

CHAPTER 6 – COMPARISON OF ALTERNATIVES AND IDENTIFICATION OF A SELECTED ALTERNATIVE

Substantive changes to Chapter 6 since the publication of the DEIS

- Table 6.1-1 – Added impacts of Central Alternative 1B Modified (Selected)
- Section 6.1.2 through 6.1.4 – Updated summary of impacts discussions to include comparison to Central Alternative 1B Modified (Selected)
- Section 6.1.5 – Added this new section to describe impacts of Central Alternative 1B Modified (Selected)
- Section 6.2 – Updated section to describe why Central Alternative 1B Modified was identified as the Selected Alternative

This chapter provides a summary and comparison of the impacts and costs for each alternative. Based on this comparison, it discusses the Preferred Alternatives (i.e., Central Alternatives 1A and 1B) that were identified in the Draft Environmental Impact Statement (DEIS) and the Selected Alternative (i.e., Central Alternative 1B Modified) that has been identified in this Final Environmental Impact Statement (FEIS). The Selected Alternative represents the alternative that would generally result in overall fewer socioeconomic and natural resource impacts while minimizing costs and optimizing potential toll revenue. The identification of the Selected Alternative is also based on public and agency comments received during the DEIS public hearings and 56-day comment period and during the virtual public meeting and 15-day comment period on the identification of Central Alternative 1B Modified as the Single Preferred Alternative.

For the purposes of comparing impacts in this chapter, it is important to note that Central Alternatives 1A and 1B (Preferred) have the same design and, therefore, the same construction and right-of-way limits. The only difference is that Central Alternative 1A would include tolls on the remaining US 41 bridge and Central Alternative 1B would not. As a result, the physical impacts from the footprint of these alternatives are the same. The only differences in impacts (i.e., traffic, noise, socioeconomics, and environmental justice populations) would be associated with whether or not the US 41 bridge would be tolled. As discussed in **Chapter 3, Section 3.4**, following the DEIS, design modifications were made to both Central Alternatives 1A and 1B (Preferred).

However, Central Alternative 1B, with the design modifications, was renamed Central Alternative 1B Modified and identified as the Single Preferred Alternative and subsequently the Selected Alternative. For this chapter, the original design and impacts associated with Central Alternatives 1A and 1B (Preferred) that were presented in the DEIS have been carried forward and included in the FEIS in order to compare the changes in design and impacts associated with Central Alternative 1B Modified (Selected).

6.1 SUMMARY OF IMPACTS

Table 6.1-1 summarizes and compares the impacts and costs for each alternative. The purpose of this analysis was to identify the most notable differences between the alternatives and to determine which would have the greatest and least impacts and costs. All the alternatives except the No Build Alternative would meet the project's purpose and need.

6.1.1 NO BUILD ALTERNATIVE

The No Build Alternative would not result in any impacts to natural, socioeconomic, or cultural resources. It would retain both of the historic US 41 bridges, but the 35-year roadway and bridge operation and maintenance costs of \$270 million would be higher than those of all the build alternatives (**Appendix O-1**). These future maintenance efforts would be carried out as separate projects and any potential impacts would be determined and addressed at that time. This alternative would not improve traffic congestion, safety, or provide cross-river system linkage for the National I-69 Corridor. As a result, it would not meet the project's purpose and need.

6.1.2 WEST ALTERNATIVE 1

Because West Alternative 1 would traverse residential neighborhoods west of and parallel to the US 41 commercial strip in Henderson, it would result in the highest number of residential relocations (242), compared to the number of relocations under West Alternative 2 (96) and Central Alternatives 1A and 1B (Preferred) (three) and 1B Modified (Selected) (two). With the addition of the commercial and places of worship relocations (27), it would also result in the highest number of total relocations (269). As with each of the build alternatives, West Alternative 1 would include tolls on the new I-69 crossing. When comparing alternatives without US 41 tolls, West Alternative 1 would impact more noise receptors (180) than Central Alternative 1B (149) but less than Central Alternative 1B Modified (Selected) (185). It would also impact more noise receptors than West Alternative 2 (140). Because the alternative would avoid most of the US 41 commercial strip, it would result in less than half of the commercial relocations compared to West Alternative 2 (62).

This alternative would result in the greatest impacts to wetlands (55.4 acres), floodways (149 acres), and forested habitat (96.8 acres), which would correlate to the highest impacts to potential habitat for the federally endangered Indiana bat and federally threatened northern long-eared bat. The Section 4(f) impacts would include the removal of the historic southbound US 41 bridge, a *de minimis* impact to Atkinson Park associated with a drainage easement, and the permanent use of 35.7 acres of the Green River National Wildlife Refuge (NWR).

Table 6.1-1. Summary of Impacts

IMPACT CATEGORY	WEST ALTERNATIVE 1		WEST ALTERNATIVE 2	CENTRAL ALTERNATIVES 1A AND 1B (PREFERRED)		CENTRAL ALTERNATIVE 1B MODIFIED (SELECTED)	NO BUILD ALTERNATIVE
	With US 41 Bridge Tolls	Without US 41 Bridge Tolls	All Cross-River Traffic is Tolled	1A – With US 41 Bridge Tolls	1B – Without US 41 Bridge Tolls	Without US 41 Bridge Tolls	No Cross-River Traffic is Tolled
SOCIOECONOMIC							
Relocations							
Residential (units)	242	96	3	2	0		
Commercial (units)	25	62	0	0	0		
Farm Building	1	1	0	0	0		
Places of Worship	1	1	0	0	0		
Total Relocations	269	160	3	2	0		
New Right-of-way (acres)	333	298	420	631	0		
Will Tolling or Traffic Impacts Likely Cause Environmental Justice Disproportionate and Adverse Effects?¹	Yes	No	Yes	Yes	No	No	No
Noise (number of receptors)	167	180	140	257	149	185	NA
Managed Lands (number/acres)	1/4.9	2/10.8	1/1.3	1/1.3	0		
Aboveground Historic Resources	2	2	4	4	0		
Section 4(f) Use							
Public Parks, Recreation Areas, and Wildlife/ Waterfowl Refuges	2	2	0	0	0		
Historic Property	1	2	1	1	0		
Recognized Environmental Condition (REC) Sites	14	22	5	7	0		
Prime and Unique Farmland and Farmland of Statewide Importance (acres)	84.9	46.2	360.8	539.7	0		
Farmland (acres)	182.6	168.9	398.5	605.5	0		
NATURAL RESOURCES							
Wetlands (number/acres)	18/55.4	17/35.1	15/18.7	24/18.5	0		
Streams (number/linear feet)							
Perennial	5/1,799	5/1,556	4/1,626	5/1,439	0		

IMPACT CATEGORY	WEST ALTERNATIVE 1	WEST ALTERNATIVE 2	CENTRAL ALTERNATIVES 1A AND 1B (PREFERRED)	CENTRAL ALTERNATIVE 1B MODIFIED (SELECTED)	NO BUILD ALTERNATIVE
Intermittent	3/790	2/511	10/5,104	12/10,234	0
Ephemeral	39/20,886	37/19,085	42/13,206	52/20,238	0
Total	47/23,475	44/21,152	56/19,936	69/31,911	0
Open Water (number/acres)	6/9.6	3/2.8	1/12.7	1/6.3	0
Wellhead Protection Areas	2	2	0	0	0
Floodplain (acres)	105	89	190	313 ⁴	0
Floodway (acres)	149	120	88	127 ⁴	0
Forested Habitat	96.8	71.2	45.8	58.0	0
DESIGN/COSTS					
Length (miles)					
New Interstate	8.2	8.1	8.4	8.7	0
Existing US 41	2.9	2.9	2.8	2.8	0
Total	11.1	11.0	11.2	11.5	0
Cost (in millions, year of expenditure)					
Design, Approvals, Right-of-Way, Mitigation, Procurement, Construction Inspection ¹	\$312	\$352	\$200	\$236	\$17
Construction	\$1,245	\$1,221	\$1,062	\$994-\$1,039 ⁵	\$0
Roadway/Bridge Operations and Maintenance (35 years)	\$252 ³	\$107	\$234 ³	\$214 ³	\$293
Total	\$1,810	\$1,680	\$1,497	\$1,444 – 1,489 ⁵	\$310
Potential toll revenue (in millions, year of collection)	\$1,100 - \$2,900	\$2,600	\$1,200 (1A) - \$2,600 (1B)	\$1,900	\$0

¹ Comparing traffic volumes and LOS under each of the build alternatives and with both tolling scenarios, all the alternatives would reduce traffic volumes and improve LOS on US 41 as compared with the No Build alternative, even with the removal of one or both of the US 41 bridges. Therefore, the EJ analysis did not identify any disproportionately high and adverse traffic related impacts to EJ populations.

² Each of the alternatives, including the No Build Alternative, includes costs associated with the completion of the NEPA process.

³ Includes the remaining US 41 bridge.

⁴ The proposed stormwater detention basins associated with Central Alternative 1B Modified (Selected) would have beneficial impacts by reducing downstream flooding in Henderson.

⁵ The cost range for Central Alternative 1B Modified is based on the FHWA Cost Estimate Review (see Appendix Q-2).

In the absence of mitigation the option of tolls on the US 41 bridge would likely result in disproportionately high and adverse effects to environmental justice (EJ) populations, while the option without tolls on the US 41 bridge would not result in disproportionate effects and would provide a toll-free option for local cross-river traffic. Because the alternative would retain the northbound US 41 bridge in addition to providing a new I-69 bridge, it would provide cross-river route redundancy for the region.

West Alternative 1 would have the highest cost of the build alternatives at \$1,810 million, which is \$130 million more than West Alternative 2, \$313 million more than Central Alternatives 1A and 1B (Preferred), and \$321 to \$366 million more than Central alternative 1B Modified (Selected). Without tolls on the US 41 bridge, the 35-year toll revenue (year of collection dollars) is estimated at \$1.1 billion; with tolls on the US 41 bridge, toll revenue is estimated at \$2.9 billion.

6.1.3 WEST ALTERNATIVE 2

West Alternative 2 would traverse the west side of the US 41 commercial strip and result in the highest number of commercial relocations (62). Due to the alternative's impacts to commercial development, it would correspondingly impact the highest number of sites (22) with recognized environmental conditions (RECs). It would also have the second highest number of residential relocations (96) and total relocations (160). Because the alternative would utilize most of the existing US 41 right-of-way, it would require the least amount of new right-of-way (298 acres).

As with each of the build alternatives, West Alternative 2 would include tolls on the new I-69 crossing. West Alternative 2 would remove both US 41 bridges and, therefore, would not provide a toll-free river crossing option. As a result, in the absence of mitigation, it would likely have a disproportionately high and adverse effect on EJ populations. In addition, because the alternative would only include one new I-69 bridge, it would not provide cross-river route redundancy for the region. The Section 4(f) impacts would consist of the removal of both historic US 41 bridges, a *de minimis* impact to Atkinson Park associated with a drainage easement, and the permanent use of 32.1 acres of the Green River NWR. As for managed lands, West Alternative 2 would result in the greatest impacts, with two sites totaling 10.8 acres.

This alternative would result in the least impact to prime and unique farmland and farmland of statewide importance (46.2 acres), farmland (168.9 acres), linear feet of intermittent streams (511 feet), floodplains (89 acres), and noise receptors (140). Impacts to forested habitat would be 71.2 acres, which is more than Central Alternatives 1A and 1B (Preferred) (45.8 acres) and 1B Modified (Selected) (58.0 acres) but less than West Alternative 1 (96.8 acres).

Because the alternative would remove both US 41 bridges and shift all traffic over to the new I-69 bridge, it is anticipated that it would improve cross-river safety more than the other build alternatives.

The alternative's cost at \$1,680 million would be \$130 million less than West Alternative 1 but \$183 million more than Central Alternatives 1A and 1B (Preferred) and \$191 to \$236 million more than Central Alternative 1B Modified (Selected). The 35-year toll revenue (year of collection dollars) is estimated at \$2.6 billion.

6.1.4 CENTRAL ALTERNATIVES 1A AND 1B (PREFERRED)

Central Alternatives 1A and 1B (Preferred) would have the second fewest residential relocations (three) and no commercial relocations. As a result, they would have the second fewest total relocations (three), which is fewer than West Alternative 1 (269) or West Alternative 2 (160) but only one more than Central Alternative 1B Modified (Selected) (two). These alternatives would also impact the fewest sites with RECs (five).

Because most of these alternatives cross new terrain and undeveloped farmland, they would require the second greatest amount of new right-of-way (420 acres) and have the second greatest impact to prime and unique farmland and farmland of statewide importance (360.8 acres) and farmland (398.5 acres) compared to the other build alternatives. They would also have the second greatest impacts to floodplains (190 acres). However, these alternatives would have the second least impact to wetlands (18.7 acres) and the least impact to streams (19,936 linear feet), managed lands (1.3 acres) (along with Central Alternative 1B Modified [Selected]), floodways (88 acres), and forested habitat (45.8 acres), which correlates to the least impact to potential habitat for the federally endangered Indiana bat and federally threatened northern long-eared bat. The only Section 4(f) impact would be the removal of the historic southbound US 41 bridge.

As with each of the build alternatives, Central Alternatives 1A and 1B (Preferred) would include tolls on the new I-69 crossing. Similar to West Alternative 1, in the absence of mitigation, Central Alternative 1A, which would include tolls on the US 41 bridge, would likely result in disproportionately high and adverse effects to EJ populations, while Central Alternatives 1B and 1B Modified, which would not toll the US 41 bridge, would not result in disproportionate effects. Central Alternative 1A, with tolls on the US 41 bridge, would also impact the highest number of noise receptors (257).

Because both Central Alternatives 1A and 1B (Preferred) would retain the northbound US 41 bridge, they would provide cross-river route redundancy for the region. Central Alternatives 1A and 1B (Preferred) would shift through traffic farther away from the existing US 41 commercial strip than West Alternatives 1 and 2, thereby resulting in potentially greater economic impacts to businesses that depend on through traffic.

These alternatives would have the second lowest cost of the four build alternatives at \$1,497 million, which is \$313 million and \$183 million less than West Alternatives 1 and 2, respectively, but \$8 to \$53 million more than Central Alternative 1B Modified (Selected). With Central Alternative 1B, without tolls on the US 41 bridge, the 35-year toll revenue (year of collection dollars) is estimated at \$1.2 billion; for Central Alternative 1A, which would toll the US 41 bridge, the 35-year toll revenue is estimated at \$2.6 billion.

6.1.5 CENTRAL ALTERNATIVE 1B MODIFIED (SELECTED)

Central Alternative 1B Modified (Selected) would have the fewest residential relocations (two) and no commercial relocations. This alternative would also impact the second fewest sites with RECs (seven).

Because most of the alternative crosses new terrain and undeveloped farmland, it would require the greatest amount of new right-of-way (631 acres) and have the greatest impact to farmland (605.5 acres), along with prime farmland, unique farmland, and farmland of statewide importance (539.7 acres). It would also have the greatest impacts to floodplains (313 acres), intermittent streams (10,234 linear feet), and total streams (31,911 linear feet). Although it would have the greatest total impacts to streams, most of these impacts are to ephemeral streams (20,238 linear feet), which comprises approximately 63 percent of the total stream impacts. It would have the second greatest impacts to noise receptors (185). However, the alternative would have the least impacts to wetlands (18.5 acres), perennial streams (1,439 linear feet), managed lands (1.3 acres) (along with Central Alternatives 1A and 1B [Preferred]), and the second fewest impacts to forested habitat (58.0 acres), which correlates to the least impact to potential habitat for the federally endangered Indiana bat and federally threatened northern long-eared bat. The only Section 4(f) impact would be the removal of the historic southbound US 41 bridge. Note that Central Alternative 1B Modified (Selected) would require more right-of-way and result in greater impacts to farmlands, floodplains, and floodways than Central Alternatives 1A and 1B (Preferred) primarily due to the inclusion of stormwater detention basins (i.e., approximately 200 acres) that were developed during the design modification process to reduce downstream flooding.

As with each of the build alternatives, Central Alternative 1B Modified (Selected) would include tolls on the new I-69 crossing. However, Central Alternative 1B Modified (Selected) would not toll the US 41 bridge, which provides a toll-free option for low-income users and, therefore, would not result in disproportionately high and adverse effects to EJ populations.

Because Central Alternative 1B Modified (Selected) would retain the northbound US 41 bridge, it would provide cross-river route redundancy for the region. It would shift through traffic farther away from the existing US 41 commercial strip than West Alternatives 1 and 2, thereby resulting in potentially greater economic impacts to businesses that depend on through traffic.

The alternative would have the lowest cost of the four alternatives at \$1,444 to \$1,489 million, which is \$321 to \$366 million, \$191 to \$236 million, and \$8 to \$53 million less than West Alternative 1, West Alternative 2, and Central Alternatives 1A and 1B (Preferred), respectively. For this alternative, the 35-year toll revenue (year of collection dollars) is estimated at \$1.9 billion.

6.2 IDENTIFICATION OF THE SELECTED ALTERNATIVE

Based on: 1) the comparison of the alternatives' impacts and costs in **Section 6.1**; 2) public and agency comments received during the DEIS public hearings and 56-day comment period; and 3) public and agency comments received during the virtual public meeting and 15-day comment period on the identification of Central Alternative 1B Modified as the Single Preferred Alternative, Central Alternative 1B Modified, which retains the northbound US 41 bridge without tolls, has been identified as the Selected Alternative for the following reasons.

- Fewest residential relocations
- No commercial relocations

- Fewest impacts to the following resources:
 - Wetlands
 - Perennial streams
 - Managed lands (same as Central Alternatives 1A and 1B)
 - Section 4(f) resources (i.e., the historic southbound US 41 bridge) (same as Central Alternatives 1A and 1B)
- Second fewest impacts to the following resources:
 - Forested habitat and potential habitat for the federally endangered Indiana bat and federally threatened northern long-eared bat
 - Sites with RECs
- Cross-river route redundancy for the region that provides acceptable cross-river capacity for future traffic demands in a fiscally responsible manner
- Reduced economic impacts to businesses along the US 41 commercial strip and to local users that regularly cross the Ohio River by keeping the US 41 bridge toll free
- The majority of the public comments preferred no tolls on the US 41 bridge and providing a toll-free option would avoid disproportionately high and adverse impacts to environmental justice populations
- Lowest total cost

An initial financial plan will be developed based on the total cost of the project, the amount of money each state can contribute from traditional sources, the potential for receiving national grants or other awards, and the amount of remaining funding need to be filled by tolls.

Each states' traditional transportation funding programs must support thousands of projects each year statewide. The total costs for this project are significant when compared with the statewide program and require other funding sources to make the project financially feasible. Tolling only the I-69 bridge would support financing about \$250 million of the \$1.25 billion project capital costs. The type of procurement and project financing has not been determined, nor has the tolling policy, all of which would affect the net amount of toll revenue that could be used to offset project costs. After deducting for financing, which could be considerable when compared with total revenue, the net toll revenues remaining would be used to cover construction costs. Tolling is discussed further in **Chapter 4, Section 4.8.2**.

General mitigation measures and environmental commitments that will apply to unavoidable impacts associated with Central Alternative 1B Modified (Selected) are presented in **Chapter 7**. Efforts to further minimize potential impacts, improve traffic performance, and reduce costs will occur during final design. FHWA, INDOT, and KYTC will review any design modifications during final design to determine the need for a re-evaluation or a supplemental NEPA document in accordance with 23 CFR 771.129 and 771.130.