Miles	% Change from No-Build	Hours	% Change from No-Build
No-Build	2,509,904		68,867	
Ironwood Road Connection	2,341,884	-6.69%	65,133	-5.42%

For the No-Build Alternative and for Modified Freeway Alternatives G – Ironwood Road Connection, present and projected future crash rates on five segments of US 31 were compared to the average statewide crash rates for rural principal arterials (the functional classification for US 31) as detailed above for Modified Alternatives Gs and G-C.

Table 3.2.27 shows the extent to which this modified freeway alternative reduces total accidents along existing US 31 and in the Metro Area (Elkhart, Marshall and St. Joseph counties). Again, the modified freeway alternatives that divert the most traffic from existing US 31 result in the best performance. The reduction of accidents in the Metro Area is a secondary consideration that examines the extent to which this improvement project alone reduces the level of accidents throughout the Metro Area (not only US 31).

Table 3.2.27: Existing US 31 and South Bend Metro Area Reduction in Total Accidents by Modified Freeway Alternative (in Year 2030)

Freeway Alternatives	Existing US 31 Total Accidents		Metro Area Total Accidents	
	Crashes	% Change from No-Build	Crashes	% Change from No-Build
No-Build	375		11,242	
Ironwood Road Connection	90	-76%	10,978	-2.35%

Table 3.2.28 shows the total crash rate for this modified freeway alternative for residual traffic on existing US 31 segments. The total crash rate for each modified freeway alternative is compared to the Indiana average total crash rates for other rural principal arterials. The modified freeway alternatives that divert the most traffic from existing US 31 result in the lower total crash rate.

Table 3.2.28: Total Crash Rate by Modified Alternative for Existing US 31 Segments (in year 2030) (total crash rate exceeding statewide rural principal arterial of 186.57 shaded)

Freeway Alternatives	US 30 to LaPaz	Through LaPaz	LaPaz to Lakeville	Through Lakeville	Lakeville to US 20
No-Build	94.17	250.82	45.04	456.04	239.93
Ironwood Road Connection	24.09	50.01	9.29	105.73	144.06

Note: Assumes crash rate changes in proportion to residual daily traffic on existing US 31.



Phase 1: Purpose and Need

Traffic Congestion: The Modified Alternative G – Ironwood Road Connection alone fails to address the purpose of reducing congestion on the existing US 31. In the year 2030, one of the eight segments of existing US 31 has an unacceptable LOS. The urban segment from Roosevelt Road to US 20 has a LOS F.

It should also be noted that an Alternative G – Ironwood Road Connection that includes combinations of various transportation management (TM) alternatives (TDM, TSM, ITS, mass transit, etc.) performs only slightly better than the alternative alone. Due to the low-density rural character of the corridor, Alternative G – Ironwood Road Connection 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.

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 acceptable LOS D and the widening of Ironwood Road from four to seven lanes from US 20 to SR 933 (Lincolnway) to reach a minimum acceptable LOS D. A combination of these two roadway investment projects along with the alternative would provide and acceptable LOS.

Traffic Safety: The Modified Alternative G- Ironwood Road Connection improves safety on US 31 by diverting traffic from the existing facility. The estimated reduction in accidents from the No-Build is 76% and all segments along existing US 31 would have crash rates at or below statewide averages for other rural principal arterials. However, the residual traffic on US 31 requires further major roadway investment to improve physical conditions adversely affecting safety. One such improvement is the widening of existing US 31 to five lanes from SR 4 to Roosevelt Road.

Consistency with Transportation Plans: This alternative is consistent with the INDOT 2000-2025 Long Range Transportation Plan and with the MACOG Transportation Plan.

Alternative G – Ironwood Road Connection, in combination with the two additional roadway investment projects, meets the purpose and need identified for this project. This alternative, in combination with the two additional roadway investment projects, was advanced to Phase 2 of the screening process.

Phase 2: Socio-Economic and Environmental Impacts

For Alternative G – Ironwood Road Connection, data regarding potential historic impacts on properties eligible or potentially eligible for the National Register of Historic Places (NR), local historic landmarks and adverse impacts potentially requiring mitigation was also examined. It was found that the required improvements to existing US 31 from Roosevelt Road to US 20 associated with the alternative would have a direct impact (a Section 4(4) issue) on one historic property that is eligible for the NR, the Ullery/Farneman House, which is located on existing US 31 just south of Kern Road. This site would be directly impacted by the widening of existing US 31 from four to seven lanes and would result in the new roadway right-of-way being within 50' to 60' of the structure.

The alternative would have direct impacts on two properties that are Potentially Eligible (PE) for the NR. The first structure is WSBT, a local radio broadcasting station. The structure located at this site is an Art Moderne Building with some modifications and was the site of one of the first radio stations within the State of Indiana. The second PE property directly impacted is the Denslow House, an Italianate structure with some modifications



that is located along Ironwood Road, north of US 20. It was found that the required improvements to Ironwood Road, consisting of widening from four to seven lanes from US 20 to SR 933 associated with the alternative, would directly impact the structure with the necessity of additional right-of-way for the roadway improvements.

The alternative would have adverse effects on several properties that may require mitigation. The first of these properties is the Peter Schaefer Farmstead on Roosevelt Road. This property is located within 1,000 feet of the alternative with resulting potential visual impacts. The second of these properties is Donaghue Farmstead on Turkey Trail. This property is located within 400 feet of the alternative with resulting potential visual and auditory impacts. The third of these properties is the Bunch Farm on Pierce Road. This property is located within 1,880 feet of a proposed interchange associated with the alternative. It is also located adjacent to a proposed local road improvement that will be required to Pierce Road as an extension of SR 4 from existing US 31 to a new interchange associated with the alternative. The proximity of this property to the new interchange and local road improvement project would result in potential visual and auditory impacts.

The alternative would potentially have impacts on a Local Historic Landmark, the Southlawn Cemetery, which is located directly east of and across existing US 31 from the Ullery/Farneman House. It was found that the required improvements to existing US 31, consisting of widening from four to seven lanes from Roosevelt Road to US 20 associated with the alternative, would directly impact the property and result in the new roadway right-of-way being within 25 feet to 30 feet of the Southlawn Cemetery Gate House and within 80 feet to 90 feet of graves.

The alternative crosses the Dragoon Trail and Turkey Trail. There is potential historical archaeological impacts along these trails given their importance in the early settlement of northwest Indiana. Dragoon Trail is a pre-statehood trail utilized for moving troops between South Bend and Fort Wayne. Turkey Trail has been identified as an historic Indian trail and also identified as an area having a rural and historic farm setting significance.

Figure 3.2.27 identifies the potential historic and archaeological impacts associated with Alternative G – Ironwood Road Connection.

For Alternative G – Ironwood Road Connection, data regarding potential socio-economic impacts was also examined. It was found that the alternative would directly impact the St. Joseph County Fairgrounds, a 150-acre facility on southwest corner of Ironwood Road and Jackson Road. The fairgrounds host the yearly 4-H Fair and other community activities year-round. The alternative would eliminate two main entrances to fairgrounds or require frontage roads for access and would take Esther Singer 4-H Exhibit Hall, the main exhibition hall. When compared to the other preliminary freeway alternatives under consideration, Alternatives Cs, Es and G-C, it was also found that Alternative G – Ironwood Road Connection 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. The increased number of residential relocations and increased total costs are largely due to the two additional roadway investment projects required in combination with Alternative G – Ironwood Road Connection in order to meet the projects purpose and need of reducing congestion on US 31. These additional roadway investment projects are the widening of existing US 31 from four lanes to seven lanes from Roosevelt Road to US 20 and the widening of Ironwood Road from four to seven lanes from US 20 to SR 933 (Lincolnway).

For Alternative G – Ironwood Road Connection, data regarding potential environmental impacts (wetlands, forests, farmlands, etc.) was also examined. When compared to the other preliminary freeway alternatives under consideration, Alternatives Cs, Es and G-C, it was found that Alternative G – Ironwood Road Connection slightly reduced forest and wetland impacts while slightly increasing farmland impacts.

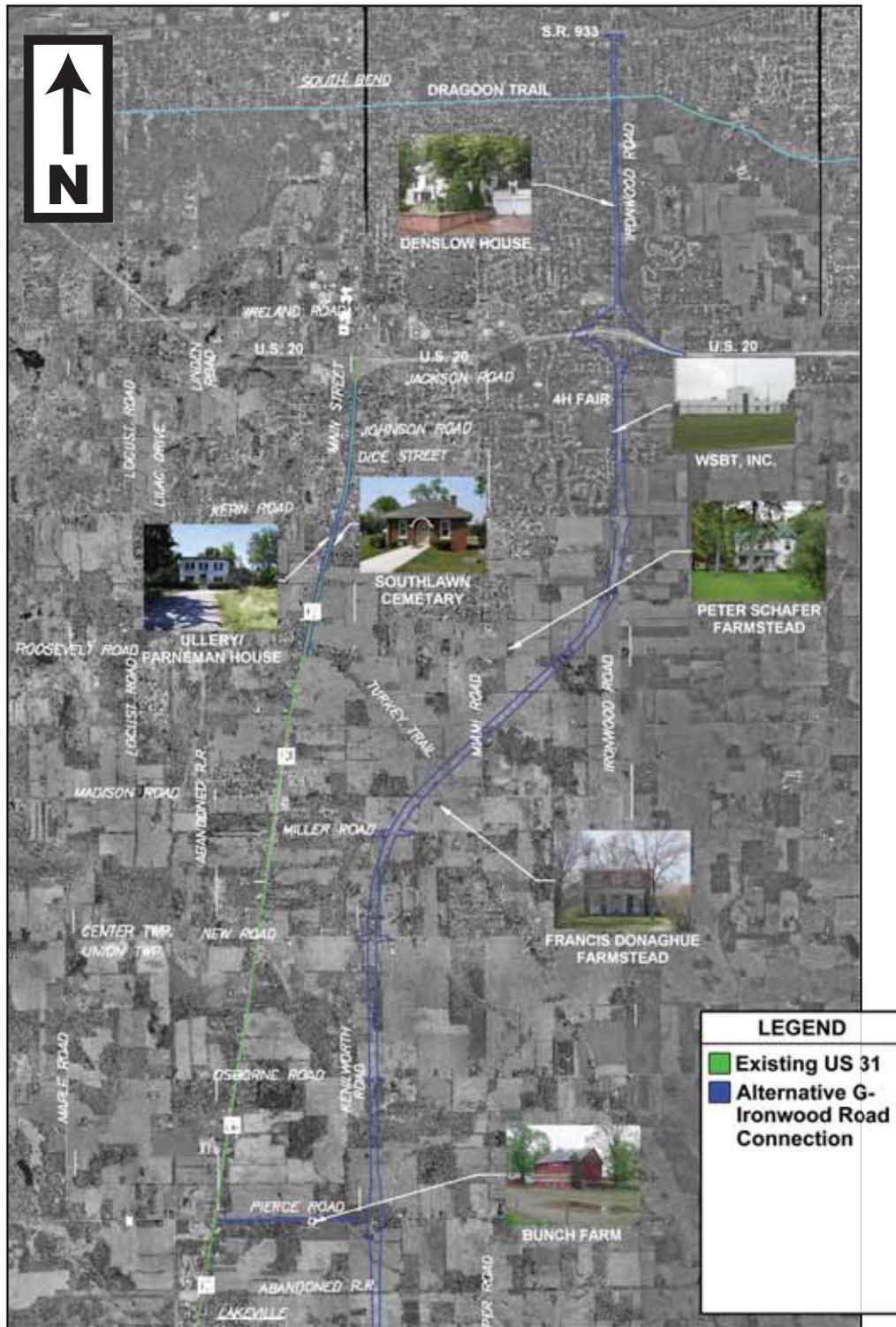


Figure 3.2.27: Alternative G – Ironwood Road Connection Potential Historic Property Impacts



Table 3.2.29 compares the socio-economic and environmental impacts associated with Alternative G – Ironwood Connection to those alternatives recommended for further study (Alternatives Cs, Es, G-Cs and G-Es). It is important to again note that the US 31 Improvement Project has been a dynamic process. Similar impact information presented in previous sections of this document was from data and conceptual design parameters available at an earlier stage in the progress of the study. Additional information was collected and design was further developed through the progress of the study. Impact information contained in previous tables may be slightly different than those contained in Table 3.2.29, as well as those contained in subsequent sections of this document.

Table 3.2.29: Comparison of Alternatives G-Ironwood Road Connection with Cs, Es, G-Cs and G-Es					
Socio-Economic/Environmental Measure	Alternative				
	Cs	Es	G-Cs	G-Es	G-Ironwood
ENGINEERING COSTS (Total) (Mil. Of \$) (Year 2003 Dollars)	204.1 to 224.0	269.8 to 289.2	205.5 to 226.1	241.6 to 261.6	310.3 to 329.6
NWI WETLANDS	54 Acres	38 Acres	33 Acres	24 Acres	31 Acres
TRAFFIC PERFORMANCE					
Meets Purpose and Need	Yes	Yes	Yes	Yes	Yes
Performance (Compared to other Alternatives, 1 is Best Performer)	3	1	4	2	5
RELOCATIONS					
Residences Acquired	49	110	55	103	194
Businesses Acquired (Includes Large Farming Operations)	8	34	6	37	38
Businesses Damaged	5	5	4	5	22
Churches Acquired	1	1	1	1	4
HISTORIC PROPERTIES (Compared to other Alternatives)					
Visual Impacts	Medium	Low	Medium	Medium	High
Noise Impacts	Medium	Low	Medium	Medium	High
Potential Section 4(f) Issues	0	0	0	0	1
FORESTS	189 Acres	133 Acres	124 Acres	96 Acres	99 Acres
FARMLAND (ROW CROP)	390 Acres	394 Acres	494 Acres	485 Acres	531 Acres



Conclusion

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 acceptable LOS D and the widening of Ironwood Road from four to seven lanes from US 20 to SR 933 (Lincolnway) to reach a minimum acceptable 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, that includes the No-Build Alternative and Alternatives Cs, Es, G-Cs and G-Es.**