

CHAPTER IV

Environmental Consequences and Measures to Minimize Harm

This chapter describes the environmental consequences and measures to minimize harm associated with the reasonable alternatives and the selected alternative. Environmental consequences are the probable beneficial and adverse social, economic and environmental effects of the reasonable alternatives under consideration. The information provides a basis for evaluating the comparative merits of the alternatives. Measures to minimize harm are efforts that are proposed to reduce the identified impacts associated with the selected alternative. This approach is consistent with Federal Highway Administration's *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA Technical Advisory T6640.8A, October 30, 1987).

Table IV-1 is a summary of the impacts associated with the reasonable range of alternatives. The components of the selected alternative are also identified. **Table IV-2** is a summary of the impacts associated with the selected alternative.

The selected alternative through Lincoln is predicated on the feasibility of an enclosed drainage system. If an enclosed drainage system cannot be designed, an open ditch drainage alternative with widening to the east would be the selected alternative. This alternative would configure Route 65 as a five-lane, undivided, urban cross-section with open drainage. The other aspects of the selected alternative would remain unchanged. The impacts of open drainage variant of the selected alternative are also depicted in this chapter as the "Eastern Widening with Open Drainage" discussions.



At the end of the reasonable range of alternatives stage, a **preferred alternative** was identified and discussed in a Draft Environmental Assessment (DEA) circulated in February 2007. Based on public input, agency coordination and internal analysis, the preferred alternative was finalized and is referred to as the selected alternative. The **selected alternative** is discussed throughout this document.

The selected alternative has been updated in minor, but important ways, from the preferred alternative described in the DEA.

The selected alternative is shown in **Exhibits II-3A–J**.

A detailed description of how the selected alternative described in this document differs from the alternative presented in the DEA is presented in **Chapter II.D**.



This section of the text presents the impacts associated with all of the reasonable alternatives, as well as the selected alternative.

Based on this analysis, the Federal Highway Administration has determined that the selected alternative will have no significant impact on the natural or human environment.

A. Social and Economic Impacts

The purpose of this section is to provide an overview of the impacts to the social and economic resources, trends and activities described in **Chapter III.B**. This section describes key community resources—the public and private facilities, institutions, community services and associations—that promote neighborhood and community cohesion, public safety, quality of life and access to business and social opportunities.

1. Acquisition Impacts

Among the most sensitive project-related impacts of any transportation projects are the acquisition of right of way and the displacement of existing buildings. The reasonable range of alternatives would involve improving the existing roadway, which is currently configured as a two-lane roadway. The reconfiguration of the roadway to a four-lane configuration will require the acquisition of additional right of way and will necessitate the relocation of some existing households, businesses and other facilities. All land acquisition will be carried out by the Missouri Department of Transportation in accordance with its right-of-way acquisition and relocation program. This program requires that just compensation be paid to the owners of private property taken for public use, and is discussed in greater detail in **Chapter IV.C.1**.

**TABLE IV-1
IMPACT SUMMARY FOR THE REASONABLE RANGE OF ALTERNATIVES
IMPROVEMENT OF ROUTE 65, BENTON COUNTY (J5P0892)**

EVALUATION FACTORS/IMPACTS	NO BUILD	ALTERNATIVES NORTH OF LINCOLN		ALTERNATIVES IN LINCOLN			ALTERNATIVES SOUTH OF LINCOLN			
		Eastern Widening	Western Widening	Near East Bypass	Symmetrical Widening with Curb and Gutter***	Eastern Widening with Open Drainage	Western Widening with Open Drainage	Eastern Widening	Western Widening	Hybrid Widening*
PURPOSE AND NEED										
1. Improve Safety along Route 65	Not Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved
2. Enhance Corridor Operations	Not Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved
3. Achieve Regional/Local Continuity Goals	Not Achieved	Achieved	Achieved	Not Achieved	Achieved	Minimally Achieved	Minimally Achieved	Achieved	Achieved	Achieved
ENVIRONMENTAL IMPACTS										
Expected Wetland Impacts**	None	0.1 Acre	0.3 Acre	0.7 Acre	0.2 Acre	0.2 Acre	0.1 Acre	0.8 Acre	5.5 Acres	2.8 Acres
Potential Environmental Site Assessments	None Expected	None Expected	None Expected	One Expected	Two Expected	Two Expected	One Expected	None Expected	None Expected	None Expected
Expected Stream Impacts**	None	630 Linear Feet	160 Linear Feet	2,460 Linear Feet	620 Linear Feet	1,160 Linear Feet	910 Linear Feet	1,540 Linear Feet	4,780 Linear Feet	4,820 Linear Feet
Approximate Farmland Impacts (Existing Use)	None	33 Acres	20 Acres	162 Acres	75 Acres	68 Acres	59 Acres	61 Acres	54 Acres	70 Acres
Floodplain Encroachments	None	Yes - Tributary to Cole Camp Creek	Yes - Tributary to Cole Camp Creek	Yes - Multiple Crossings of Tributaries to Cole Camp Creek and Duran Creek	Yes - Tributary to Cole Camp Creek and Duran Creek	Yes - Tributary to Cole Camp Creek and Duran Creek	Yes - Tributary to Cole Camp Creek and Duran Creek	None	Yes - Minor Encroachments at the Reservoir and at the Route 65/T Intersection	Yes - Bird Branch
Endangered Species Issues (Encroachment on Rock Hill Prairie)	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected	Encroachment on Rock Hill Prairie	None Expected	None Expected
Public Land Encroachments	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected	USDA Office	Lost Valley Fish Hatchery	Encroachment on Truman Reservoir	Encroachment on Truman Reservoir and Lost Valley Fish Hatchery
Cultural Resources Impacts	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected	None Expected
DISPLACEMENT/ENCROACHMENT IMPACTS										
Total Structure Displacements	None	None	8	10	10	15	18	17	25	19
Commercial/Industrial Structure Displacements	None	None	None	7	7	12	11	14	17	11
Residential Structure Displacements	None	None	3	1	1	1	3	2	4	5
"Other" Structure Displacements	None	None	5	2	2	2	4	1	4	3
Total Anticipated Right-of-Way Acquisition	None	43 Acres	40 Acres	178 Acres	83 Acres	118 Acres	118 Acres	120 Acres	122 Acres	140 Acres
Important Community Resource Displacements	None	None	None	None	None	MoDOT Maintenance Facility	Warsaw-Lincoln Ambulance Station	Lost Valley Fish Hatchery Well House	None	None
SOCIO-ECONOMIC/COMMUNITY IMPACTS										
Potential for Community Service Disruptions	Continued Degradation of Service	Low	Low	Potential Loss of Tax Revenue	Low	Increased Displacements	Increased Displacements	Low	Low	Low
Expected Neighborhood/Community Impacts	Continued Degradation of Service	Low	Increased Residential Displacements	New Roadway in Vicinity of Existing Neighborhoods	Low	Increased Displacements	Increased Displacements	Low	Low	Low
Expected Travel Pattern Disruptions	No Change	Minimal	Minimal	Bypass of Lincoln	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Environmental Justice Issues	None	None	None	None	None	None	None	None	None	None
Business Community Impacts	No Changes to Existing Conditions	Limited	None	Bypass of Existing Lincoln Businesses	Limited	Increased Displacements	Increased Displacements	Limited	Limited	Limited
Important Continuity Impacts	None	Minimal	Minimal	Alteration of Interface Between Lincoln and Route 65	Revision of Driveway Access Points	Revision of Driveway Access Points	Revision of Driveway Access Points	Minimal	Minimal	Minimal
ENGINEERING IMPACTS										
Estimated Project Cost	No New Costs	\$8,600,000	\$8,100,000	\$14,200,000	\$16,700,000	\$15,200,000	\$16,300,000	\$25,800,000	\$28,700,000	\$34,300,000
Constructability Issues	Not Applicable	No Technical Challenges	No Technical Challenges	No Technical Challenges	Must Maintain Existing Drainage	No Technical Challenges	No Technical Challenges	No Technical Challenges	No Technical Challenges	No Technical Challenges
Maintenance of Traffic Issues	Not Applicable	No Technical Challenges	No Technical Challenges	No Technical Challenges	Construction to be Done Adjacent to Live Traffic; Temporary Access Impacts to Adjoining Properties	Construction to be Done Adjacent to Live Traffic; Temporary Access Impacts to Adjoining Properties	Construction to be Done Adjacent to Live Traffic; Temporary Access Impacts to Adjoining Properties	No Technical Challenges	No Technical Challenges	No Technical Challenges
Important Drainage Issues	Not Applicable	Roadside Ditches Expected	Roadside Ditches Expected	Roadside Ditches Expected	Curb and Gutter Expected	Open Drainage Expected	Open Drainage Expected	Roadside Ditches Expected	Roadside Ditches Expected	Roadside Ditches Expected
Roadway Type Considerations	Not Applicable	Four-Lane Divided Highway	Four-Lane Divided Highway	Four-Lane Divided Highway	Urban Typical Section with Two-Way, Left-Turn Lane	Urban Typical Section with Two-Way, Left-Turn Lane	Urban Typical Section with Two-Way, Left-Turn Lane	Four-Lane Divided Highway	Four-Lane Divided Highway	Four-Lane Divided Highway
		Component of Selected Alternative			Component of Selected Alternative					Component of Selected Alternative

* Improve by alternately widening to the east and west of the existing alignment. **These data are based on the wetland/stream determinations conducted on all reasonable alternatives. Table S-1 presents the results of the wetland delineation for the selected alternative. *** The selected alternative through Lincoln is predicated on the feasibility of an enclosed drainage system. If an enclosed drainage system cannot be designed, an open ditch drainage alternative with widening to the east would be the selected alternative.

The extent of the anticipated acquisition of property associated with the selected alternative is shown on **Exhibits IV-1A–J**¹. The property acquisitions generally consist of partial property purchases, meaning only a portion of the parcel would be acquired. The remaining useable land would be retained by the property owner. **Table IV-3** summarizes the right-of-way acquisition associated with the reasonable alternatives. The extent of acquisition is roughly equivalent amongst the reasonable alternatives. One exception is the larger acquisition associated with the Near East Bypass.

The selected alternative is expected to require the acquisition of 266 acres of property from approximately 125 landowners. The total number of parcels affected by the selected alternative is 159; it is anticipated that 11 parcels will require the acquisition of the entire parcel. This acquisition estimate is limited to the area that falls within the project footprint. As the construction plans are developed, it may be necessary to also utilize construction easements – temporary or permanent agreements to access or use property adjacent to the project footprint. Construction easements also fall under the rules of MoDOT’s right-of-way acquisition and relocation program.

With the exception of the Near East Bypass of Lincoln (LE-1), the total extent of property acquisition associated with the reasonable alternatives is very similar. Because of the similarities among the reasonable alternatives, the difference in the total area of acquisition was less important in the decision-making process than the nature of some of the specific property impacts of each alternative. Among the important acquisition-related considerations associated with the selected alternative are:

- **Avoidance of the Eichler Road Development.** Between Mt. Olivet Road and Route HH (north of Lincoln), a large-scale residential development is under construction. Currently, a large pond is being created by detaining a tributary to the Carman Creek immediately west of Route 65. A western widening at this location would significantly disrupt this enterprise. The selected alternative avoids this impact.
- **Symmetrical widening within the heart of Lincoln.** The selected alternative minimizes right-of-way acquisition by utilizing a symmetrical widening along with a curb-and-gutter configuration. The other through-Lincoln reasonable alternatives investigated the consequences if a buried drainage system would not work. Because a symmetrical widening with roadside drainage would cause displacements on both sides of Route 65, western and eastern widenings were investigated in the reasonable range. Either of these alternatives would change the existing configuration of Lincoln substantially.

¹ The acquisition depicted on **Exhibits IV-1A–J** is based on existing engineering and is intended to be a worst-case scenario. As the project proceeds through the design process, alterations should be expected. The design team will seek to minimize impacts to the extent practicable.

TABLE IV-2 IMPACT SUMMARY IMPROVEMENT OF ROUTE 65, BENTON COUNTY (J5P0892)		
EVALUATION FACTORS	SELECTED ALTERNATIVE*	ENCLOSED DRAINAGE VERSION of SELECTED ALTERNATIVE**
	IMPACTS	IMPACTS
PURPOSE AND NEED		
1. Improve Safety along Route 65	Achieved	Achieved
2. Enhance Corridor Operations	Achieved	Achieved
3. Achieve Regional/Local Continuity Goals	Achieved	Achieved
ENVIRONMENTAL IMPACTS		
Expected Wetland Impacts (Based on Wetland Delineation)	1.1 Acres	1.1 Acres
Potential Environmental Site Assessment Involvement	2 Sites	2 Sites
Stream Impacts (Based on Stream Delineation)	6,470 Linear Feet	6,490 Linear Feet
Approximate Farmland Impacts	178 Acres	178 Acres
Floodplain Encroachments	10.8 Acres	10.8 Acres
Endangered Species Issues (Encroachment on Rock Hill Prairie)	None	None
Public Land Encroachments	Truman Lake: 17.8 Acres Lost Valley Fish Hatchery: 5.4 Acres	Truman Lake: 17.8 Acres Lost Valley Fish Hatchery: 5.4 Acres
Cultural Resources Impacts	None Expected	None Expected
DISPLACEMENT/ENCROACHMENT IMPACTS		
Total Structure Displacements	29	34
Commercial/Industrial Structure Displacements	18	23
Residential Structure Displacements	6	6
"Other" Structure Displacements	5	5
Total Anticipated Right-of-Way Acquisition	266 Acres	301 Acres
Important Community Resource Displacements	None	Possible Displacement of MoDOT Salt Barn
SOCIO-ECONOMIC/COMMUNITY IMPACTS		
Potential for Community Service Disruptions	Low (Existing Roadway Being Improved)	Low (Existing Roadway Being Improved)
Expected Neighborhood/Community Impacts	Low (Encroachments are Limited)	Open Drainage will Enlarge Footprint and Impacts
Expected Travel Pattern Disruptions	Minimal (All Existing Roadway Turn Movements Maintained)	Minimal (All Existing Roadway Turn Movements Maintained)
Environmental Justice Issues	None	None
Business Community Impacts	Limited (Project Largely Maintains Existing Business Community)	Larger Footprint Adds Five Additional Displacements within Lincoln
Important Continuity Issues	Within Lincoln: Reconfiguration of Existing Curb Cuts/Driveways	Within Lincoln: Reconfiguration of Existing Curb Cuts/Driveways
ENGINEERING IMPACTS		
Estimated Project Cost	Approximately \$52 Million	Approximately \$52 Million
Constructability Issues	Alignment Transitions May Create Construction Planning Difficulties	Alignment Transitions May Create Construction Planning Difficulties
Maintenance of Traffic Issues	Detours Can be Expected at Some Intersections	Detours can be Expected at Some Intersections and Driveways
Important Drainage Issues	Curb-and-Gutter System Must Discharge to Timber Line Lake	Open Drainage will Enlarge Footprint
Roadway Type Considerations	Reused Lanes Require an Unknown Amount of Rehabilitation	Reused Lanes Require an Unknown Amount of Rehabilitation
Summary of Selected Alternative		
<p>*This table summarizes the impacts associated with the selected alternative. This is the alternative that MoDOT believes best solves the transportation problems and minimizes impacts. The selected alternative can be summarized as:</p> <ul style="list-style-type: none"> • North of Lincoln: Improve Route 65 by widening to the east of the existing alignment • Within Lincoln: Symmetrically widen Route 65 into a five-lane urban cross-section with a curb-and-gutter configuration • South of Lincoln: Improve by alternately widening to the east and west of the existing alignment <p>Exhibit II-3 and IV-1 depict the selected alternative.</p> <p>** The selected alternative through Lincoln is predicated on the feasibility of an enclosed drainage system. If an enclosed drainage system cannot be designed, an open ditch drainage alternative with widening to the east would be the selected alternative. This alternative would configure Route 65 as a five-lane, undivided, urban cross-section with open drainage (with a widening to the east). Exhibit IV-1Da depicts the impacts associated with the open drainage version of the selected alternative.</p>		

Table IV-3: Summary of the Right-of-Way Acquisition

	Total Number of Parcels Affected	Estimated Number of Total Parcel Acquisitions ²	Estimated Number of Partial Parcel Acquisitions ³	Estimated Total Right-of-Way Acquisition (acres)
Alternatives North of Lincoln				
<i>Eastern Widening</i>	11	2	9	43
Western Widening	11	0	11	40
Alternatives in Lincoln				
Near East Bypass (LE-1)	42	3	39	178
<i>Symmetrical Widening with Curb and Gutter</i>	81	1	80	83
Eastern Widening with Open Drainage	92	2	90	118
Western Widening with Open Drainage	92	9	83	118
Alternatives South of Lincoln				
Eastern Widening	56	8	48	120
Western Widening	74	7	67	122
<i>Hybrid Widening</i>	67	8	59	140
Selected Alternative³ – Total				
	159	11	148	266
Notes:				
¹ Total Parcel Acquisitions are those where the entire tax map parcel is estimated to be necessary for the construction of the alternative.				
² Partial Parcel Acquisitions are those where only a part of the parcel is assumed to be required, the balance retained by the existing owner. The configurations of the partial takes are shown on Exhibits IV-1A–J .				
³ <i>Italicized</i> entries are components of the selected alternative.				

- Reconfiguration of Route 65/Route H intersection.** This intersection requires substantial reconfiguration to improve safety and operation, because the bend in Route 65 creates a skewed intersection. This location is also the point where the Near East Bypass would tie back into Route 65, or the five-lane cross-section through Lincoln would convert to a four-lane divided highway. A substantial amount of additional right of way is required at this juncture. Acquisition is complicated by several businesses that are located close to Route 65, at this point. The selected alternative proposes an eastern widening. This design solution minimizes acquisition impacts as well as reconfigures Route 65 most effectively with regard to intersection geometry.

- **McDaniel Road intersection and the Warsaw Airport.** Currently, the Warsaw Airport entrance and McDaniel Road are offset by approximately 800 feet. The selected alternative consolidates these two intersections into one location by acquiring property from the airport to create a new airport entrance across from McDaniel Road. The selected alternative utilizes the airport entrance road plan recommended by the City of Warsaw. This configuration would displace one support building at the airport, but this was acceptable to the City of Warsaw. Otherwise, the selected alternative follows an eastern widening in this area and avoids acquisition of any other land from the airport.
- **Avoidance of the Rock Hill Prairie.** The selected alternative utilizes a western widening at the intersection of Route 65 and Route BB in order to avoid potential impacts to the Nature Conservancy's Rock Hill Prairie property. The portion of the property near the intersection is a rare dry prairie habitat known to contain the threatened Mead's milkweed, and therefore could have Endangered Species Act ramifications. As part of the selected alternative, the Route 65/Route BB intersection will be improved, but the improvement will be done without the use of property from the Rock Hill Prairie.
- **Reconfiguration of the Route T and Poplar Creek Road Intersections.** These intersections are off-set by approximately 400 feet. The selected alternative will consolidate these two intersections by relocating Poplar Church Road north to meet Route T. With the selected alternative, Route 65 would be widened to the west, helping to smooth the bend in Route 65 as well as to improve the geometry of the intersection.
- **Avoidance of the Karr Farmstead.** Based on early coordination, the Karr farmstead was suspected as being potentially eligible for the National Register of Historic Places². The selected alternative transitions to an eastern widening in this location, in part to avoid impacts to this farmstead, but also to help smooth the bends in Route 65 to the north and to the south. A western widening would require the displacement of at least two of the farmstead's buildings and would not improve the curves.
- **Minimization of Impacts at Lost Valley Hatchery and Truman Reservoir.** The Lost Valley Fish Hatchery and the Truman Reservoir, both important publicly owned facilities, abut Route 65 – Truman Reservoir on the west and the Lost Valley Fish Hatchery on the east. The selected alternative utilizes a western widening transitioning to an eastern widening through this area. Consequently, acquisitions and impacts are minimized. The hatchery water wells that lie in close proximity to Route 65 are avoided. Approximately 5.4 acres would be acquired from the hatchery. Approximately 17.8 acres would be acquired from the Truman Reservoir, although with no impact to either the electrical lines from the dam generating station or the embankment (a western widening has been anticipated in this area). These properties have no designated recreational or other public use. The project team is continuing coordination with U.S. Army Corps of Engineers and the Missouri Department of Conservation on this aspect of the project.

² Ultimately, it was determined that the Karr Farmstead was not eligible for the NRHP. A more detailed discussion of the Karr Farmstead is available in **Chapter III.C.13** and within the DEA.

- **Improvements through the Warsaw Interchanges.** The selected alternative utilizes an eastern widening through the interchanges at the southern end of the project. The existing right of way and structures over Route 65 were acquired and constructed in anticipation of an eastern widening. This configuration also avoids the substantial commercial displacements and land acquisition associated with a western widening.

Given their locations near the existing roadway, some structures on the acquired properties will be displaced. **Exhibits IV-1A–J** show the location of the existing buildings expected to be displaced by the selected alternative. The breakdown of building displacements by reasonable alternative is summarized in **Table IV-4**. The No-Build Alternative would not be expected to result in property acquisition or building displacements.

Table IV-4: Summary of the Structures Displaced by the Alternatives

Alternatives	Total Displaced Structures	Structure Types			
		Residences	Commercial/ Industrial	Agricultural	Support/ Out-Buildings
Alternatives North of Lincoln					
<i>Eastern Widening</i>	0	0	0	0	0
Western Widening	8	3	0	5	0
Alternatives in Lincoln					
Near East Bypass (LE-1)	10	1	7	1	1
<i>Symmetrical Widening with Curb and Gutter</i>	10	1	7	1	1
Eastern Widening with Open Drainage	15	1	12	1	1
Western Widening with Open Drainage	18	3	11	1	3
Alternatives South of Lincoln					
Eastern Widening	17	2	14	0	1
Western Widening	25	4	17	1	3
<i>Hybrid Widening</i>	19	5	11	0	3
<i>Selected Alternative – Total</i>	29	6	18	1	4
Note: <i>Italicized entries are components of the selected alternative.</i>					

Overall, the selected alternative is expected to result in the displacement of 29 structures that currently exist. The selected alternative minimizes displacements. Additionally, it minimizes the disruption to important community resources, such as businesses that are difficult to relocate or major employers.

North of Lincoln (northern termini to Route HH/Dulaban Road), the selected alternative will widen existing Route 65 to the east. This will result in no building displacements. The other reasonable alternative, a western widening, would be expected to result in displacements to three existing residences and numerous agricultural buildings. Several pending residences would also be potentially impacted.

The selected alternative uses a symmetrical widening and curb-and-gutter drainage to minimize impacts in the Lincoln portion of the project (Route HH/Dulaban Road to Carpet Barn Road). In all, the selected alternative will result in 10 building displacements in this section: a single-family residence and its garage, seven commercial buildings and a farmstead structure. Within the heart of Lincoln (between Frisch Road and McCain Street), the selected alternative will only displace structures on a single parcel. Currently, this parcel houses two retail operations (Pandora's Box and Pillow Patch Antiques). In contrast, Alternative LT-W (a western widening of Route 65) would displace six businesses within the heart of Lincoln including Sharon Johnson Accounting, Pandora's Box, Pillow Patch Antiques, Bill's Market, the Warsaw-Lincoln Ambulance Station and Papa Joe's Restaurant. The displacement of the ambulance station is not expected to result in fundamental service disruptions. Overall, the western widening will result in more displacements in the Lincoln portion of the project (Route HH/Dulaban Road to Carpet Barn Road) than the eastern widening (18 vs. 15). Alternative LT-E (an eastern widening of Route 65) would result in the displacement of six structures within the heart of Lincoln (between Frisch Road and McCain Street), including both of the gas pavilions of the area's two gas stations, the MoDOT Maintenance salt barn, an auto sales facility, an insurance office and the Bristol Manor Residential Care Facility. The displacement of the Bristol Manor (a long-term care facility providing residential care) will affect approximately 12 residents, many of which may have special needs. Additionally, the removal of the MoDOT salt barn could have a negative impact to the delivery of services. The Near East Bypass (LE-1) has the same number of total displacements as the selected alternative. These displacements occur at the points where it ties into existing Route 65 (outside of the heart of Lincoln - Frisch Road and McCain Street).

South of Lincoln (Carpet Barn Road to southern termini), displacements are unavoidable because of the distribution of buildings along both sides of the roadway, some with very short setbacks. A western widening will result in the largest number of displacements (25). Among the landmark-type displacements would be the Bunkhouse Lodge, True Value Hardware and the Hot Spot Gas Pavilion. An eastern widening would have the fewest displacements, but would include the displacement of a well and wellhouse on the Lost Valley Fish Hatchery property, Eichler Lumber and Heartland Storage. All of the reasonable alternatives would result in the displacement of a support building at the Warsaw Airport. The selected alternative transitions between an eastern and a western alignment several times to improve the safety of the alignment, which also helps to minimize displacements.

Table IV-5 identifies all of the structures expected to be displaced as a result of the selected alternative. The characteristics and needs of these displaced land uses will be discussed further in the measures of minimize harm section of this document (**Chapter IV.C.1**).

Table IV-5: Displacements Associated with the Selected Alternative

Land Use	Description	Owner	Location
Lincoln (Route HH to Carpet Barn Road)			
Commercial	Farm Implements Showroom	Lawrence Eichler	SE Quadrant of Route 65/Route HH (Dulaban) Intersection
Commercial	Do-Rite Farm Supply	Lawrence Eichler	SE Quadrant of Route 65/Route HH (Dulaban) Intersection
Commercial	Steel Barn	Lawrence Eichler	SE Quadrant of Route 65/Route HH (Dulaban) Intersection
Commercial	Steel Barn	Lawrence Eichler	SE Quadrant of Route 65/Route HH
Residential	Single-Family House	Neal Kaufman	East Side of Route 65, 4,000 feet North of Frisch Road
Support	Residential Garage	Neal Kaufman	East Side of Route 65, 4,000 feet North of Frisch Road
Commercial	Pandora's Box – Retail	Merl Carlson	SW Quadrant of Route 65/Locust Intersection (Lincoln)
Commercial	Pillow Patch Antiques	Merl Carlson	SW Quadrant of Route 65/Locust Intersection (Lincoln)
Commercial	Kreisler Auto Sales – Showroom	Jerry Kreisler	East Side of Route 65, 1,000 feet South of Route H
Agricultural	1 of 4 farmstead buildings	Robert Wischmeiser	East Side of Route 65, 1,000 feet North of Route AC
South of Lincoln (Carpet Barn Road to Southern Termini)			
Commercial	Heartland Storage	Harlan McGinnis	East Side of Route 65, Just North of Warsaw Airport
Commercial	Heartland Storage	Harlan McGinnis	East Side of Route 65, Just North of Warsaw Airport
Commercial	Heartland Storage	Harlan McGinnis	East Side of Route 65, Just North of Warsaw Airport
Commercial	Scott's 65 Sales	Walter Eichler	East Side of Route 65, across from Warsaw Airport
Commercial	Scott's 65 Sales	Walter Eichler	East Side of Route 65, across from Warsaw Airport
Support	Warsaw Airport Support Bldg	City of Warsaw	Warsaw Airport
Commercial	Vacant	Lela Merrell	SW Quadrant of Route 65/Route BB
Commercial	Vacant	Lela Merrell	SW Quadrant of Route 65/Route BB
Residential	House	Lela Merrell	SW Quadrant of Route 65/Route BB
Support	Residential Garage	Lela Merrell	SW Quadrant of Route 65/Route BB
Commercial	Rockhill Marine	Linda Rothwell	West Side of Route 65, Between Route T and Route BB
Commercial	Rockhill Marine	Linda Rothwell	West Side of Route 65, Between Route T and Route BB
Commercial	65 & T Boat & RV Storage	Sherman & Ava Lightle	NW Quadrant of Route 65/Route T
Commercial	65 & T Boat & RV Storage	Sherman & Ava Lightle	NW Quadrant of Route 65/Route T
Residential	Single-Family House	E.G. Marckle	West Side of Route 65 at Poplar Church Road Intersection
Support	Garage	E.G. Marckle	West Side of Route 65 at Poplar Church Road Intersection
Residential	Small Single-Family House	Michael Bennett	East Side of Route 65, Adjacent to Lost Valley Fish Hatchery
Residential	Small Single-Family House	Michael Bennett	East Side of Route 65, Adjacent to Lost Valley Fish Hatchery
Residential	Small Single-Family House	William & Heidi Payne	East Side of Route 65, Adjacent to Lost Valley Fish Hatchery

The Near East Bypass (LE-1) is the only reasonable alternative that does not fall along the existing Route 65 alignment. The bypass would require an additional 60 to 85 acres of land over about three miles of new alignment, compared to the alternatives that reconfigure Route 65 through Lincoln. The bypass was sited to minimize displacements, and only a single homestead (house and garage) will be displaced by the bypass where it diverges from the other alternatives. The other displacements associated with the bypass occur on Route 65 and are common with at least one of the other build alternatives. This bypass would divide/bisect at least nine agricultural parcels. Impacts to these properties, as well as the potential land use and socio-economic impacts of the bypass relative to the through-town alternatives, were found to be unacceptable by the local stakeholders.

Just as the amount of land and property that would be needed by the reasonable alternatives falls within a narrow range; the costs to acquire this real estate fall within a similarly narrow range. **Table IV-6** provides an estimate of the costs associated with right-of-way acquisition, including potential easement costs.

Table IV-6: Summary of Right-of-Way Acquisition Costs

	Estimated Property Costs	Estimated Structure Costs	Estimated Relocation Costs	Estimated Total Right-of-Way Costs
Alternatives North of Lincoln				
<i>Eastern Widening</i>	\$142,000	\$0	\$0	\$142,000
Western Widening	\$132,000	\$330,000	\$83,000	\$545,000
Alternatives in Lincoln				
Near East Bypass (LE-1)	\$587,000	\$330,000	\$83,000	\$1,000,000
<i>Symmetrical Widening with Curb and Gutter</i>	\$274,000	\$352,000	\$88,000	\$714,000
Eastern Widening with Open Drainage	\$389,000	\$1,133,000	\$283,000	\$1,805,000
Western Widening with Open Drainage	\$389,000	\$1,677,000	\$419,000	\$2,485,000
Alternatives South of Lincoln				
<i>Eastern Widening</i>	\$396,000	\$4,507,000	\$1,127,000	\$6,030,000
<i>Western Widening</i>	\$403,000	\$6,380,000	\$1,595,000	\$8,378,000
<i>Hybrid Widening</i>	\$462,000	\$2,922,000	\$748,000	\$4,132,000
Selected Alternative – Total	\$878,000	\$3,274,000	\$836,000	\$4,988,000
Notes: <i>Italicized</i> entries are components of the selected alternative.				

The right-of-way acquisition process is lengthy and detailed. This is the first estimate generated for the Route 65 project. The goal of this estimate is to compare the acquisition costs of the reasonable alternatives, rather than to definitively establish the final cost for the project. Based on this estimate, the comparative cost of acquiring right of way is not considered to be significant. Similarly, the total estimated construction costs associated with the reasonable alternatives fall within a range where they should be considered equivalent, for comparison purposes. The total estimated project costs, developed for the reasonable alternatives, are summarized in **Table IV-1**.

Cost estimates are revised throughout the development process; as new data becomes available. Currently, the selected alternative is estimated to cost roughly \$52 million.

Another element associated with the acquisition of property is the needs of the individuals affected by the project. The Missouri Department of Transportation's right-of-way acquisition and relocation program requires that just compensation be paid to the owners of private property taken for public use. These aspects of the right-of-way acquisition and relocation program are discussed in **Chapter IV.C.1**. The right-of-way acquisition and relocation program also provides for various forms of assistance to affected parties. Interviews, public involvement and site surveys have led to a preliminary understanding of the needs of potentially affected residents, landowners and businesses. Those needs seem to apply across the reasonable alternatives and will be discussed **Chapter IV.C.2**.

2. Travel Pattern, Accessibility and Employment Impacts

Most of the reasonable alternatives involve reconstruction along the existing alignment; therefore, long-term travel patterns would be essentially the same as existing patterns. Access to adjacent businesses and residences would be maintained throughout the corridor. North and south of Lincoln, the reasonable alternatives include two additional through lanes. All intersections and interchanges would be redesigned to accommodate the additional lanes and their geometry improved. No cross-roads would be cut off or abandoned.

Through Lincoln, the selected alternative would maintain existing travel patterns, although driveway consolidation in the commercial area will reduce the freedom of movement that current users experience. A total of 22 existing driveways are proposed to be closed in order to improve safety and operations through Lincoln on Route 65. Another 10 existing driveways will be relocated. Each parcel along existing Route 65 will still be provided some form of access by one or more of the 31 driveways that will be permitted along the new Route 65 in Lincoln. See **Chapter II** and **Exhibit II-4** for additional details of the proposed access management plan. This consolidation is necessary in order to improve safety and operations. No neighborhoods or communities would be severed by the through-town alternatives.

The Near East Bypass would alter travel and access patterns by redirecting traffic around the commercial area. While access would be provided to existing Route 65 at both the north and south ends of the bypass, the visibility and apparent accessibility of businesses (whose client base is largely through travelers) might be severely impacted. The bypass alignment might also result in redevelopment of some properties, which could have a real or perceived local impact on the accessibility of some separate residents to community facilities or services, and would likely alter vehicular or pedestrian travel patterns within the community.

Construction activities for any of the reasonable alternatives would have temporary impacts to business and residential access, circulation and parking. While MoDOT would maintain access to all of these lands during construction, temporary roadway and driveway closures, detours and construction equipment would disrupt access to some areas, making it more difficult for motorists as well as pedestrians and bicyclists to reach certain destinations. Standard and typical requirements for minimizing impacts during the construction period would be applied to construction contracts.

Because the alternatives are largely consistent with the development and planning goals of the communities in Benton County, the overall employment impacts associated with the improvement of Route 65 are expected to be positive. An improved Route 65 is expected to make the area more attractive to existing and potential new businesses. Relative to impacts, these are expected to be limited to the displacement of existing businesses. The displaced commercial operations are identified in **Table IV-5**. The affect of the displacement on the continued existence of the businesses was investigated by coordinating with these business owners. Overall, the displaced business owners would like to relocate in the area, to the extent possible. One of the business owner's biggest concerns is how displacements are actually processed. A more detailed treatment of the project team's coordination with potentially displaced landowners is presented in **Chapter IV.C.2**.

The No-Build Alternative would maintain existing conditions. No improvements to operating or safety conditions would occur.

3. Impacts to Community Resources

Community resources, including schools, emergency services, churches and church-sponsored services and cemeteries, are generally limited within the project area. Thus, impacts to these resources are also expected to be limited.

a. Churches

There would be no displacements of any churches as a result of any of the reasonable alternatives. A western widening would require some frontage from the Church of Christ property in Lincoln and from the River Church just north of the Truman Dam Access Road. No buildings would be displaced in either case, but the churches' driveways would require reconfiguration. The selected alternative is an eastern widening in both locations and would avoid these impacts.

b. Schools

There would be no impacts to schools as a result of any of the reasonable alternatives. Some allowances may be necessary for school bus access to some areas during construction.

c. Cemeteries

There would be no impacts to cemeteries as a result of any of the reasonable alternatives.

d. Emergency Services

There would be no displacements of police or fire protection facilities as a result of the reasonable alternatives, although the western widening through Lincoln would encroach substantially on the Warsaw Lincoln Ambulance District station property, requiring special design considerations to maintain suitable access. Public emergency services, such as ambulances and police, routinely utilize Route 65 in responding to emergency calls. Improvement of the roadway would reduce congestion and allow emergency vehicles to have improved access along Route 65.

These services may be impacted during the construction process. The phased construction of the project would minimize construction-related delays for emergency service vehicles. Further, all construction detours would be coordinated with emergency responders in advance.

The No-Build Alternative would maintain existing conditions. No improvements to operating or safety conditions would occur.

e. Hospitals

There would be no impacts to hospital facilities as a result of any of the reasonable alternatives.

4. Impacts to Public Use Lands

Public use areas within the project area are limited to a few large facilities, principally the Truman Reservoir and the Lost Valley Fish Hatchery. Coordination has been ongoing with the administrators of these facilities. In general, the portions of publicly owned lands abutting Route 65 are not recreational facilities. Impact considerations for these areas are more related to typical roadway engineering issues, such as safety, access, drainage, and maintaining the existing operations at the public lands.

a. Municipal Airports: Warsaw and Lincoln

A western widening would result in land acquisition and potentially operational impacts to the Warsaw Municipal Airport. The selected alternative incorporates an eastern widening in this area to minimize impacts to the airport. There would be no impacts to the operations of the airport. Impacts to the airport will be limited to creating a new entrance road aligning with McDaniel Road intersection to improve mainline safety and access to the airport. The design results in the displacement of a support building, but was selected and approved by the City of Warsaw.

There would be no impacts to Lincoln Municipal Airport as a result of any of the reasonable alternatives.

b. Missouri Department of Transportation Maintenance Facility

An eastern widening through Lincoln would result in the displacement of the existing salt barn. The symmetrical widening of the selected alternative will avoid impacts to the MoDOT Maintenance Facility, displacing no buildings nor requiring any property.

c. Lost Valley Fish Hatchery

An eastern widening at the fish hatchery would result in the displacement of a well/wellhouse and substantial property acquisition. For the most part, the selected alternative is a western widening adjacent to the hatchery, thereby avoiding the wellhouse and reducing acquisition substantially. The alignment does switch to an eastern widening at the very southern end of the property, which will require a narrow strip of right of way from the hatchery property, totaling approximately 5.4 acres. From an interview with the hatchery manager, no impacts to current operations at the fish hatchery are expected from this acquisition. However, plans are being considered for relocating a forestry maintenance facility near this area. The proposed acquisition for the selected alternative would not impact the proposed site, but could alter access somewhat. MoDOT has made the avoidance of the proposed forestry maintenance facility as an environmental commitment for this project. The details of accommodating this potential project will be resolved during detailed roadway design.

d. Truman Reservoir

The selected alternative will require the acquisition of approximately 17.8 acres of right of way from the Truman Reservoir property along Route 65. The majority of this land is not designated for recreational use and appears to have been configured in preparation for the eventual western widening of Route 65. From interviews with ACOE personnel, the acquisition would have no impact on the reservoir operations provided the power lines are avoided, drainage away from the embankment is maintained, and access to Marina Road (Sterett Creek Recreation Area) is maintained during construction and permanently. The electrical lines on the west side of Route 65 are set well off the roadway in a position that will allow for the road to be widened without requiring their relocation. The Marina Road intersection will be improved for access and safety. The project team will continue to coordinate with ACOE throughout the environmental review and design process.

5. Local Planning Impacts

The majority of the lands along the corridor are not governed by formal plans or policies regarding planning. However, both the Cities of Lincoln and Warsaw acknowledge the considerable role Route 65 has in influencing and shaping their communities. They have been active in coordinating with the project team regarding the improvement of Route 65. Relative to planning impacts, this discussion will focus on the community's input regarding the No-Build Alternative and the selected alternative.

a. No-Build Alternative

The No-Build Alternative would be inconsistent with the City of Lincoln's expressed desire for economic growth. City officials have indicated that their biggest obstacle to growth is transportation, and increasing the capacity of Route 65 is critical for economic growth.

The No-Build Alternative would not be consistent with the City of Warsaw's desire to increase tourist use of the commercial areas near the Truman Dam Access Road and Route 7 interchanges, as well as the plan for continued industrial uses at these interchanges.

b. Relationship between the Selected Alternative and Community Plans

The selected alternative is consistent with the express desires of Lincoln government officials. City officials have indicated that an improvement along existing Route 65 would have a positive impact on the economic future of Lincoln.

The Near East Bypass alternative (LE-1) would be inconsistent with Lincoln's expressed economic development goals. City officials have indicated that bypassing the community would have a devastating impact on the city and businesses located along Route 65 that are dependent on highway and tourist-related traffic.

The selected alternative makes no provisions for pedestrian or bicycle facilities along Route 65 in Lincoln. There are no sidewalks on Route 65 in Lincoln. Based on the project's public involvement process, there is little interest in such facilities. The reconfiguration of the intersections within Lincoln will satisfy the primary needs of pedestrians/bicyclists in the area.

The selected alternative would not be in conflict with the City of Warsaw's comprehensive plan. The eastern widening at the southern terminus would utilize existing right of way to the maximum extent and minimize impacts to existing commercial and industrial lands.

While there are no existing sidewalks along Route 65 in Warsaw, the City has begun investigating a trail system. Except potentially at crossings, the selected alternative is not expected to negatively impact the City's initial planning.

6. Environmental Justice Impacts

On February 11, 1994, President Clinton issued Executive Order 12898 on Environmental Justice. The Order requires all federal agencies to address the effects of their programs with respect to environmental justice. It states that, to the extent practicable and permitted by law, neither minority nor low-income populations may receive disproportionately high or adverse impacts as a result of a proposed project. It also requires that representatives from low-income or minority populations that could be affected by the project be provided the opportunity to be included in the impact assessment and public involvement process.

An environmental justice analysis was completed to determine whether the proposed project would affect minority or low-income populations and to assess whether such impacts would be disproportionately high. If the project's potential impacts are found to be borne disproportionately by low-income and minority populations, an analysis must examine mitigation measures, offsetting benefits and impacts of other system elements in accordance with FHWA Order 6640.23, Actions to Address Environmental Justice in Minority Populations and Low-income Populations (USDOT, FHWA 1998).

As discussed in **Chapter III.A.1**, the 2000 census data for the block groups that encompass the proposed project area indicate a total minority population of less than five percent, which is comparable to Benton County and the cities of Lincoln and Warsaw and is much less than the overall percentage for the state of Missouri. The percentage of persons below the poverty level in the project area as a whole is also comparable to the County and the cities of Lincoln and Warsaw, although higher in some block groups. The census data, public involvement activities and field work did not indicate a concentration of low-income or minority persons in the impact area of any of the reasonable alternatives. Furthermore, the residential impacts associated with

the selected alternative are not concentrated in one area, but spread out over the length of the project. Given the lack of concentration and the overall consistency of socio-economic characteristics within the project area, no disproportionate adverse impacts to minority and/or low-income populations as defined by Executive Order 12898 and FHWA Order 6640.23 would occur.

B. Environmental Impacts

The purpose of this section is to provide an overview of the impacts to the environmental resources described in **Chapter III.C**.

1. Farmland Resources

A No-Build Alternative would have no impact on farmlands or farm services.

The reasonable range of alternatives largely consists of widening along the existing right of way; therefore, the impact would mostly be along the edges of the farms that border Route 65. The exception is the Near East Bypass alternative, which bisects a number of farm properties. The selected alternative is expected to require 266 acres of right-of-way acquisition, which includes approximately 178 acres of land from parcels currently used for agricultural purposes.

In accordance with the Farmland Protection Policy Act (FPPA), the impact of a federally funded project is coordinated with the Natural Resources Conservation Service to determine whether agricultural resources and support services are significantly affected. A Farmland Conversion Impact Rating Form was completed and is contained in **Appendix V-F**. This analysis of farmland impacts focuses on the portion of the land that is prime farmland or farmland of statewide importance (based on the mapped soil types), the area of potential farmland affected compared to the total area of farmland in the county and the value of the affected lands relative to farmlands in the county as a whole. Impacts are rated on a scale of zero to 260. For projects receiving a total score of less than 160, the impact is considered minimal, and no additional alternatives need to be evaluated. The impact rating was performed for four representative alternatives: an entirely eastern widening, an entirely western widening, the selected alternative and an alternative similar to the selected alternative except incorporating the Near East Bypass. Each of these alternatives received a rating of less than 160, indicating that none would have a significant impact on farmlands in the area.

The impacts of the alternatives to farmland were also quantified by comparing the area currently used as farm, regardless of soil type, including areas in woodland. The impact is essentially identical between the alternatives. The total area of farms affected by the selected alternative would be about 178 acres, including portions of 43 farm parcels. The average impact would be about four acres per farm, ranging from less than one-tenth of an acre to as much as 16 acres along the selected alternative. As a point of comparison, an alternative that includes the eastern widening north of Lincoln, the Near East Bypass, and the hybrid widening south of Lincoln would affect about 256 acres and 51 farm parcels, with a maximum impact per parcel of 20 acres. Farmland impacts are summarized in **Table IV-7**.

Table IV-7: Farmlands Impacts

Alternatives	Prime Farmland Soils (ac)*	Statewide Important Farmland Soils (ac)	Properties in Agricultural Use	Area in Agricultural Use (ac)
Alternatives North of Lincoln				
<i>Eastern Widening</i>	19	43	6	33
Western Widening	10	34	9	20
Alternatives in Lincoln				
Near East Bypass (LE-1)	127	60	30	162
<i>Symmetrical Widening with Curb and Gutter</i>	92	33	19	75
Eastern Widening with Open Drainage	90	32	16	68
Western Widening with Open Drainage	91	32	18	59
Alternatives South of Lincoln				
Eastern Widening	99	30	15	61
Western Widening	81	39	18	54
<i>Hybrid Widening</i>	110	64	18	70
Selected Alternative – Total	221	140	43	178
Notes: <i>Italicized entries are components of the selected alternative.</i> *Includes areas that are considered Prime Farmland if drained.				

Most of the agricultural land in the project area is used for pasture. Using hay as the index crop (at about \$200 per acre according to U.S. Department of Agriculture and Missouri Department of Agriculture statistics websites), the potential loss of productivity per farm for the selected alternative would range from less than \$20 a year to as much as \$3,200 a year, the average being about \$800. The average farm size in the county is 309 acres, with an average income of about \$37,000 per farm. Therefore, on average, the selected alternative would impact about one percent of each affected farm and about two percent of the annual income.

All acquisition of farm property will be compensated at the fair market value, as discussed in **Chapter IV.C.1.**

2. Groundwater and Water Supply

There are several public supply wells that are within a few hundred feet of the reasonable alternatives. These include one of Lincoln's supply wells (Fordney Road), Warsaw Well #4 (near Route 7) and five wells for businesses. None of these would be directly affected by the selected alternative or an eastern alternative, although two south of Lincoln (the Rigby Bunkhouse and the Hot Spot station) would fall within the footprint of the western alignment.

Additionally, based on mapping provided by MDNR, there are several private wells in the vicinity. Three private wells are located within the footprint of the selected alternative: one at the Lost Valley Fish Hatchery and two other private drinking water wells. The impacts of the other alternatives to these private wells are comparable. The exact number of wells directly affected by the project may vary with the detailed design. Any wells that are directly affected by construction and cannot be avoided would be relocated to another suitable site on the owner's property.

Redevelopment of the highway along the existing alignment is expected to have no measurable impact on the quality of groundwater in nearby wells. According to the MDNR (2005), the primary risk to groundwater quality is unfiltered flow of contaminated surface runoff or leachate from activities such as agricultural and suburban-urban storm water runoff, wastewater disposal, and lawn care, directly into aquifers through karst features such as sinkholes or losing streams. There are no known karst features in the project area. Also, in general, deeper wells that are properly constructed are least susceptible to contamination problems. The known wells in the project area are 80 feet deep or more, including public supply wells and private wells, and their installation has been certified by the Missouri Department of Natural Resources.

The widening of the highway will create some additional impervious surface, but it is not expected to influence the recharge of any wells because they draw on large, deep regional aquifers.

3. Surface Water Resources

A No-Build Alternative would have minimal impact on the stream habitats in the project corridor. Impacts may occur during culvert repair and replacement. The area of impact of this normal maintenance would be restricted to the right of way, in the area of the stream that was affected during original construction. The impact area would recover to a similar condition within a few years.

Table IV-8 summarizes the stream impacts associated with the reasonable range of alternatives. These data were developed during the wetland determination phase to allow for a comparison of alternatives. Summary tables identifying impacts on each individual stream feature (by each reasonable alternative) are contained in **Appendix IV-A**.

Most of the streams in the project area already have a perpendicular or slightly skewed crossing (culvert) under existing Route 65. Crossings of these streams by reasonable



Intermittent Stream LO-1, captured in a ditch along the power line easement, south of Marina Road

alternatives along the existing alignment will be culvert extensions or replaced culverts. As a roadway along a new alignment, the Near East Bypass alternative will require four new stream crossings, some of which would be skewed. This alternative would have considerably more impact to streams than any of the alternatives through Lincoln.

Impacts of new or extended crossings would include installation/extension of culverts, concrete headwalls/aprons and stone stabilization at outlets of the culverts. The extension and installation of culverts would reduce the aquatic habitats somewhat, but the impacts to the stream habitats generally would be minor and short-lived. Impacts to aquatic species include the temporary reduction of some populations, particularly of less mobile and more sensitive species, such as some invertebrates. The upstream and downstream reaches of each stream would provide refuge for mobile aquatic species during construction. Given that these alterations would be localized, they would not result in a permanent change in the diversity of the stream system.

Table IV-8: Estimated Stream Impacts for the Reasonable Range of Alternatives

Alternatives	Total Number of Crossings	Length of Impact by Stream Type (linear feet)			Total Length of Impact (linear feet)
		Ephemeral	Intermittent	Perennial	
Alternatives North of Lincoln					
<i>Eastern Widening</i>	4	30	450	150	630
Western Widening	4	140	10	10	160
Alternatives in Lincoln					
Near East Bypass (LE-1)	9	570	230	1,660	2,460
<i>Symmetrical Widening with Curb and Gutter</i>	6	170	0	450	620
Eastern Widening with Open Drainage	6	250	50	870	1160
Western Widening with Open Drainage	6	300	30	580	910
Alternatives South of Lincoln					
Eastern Widening	13	290	870	380	1,540
Western Widening	15	370	3,810	600	4,780
<i>Hybrid Widening</i>	17	430	3,670	720	4,820
Notes:					
<i>Italicized entries are components of the selected alternative.</i>					
<i>This table presents determination data for the reasonable range of alternatives. Following the selection of the preferred alternative, a stream delineation was conducted.</i>					

Following the selection of the preferred alternative, a wetland delineation was conducted. This delineation established the precise wetland/upland boundaries affected by the selected alternative. During delineation, the precise extent of stream impacts was also established. Road improvements associated with the selected alternative will necessitate in-stream work in approximately 6,470 linear feet of streams. Linear feet of stream reaches that are currently conveyed under MO-65 (pre-improvement) have already been subtracted from this total. This total impact is comparable to the total impact length (6,070 linear feet) estimated during the wetland determination. A summary table identifying the impacts on each individual stream feature (for the selected alternative based on the delineation data) is contained in **Appendix IV-A. Exhibit IV-1A-J** shows the location of the impacted streams associated with the selected alternative. The stream impact associated with the open drainage variant of the selected alternative is slightly larger (6,490 linear feet), because the eastern widening would impact a slightly larger portion of the Timber Line Lake stream (Cole #7).

The largest single impact of the selected alternative will be to the intermittent stream just south of Marina Road (Stream LO-1 on **Exhibit IV-1H**), where more than one mile of the stream has been captured in a ditch that parallels the existing highway and the overhead power line easement to the west. The stream provides no fish habitat. Widening of the roadway by any of the reasonable range of alternatives will require relocation of a section of this stream, although the western widening alternative would require relocation of a longer reach than an eastern widening alternative. The selected alternative would affect approximately one-half mile of this stream. The aquatic populations in such small intermittent streams with little or no riparian woodland vegetation, as this one, are typically comprised of resilient aquatic macroinvertebrate species. It is expected that these populations would recover from the impact after reconstruction of the channel, with little or no impact to diversity.

4. Water Quality

Potential impacts to water quality are associated with constructing, operating and maintaining the new highway.

The primary short-term impact is the potential for erosion of soils exposed during construction and sedimentation in streams and wetlands. Soil types, drainage patterns, terrain and extent and duration of highway construction influence the degree to which erosion and sedimentation could occur at a given location. Construction work for all reasonable alternatives would include substantial clearing and grading, placing fill in low areas, building new structures over streams, drainage ditch construction and other work that could cause erosion and sedimentation. Differences among reasonable alternatives are negligible in this regard.

The primary long-term impacts include altered stormwater runoff patterns due to the additional pavement, pollutants in stormwater runoff from vehicles and roadway maintenance and continued risk of discharge of pollutants by accidental spillage from vehicles along the roadway. The magnitude of the impact of the highway on water quality depends on the contribution of the highway relative to other sources of pollution and on the water quality of each receiving stream.

Under a No-Build Alternative, stormwater runoff from the roadway would continue at the current rate. Over time, with the gradual increase in traffic that is projected for Route 65, the level of pollutant loads in runoff from the highway may also gradually increase. The potential for erosion and sedimentation under a No-Build Alternative would be minimal and would be mostly

associated with future maintenance work or localized improvement projects within highway right of way.

All reasonable alternatives would add impervious surface. The additional roadway would occupy minimal surface area relative to other urban and agricultural land uses in each watershed, and thus is not expected to have a significant impact on the volume or quality of stormwater discharging to the streams. As traffic is projected to increase along Route 65 with or without the project, little or no difference is expected among the effects of the reasonable alternatives and a No-Build Alternative on water quality.

The incidental discharge of fuels, lubricants or other harmful contaminants from equipment during construction could also occur. Standard MoDOT precautions will be taken to minimize this risk. An anticipated long-term benefit of the project is the additional protection from catastrophic spills or vehicular crashes afforded to all local streams due to a safer roadway.

5. Floodplains

Executive Order 11988, Floodplain Management, requires that federal agencies, in carrying out proposed projects, take action to reduce the risk of flood loss; minimize the impacts of floods on human safety, health and welfare and restore and preserve the natural and beneficial values provided by floodplains.

A No-Build Alternative would have no impact on floodplains. Culvert rehabilitations or replacements would be evaluated as new structures if any work is required that could potentially change the flood elevation. Little or no additional fill would be placed in floodplains.

Project-related activities within floodplains would be nearly identical for all of the reasonable alternatives, north of the Truman Reservoir. Work within the floodplains would include replacing or lengthening existing culverts, widening of road embankments and other miscellaneous fill material placement within the floodplain. Expanded crossings of floodplains would be transverse (perpendicular) crossings, thereby reducing the area of impact at each site. While the Near East bypass would have additional stream crossings, all of the additional crossings are at small streams that do not have mapped floodplains. Floodplain impacts are summarized in **Table IV-9**.

Near the reservoir, the mapped floodplain extends along the western side of the existing roadway. This means that western widenings (like the selected alternative) are expected to have somewhat higher floodplain encroachments than eastern widenings. The extent of the regulated floodplain will be clarified with State Emergency Management Agency during the floodplain development permitting process for the selected alternative. Coordination of the selected alternative with SEMA will continue. The project's floodplain development permit will be obtained and included in the Final Environmental Assessment.

Table IV-9: Floodplains Impacts

Alternatives		Total 100-Year Floodplain Impact (acres)
Alternatives North of Lincoln		
	<i>Eastern Widening</i>	2.3
	Western Widening	2.3
Alternatives in Lincoln		
	Near East Bypass (LE-1)	2.7
	<i>Symmetrical Widening with Curb and Gutter</i>	2.8
	Eastern Widening with Open Drainage	3.1
	Western Widening with Open Drainage	2.1
Alternatives South of Lincoln		
	Eastern Widening	0
	Western Widening	4.8
	<i>Hybrid Widening</i>	5.7
	Selected Alternative – Total	10.8
Note: <i>Italicized entries are components of the selected alternative.</i>		

6. Wetlands and Ponds

Executive Order 11990, Protection of Wetlands, requires federal agencies to avoid, to the extent practicable, long- and short-term adverse impacts associated with the destruction or modification of wetlands. More specifically, the Order directs federal agencies to avoid new construction in wetlands unless there is no practicable alternative and, where wetlands cannot be avoided, the proposed action must include practicable measures to minimize harm to the wetlands.

All wetlands and ponds that have a surface water connection to streams are also regulated as waters of the United States pursuant to Sections 404 and 401 of the Clean Water Act. Isolated wetlands and ponds that do not have a surface water connection to a stream are generally not regulated under the Act. While isolated features are generally not regulated under the Clean Water Act. These wetlands were identified and reported in this study.

The No-Build Alternative would affect few if any wetland habitats in the project area. However, future maintenance or replacement of bridges and culverts may affect streams or adjacent wetlands.

Several wetland features occur within or adjacent to the Route 65 right of way. As a result, there are no prudent and feasible alternatives that would completely avoid all wetland impacts. The extent of wetland impacts would generally be the same, regardless of the reasonable alternative. To estimate wetland impacts during the development and evaluation of alternatives, a wetland determination was conducted. **Exhibits III-2A–D** depict the wetlands identified during the determination within the study area for the reasonable range of alternatives. **Table IV-10**

summarizes the pond and wetland impacts associated with the reasonable range of alternatives – based on the determination. Summary tables identifying impacts on each individual wetland feature (by each reasonable alternative) are contained in **Appendix IV-A**. Using the determination data, the total area of wetlands affected by the selected alternative was estimated to be 3.1 acres.

Table IV-10: Wetland and Pond Impacts based on the Project’s Wetland Determination

Alternatives		Wetlands		Ponds	
		Number of Impacts	Acres	Number of Impacts	Acres [*]
Alternatives North of Lincoln					
	<i>Eastern Widening</i>	2	0.1	3	5.6
	Western Widening	2	0.3	3	3.4
Alternatives in Lincoln					
	Near East Bypass (LE-1)	5	0.7	2	0.4
	<i>Symmetrical Widening with Curb and Gutter</i>	3	0.2	—	—
	Eastern Widening with Open Drainage	3	0.2	—	—
	Western Widening with Open Drainage	1	0.1	1	0.1
Alternatives South of Lincoln					
	Eastern Widening	5	0.8	1	3.1
	Western Widening	5	5.5	2	2.8
	<i>Hybrid Widening</i>	6	2.8	1	3.1
Notes:					
<i>Italicized entries are components of the selected alternative.</i>					
* The area of pond impact assumes that any pond that cannot be avoided would be entirely filled.					

Following the tentative selection of the preferred alternative described in the DEA, a wetland delineation was conducted. This delineation established the precise wetland/upland boundaries affected by the selected alternative. Based on the delineation, the selected alternative would affect 13 wetlands for a total impact of 1.11 acres. The majority of the impact (0.77 acre) would be to emergent wetlands; 0.27 acre of scrub-shrub wetlands and 0.07 acre of forested wetland would also be affected. These impacts include 0.06 acre of isolated wetlands. The largest single wetland impact would be 0.58 acre (Wetland 16). The total impact area is considerably less than that predicted by the wetland determination. The variance is largely due to the estimated impact at Wetland 18. The determination estimated the impact to Wetland 18³ for the selected alternative at 1.7 acres. The more detailed delineation survey found this wetland to be located almost entirely west of the impact area. Thus, the selected alternative will have a very little or no impact on this wetland. A summary table identifying the impacts on each individual wetland feature is contained in **Appendix IV-A**. **Exhibits IV-1A-J** show the location of the impacted wetlands associated with the selected alternative.

³Wetland 18 is a large linear wetland located adjacent to Route 65 on the Truman Reservoir property. See **Exhibit IV-1H**, panel 16.

Consistent with Executive Order 11990, the selected alternative minimizes impacts to wetlands. For example, north of Lincoln, the eastern alternative avoids most wetland resources. In the Lincoln area, the Near East Bypass would impact four wetlands and one pond that would be avoided by alternatives (like the selected alternative) that go through Lincoln. Finally, south of Lincoln, the western alternative would have the greatest impact on wetlands because of the large wetland along the western side of Route 65 near the Truman Reservoir. The eastern widening alternative would avoid this wetland, but is not selected because of other impacts. The selected alternative would not avoid this wetland, but would reduce wetland impacts to about one-half that of the western widening.

Relative to ponds, **Table IV-10** summarizes the impact estimates developed for the reasonable range of alternatives, during the determination. This estimate was refined during the wetland delineation. Based on the delineation, the total impact to jurisdictional ponds associated with the selected alternative is estimated at 0.83 acre. Three ponds will be affected. The pond at Carman-4 (Exhibit IV-1B, panel 3) is 0.8 acre in size and because of the extensive fill, it is expected to be completely impacted. The pond at Cole-1 (Exhibit IV-1B, panel 4) is 4.4 acres in size. A total of 0.3 acre is expected to be impacted. The pond at Truman-1 (Exhibit IV-1H, panel 15) is 3.1 acres in size. Less than 0.1 acre is expected to be impacted.

River and wetland impacts are subject to permitting and associated water quality certification under Sections 404 and 401 of the Clean Water Act. During the design phase, specific impacts to wetlands and other waters of the United States will be assessed to determine whether those impacts can be avoided or further minimized. Unavoidable impacts to wetlands and streams may require mitigation. All ecological data sheets and other pertinent data are maintained in the project's technical file.

7. Terrestrial Habitats and Wildlife

Terrestrial habitat impacts for the reasonable alternatives are summarized in **Table IV-11**. All of the reasonable alternatives will encroach upon upland habitat. Relative to total impacts, the reasonable alternatives would result in similar impacts. An exception would be the Near East Bypass, which would convert a larger area. The other alternatives increase the footprint of existing Route 65. Outside of Lincoln, the eastern and western widenings are comparable. However, an eastern widening south of Lincoln would encroach on the Rock Hill Prairie. If open drainage is used through Lincoln, the footprint would be larger than with enclosed drainage. Given the area's vegetative composition and historical disturbance, none of the habitats that would be potentially impacted alternatives (with the exception of the Rock Hill Prairie) are considered to be regionally significant by virtue of their apparent age or composition. No mature woodlands would be affected. The No-Build Alternative would have no direct impact on terrestrial habitats or wildlife.

During the wetland delineation, the habitat encroachments associated with the selected alternative were re-examined. The total acquisition remained the same, approximately 266 acres of new right of way. The habitat disruptions were slightly updated from those presented in the DEA. Currently, it is estimated that the selected alternative will require the conversion of approximately 83 acres of actively grazed land, 71 acres of ungrazed grassland, 40 acres of mowed or developed land, 27 acres of non-mature forest, 19 acres of scrub land, 16 acres of old field and 10 acres of row crops.

The losses of terrestrial habitats other than mowed areas could proportionately reduce the vertebrate wildlife populations. However, given the minor area of impact relative to the total area of these habitats in the project area, relocation of wildlife to nearby alternative habitats seems likely, as the mobility of the species allows, which would reduce the impact somewhat. The selected alternative would not likely affect the overall diversity of vertebrate populations in the area, as these populations are adapted to the existing highway environment.

Another consideration of the impacts of highways on wildlife is fragmentation of habitats. Fragmentation introduces traffic-related disturbances to a forest where previously it was relatively undisturbed. The Council on Environmental Quality (1993) publication “Incorporating Biodiversity Considerations into Environmental Impact Analysis under the National Environmental Policy Act” acknowledges that habitat fragmentation associated with infrastructure improvements contributes significantly to a loss in biodiversity. For example, the deleterious effects of forest habitat fragmentation are well-documented with respect to nesting success of neo-tropical migrant songbirds and wildlife movement. With increased forest edge that results from fragmentation, neo-tropical songbird nesting can be more vulnerable to nest predation by edge species such as the brown-headed cowbird.

The selected alternative generally follows the existing alignment of Route 65. Consequently, the selected alternative would not introduce fragmentation or bisections to large tracts of forested land or grassland. Rather, impacts would be to the edges of existing forests and grassed areas.

Table IV-11: Terrestrial Habitat Impacts Associated with the Reasonable Alternatives (acres)

		Forest	Scrub	Prairie (Rock Hill)	Grassland	Actively Grazed	Developed/ Mowed	Old Field	Row Crops
Alternatives North of Lincoln									
	<i>Eastern Widening</i>	10	0	0	0	19	6	7	1
	Western Widening	6	2	0	2	18	6	6	0
Alternatives in Lincoln									
	Near East Bypass (LE-1)	27	1	0	65	43	6	12	24
	<i>Symmetrical Widening with Curb and Gutter</i>	1	0	0	28	30	11	4	9
	Eastern Widening with Open Drainage	1	5	0	29	27	41	6	9
	Western Widening with Open Drainage	4	6	0	35	16	40	12	5
Alternatives South of Lincoln									
	Eastern Widening	19	14	5	35	25	22	0	0
	Western Widening	12	8	0	43	28	28	3	0
	<i>Hybrid Widening</i>	24	14	0	43	34	23	2	0

Note:

Italicized entries are components of the selected alternative. During the wetland delineation, the habitat encroachments associated with the selected alternative were re-examined. While the total acquisition remained the same, the individual habitat type disruptions were updated from that presented in the DEA. Currently, it is estimated that the selected alternative will require the conversion of approximately 83 acres of actively grazed land, 71 acres of ungrazed grassland, 40 acres of mowed or developed land, 27 acres of non-mature forest, 19 acres of scrub land, 16 acres of old field and 10 acres of row crops.

Other alternatives along the existing alignment would have similar peripheral impacts to terrestrial habitats as the selected alternative. Therefore, it is not anticipated that these alternatives would have a substantial adverse impact on diversity of adjacent habitats. However, there are two notable exceptions.

First, as an alternative on new alignment, the Near East Bypass would have a proportionally greater impact to terrestrial habitats, in general. The Near East Bypass would also bisect two woodlots; one 59 acres in size and the other 103 acres. These two woodlots are part of an already discontinuous forested corridor within ravines leading to Cole Camp Creek east of the project area. This bisection could interrupt wildlife movement through the area; though given the existing fragmentation of forested parcels in the Near East Bypass, the wildlife impact would likely be minor.

Second, the Eastern Widening alternative south of Lincoln would affect the Rock Hill Prairie, the most sensitive habitat in the project area. As a rare remnant of the once widespread dry prairie, any impact to this habitat could be considered significant. Also, impacts to this site could affect several rare species (as noted below in the following section).

The white-tailed deer, common in the project area, is a habitat generalist found in forested land, agricultural land and many other habitat types. *The Kansas City Star* (May 13, 2006) cites data from the state of Kansas showing a seven percent increase in collisions with white-tailed deer, a trend mirrored throughout the Midwest. This is due in part to rapid human population growth, increased traffic, decreasing habitat and a white-tailed deer population that has risen to near-nuisance levels. Recent studies by the U.S. Environmental Protection Agency and the Highway Safety Information System (HSIS) also report that the overall rate of vehicle/animal collisions has steadily increased over a seven-year period. The HSIS study, which included data from several midwestern states, also found the rate of animal crashes, expressed as the number of accidents per million vehicle kilometers, was greatest on two-lane rural roads, followed by multi-lane rural and urban road types. The study reported collision rates for rural roads ranged from 0.07 to 1.16 crashes per kilometer per year (Hughes and Saremi, 1995). From a wildlife perspective, a four-lane roadway with a median perceptually may be a greater barrier to cross than is a two-lane road. While it takes longer for wildlife to cross a four-lane road than to cross a two-lane road (meaning the animal is exposed to potential strike for a longer period), the improved horizontal and vertical sight distances and an additional lane of travel tend to allow the driver more space and reaction time to avoid collisions. Consistent with the HSIS study, the number of animal strikes would be expected to decrease with the project.

Other terrestrial habitat impacts associated with roadways are typical road maintenance activities such as roadside mowing and periodic overlays. Roadside mowing tends to discourage wildlife usage by reducing habitat attractiveness. The impacts to wildlife resulting from overlays and similar maintenance activities are negligible.

8. Threatened and Endangered Species

a. Federally Listed Species

Mead's Milkweed – The federally threatened Mead's milkweed is the only federally listed species that has been documented to occur within the Route 65 project area. The only known location of this species within the project area is in Rock Hill Prairie, a Nature Conservancy property at the Route BB intersection. Based on several surveys for Mead's milkweed, including

the most recent in May 2006, several individuals are known to occur within 100 feet of the east side of Route 65 and within 100 feet south of the south side of County Road BB. Location of individual plants is ephemeral; they may bloom in one location for a period, disappear and reappear in a new location. Thus, any impacts to acreage of the Rock Hill Prairie could potentially impact the Mead's milkweed.

The No-Build Alternative would have no direct impact on the Rock Hill Prairie or Mead's milkweed.

An eastern widening of Route 65 would impact approximately 4.7 acres of Rock Hill Prairie. Therefore, the selected alternative has been designed to utilize a western widening in this area to avoid impacts to the Rock Hill Prairie property. The intersection of Route 65 and Route BB will also be improved as part of the project. The necessary widening and realignment of Route BB will be shifted to the north, so that the selected alternative avoids impacts to the Rock Hill Prairie along Route BB as well. While the construction of improvements to Route BB would be adjacent, no impact to the species is expected. The selected alternative was coordinated with The Nature Conservancy, who agreed that the project-related impacts would be minimal. **Chapter V.B.4.e** discusses the coordination with The Nature Conservancy for the project. The Missouri Department of Transportation will continue to coordinate with MDC and U.S. Fish and Wildlife Service for updates regarding occurrences of Mead's milkweed in the project area and to implement measures to avoid impacts to this species.

Gray Bat – The gray bat (federally endangered) is known to occupy Cole Camp Cave, located approximately 5 miles east of the project area. The cave is located near Cole Camp Creek not far from the confluence with Duran Creek. The headwaters of Duran Creek and a tributary (Bird Branch) are both culverted under Route 65 in the project area. The reaches of Duran Creek and Bird Branch near Cole Camp cave are perennial with ample forested riparian cover, whereas the reaches of these streams in the project area are channelized intermittently flowing ditches through agricultural land. Thus, the headwaters of these waterbodies are not highly suitable foraging habitat for the gray bat.

The No-Build Alternative and the selected alternative are expected to have no impact on the caves occupied by gray bats or on the foraging habitat used by gray bats.

Indiana Bat – The Indiana bat (federally endangered) may potentially use forested areas within the Route 65 project area as summer habitat. Four upland forest parcels have been identified within the project as potential summer habitat for the Indiana bat. These parcels range in size from roughly 59 acres to 295 acres and are depicted on **Exhibits III-2A–D** and described in **Chapter III.C.8**. Potential impact acreage to these forested parcels from the alternatives is summarized in **Table IV-12**. The Near East Bypass of Lincoln would impact more forested land than would the alternatives through Lincoln.

Table IV-12: Potential Indiana Bat Summer Habitat Impacts

	Forest Parcel #1	Forest Parcel #2	Forest Parcel #3	Forest Parcel #4
Alternatives North of Lincoln				
<i>Eastern Widening</i>	6			
Western Widening	0			
Alternatives in Lincoln				
Near East Bypass (LE-1)		7	16	
<i>Symmetrical Widening with Curb and Gutter</i>		0	0	
Eastern Widening with Open Drainage		0	0	
Western Widening with Open Drainage		0	0	
Alternatives South of Lincoln				
Eastern Widening				7
Western Widening				7
<i>Hybrid Widening</i>				7
Selected Alternative – Total	6	0	0	7
Notes: <i>Italicized entries are components of the selected alternative.</i>				

Potential impacts to the Indiana bat can be minimized by prohibiting tree clearing between April 1 and September 30, when the bat would be most likely using these habitats. Thus, with seasonal tree clearing restrictions, it is anticipated that all proposed reasonable alternatives would have negligible impacts on the Indiana bat and its suitable summer habitat. The Missouri Department of Transportation will continue to coordinate with the USFWS and MDC to assess the habitat of the selected alternative and actions to minimize potential impacts to the Indiana bat.

b. State Endangered Species and Species of Special Concern

Black-tailed Jackrabbit – The MDC Natural Heritage database shows that the black-tailed jackrabbit has been documented in Benton County, MO. However, correspondence with MDC shows that it has not been documented to occur within a one-mile buffer of the Route 65 project area. Several habitat types have been identified in the project area that are suitable for the black-tailed jackrabbit; a mosaic of hayed land and native prairie, specifically Rock Hill Prairie and the agricultural land surrounding it. Rock Hill Prairie will be completely avoided by footprint impacts resulting from the selected alternative. Only the eastern widening alternative would affect the Rock Hill Prairie property, and possibly the suitability of the habitat for the jackrabbit. Proximity impacts resulting from the proposed improvements are anticipated to be negligible on habitat suitability for the black-tailed jackrabbit.

Barn Owl – The most likely impact to this species would be the removal of a structure where the owl is nesting. There are no known owl nests in structures in the project impact area, so no impact to the species is expected.

Greater Prairie Chicken – Given the known breeding population of the Greater Prairie chicken just north of the northern terminus of the Route 65 project area (Cole Camp/ Hi Lonesome Conservation Opportunity Area), there is a possibility that this species may use grassland habitat for foraging and cover within the project area. The native prairie at Rock Hill Prairie provides suitable foraging and cover habitat for the Greater Prairie chicken, although it has not been documented to occur there. Rock Hill Prairie is likely too small to provide breeding habitat for this species. Rock Hill prairie would not be impacted by the footprint of the selected alternative. Only the eastern widening alternative would affect the Rock Hill Prairie property, and possibly the suitability of the habitat for this species. Further, proximity impacts, if any, resulting from the improvements will likely be negligible.

Henslow's Sparrow – Given the occurrence of Henslow's sparrow just north of the northern terminus of the Route 65 project area (Cole Camp/Hi Lonesome Conservation Opportunity Area), there is a possibility that this species may use native grassland habitat for foraging and cover within the project area. Though Henslow's sparrow has not been documented to occur at Rock Hill Prairie, this Nature Conservancy parcel would provide suitable breeding, foraging and cover habitat for this grassland bird species. Rock Hill Prairie would not be impacted by the footprint of the selected alternative. Only the eastern widening alternative would affect the Rock Hill Prairie property, and possibly the suitability of the habitat for the Henslow's sparrow. Further, proximity impacts, if any, resulting from the improvements will likely be negligible.

9. Hazardous Materials

Federal and state laws and regulations do not prohibit the location of a roadway over a hazardous waste site. However, in accordance with several federal laws, including Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act and the Superfund Amendments and Reauthorization Act (SARA), any hazardous materials encountered during construction would require special handling and disposal to minimize risk to the workers and the public at large. Because of the time and cost of further investigations, identifying and negotiating with the parties who are primarily responsible for the contamination and remediation of these sites can substantially affect the reasonableness of an alternative, sites with substantial contamination of the soil or groundwater are avoided when possible.

A No-Build Alternative would not affect any identified sites of concern.

Although the extent of contamination from any one source is difficult to assess without detailed surface and subsurface investigations, the potential interaction of the project with hazardous materials sites appears roughly equivalent among the reasonable alternatives. Only two sites were identified in proximity to the reasonable alternatives that would require further site assessment. All alternatives would be equally affected by any contamination present at one of these sites, Kreisler's Auto Sales, just south of Route H. The second site of concern is Bobby's Towing and Tire, located north of Fordney Road in Lincoln. All alternatives through Lincoln would be affected by any contamination at this site. The Near East Bypass would avoid this site.

Further investigations would be required to characterize the contamination at these sites and to determine the impact these sites would have on the project. If regulated solid or hazardous wastes are found unexpectedly during construction activities, the MoDOT construction inspector will direct the contractor to cease work at the suspect site. The contractor will develop a plan for sampling, remediation if necessary and continuing project construction. If necessary, the MDNR

will be contacted for coordination and approval of required activities. The contractor is responsible for appropriate worker safety precautions, as required by the Occupational Safety and Health Administration (OSHA).

10. Air Quality

According to the Intermodal Surface Transportation Efficiency Act of 1991, a federal agency may not approve or fund a transportation project unless it conforms to the State Implementation Plan for air quality as required by Section 176(c)(4) of the Clean Air Act Amendments of 1990. Section 176(c)(4) of the CAAA would cover projects funded under Title 23 United States Code U.S.C.) (Federal Aid Highways Act). To conform to the SIP, a project cannot cause or contribute to a new violation of National Ambient Air Quality Standards, increase the frequency or severity of any existing violations of any NAAQS or delay timely attainment of any NAAQS or any required interim emissions reductions or other milestones.

The Route 65 project is included in the Statewide Transportation Improvement Plan and has been included as part of the SIP. Consequently, the project should not cause non-attainment for any NAAQS.

There is potential for temporary localized air quality impacts caused by emissions from construction equipment, fugitive dust from the construction sites and haul roads, aggregate crushing and washing operations or concrete batch plants. Burning of woody debris may also affect air quality.

11. Noise Impacts

a. Traffic Noise

The Traffic Noise Model (TNM[®]) was used to determine existing and projected noise levels under No-Build and Build Alternatives for 2030. **Table IV-13** summarizes the results for the selected alternative. The modeled receptors are shown on **Exhibits III-1A–D** and described in **Chapter III.C.12**.

The TNM[®] analysis indicates existing noise levels are fairly consistent throughout the corridor. None of the nine sensitive receptor locations exceed the 67 A-weighted decibels noise abatement criteria. Noticeably low noise levels occur at receptors 6 and 7, at sites near where the Near East Bypass (LE-1) would traverse. This is expected because the existing noise levels at these locations have virtually no traffic noise component.

The No-Build Alternative would make no changes to Route 65. Over time, however, traffic levels along Route 65 would be expected to result in modest increases in noise levels by the year 2030. Receptors 3 (Karr Farmstead), 5 (Church of Christ, Lincoln) and 8 (residences in Lincoln) are expected to experience traffic noise levels that exceed the NAC. These receptors will also exceed the NAC under the selected alternative.

The analysis of 2030 noise conditions for the reasonable alternatives indicates that traffic noise levels would exceed the NAC criteria at receptors 3 (Karr Farmstead), 5 (Church of Christ, Lincoln) and 8 (residences in Lincoln). The traffic noise conditions among the reasonable alternatives are very similar, except at receptors 6 and 7. These receptors are located at points

adjacent to the Near East Bypass (LE-1). The existing and 2030 No-Build traffic noise levels are very low. Under a Near East Bypass, the 2030 noise conditions at these locations will exceed the NAC.

Table IV-13: Design Hour Noise Levels (Selected Alternative)

Sensitive Receptor ID#	Number of Dwellings Represented	NAC Category and Level	Noise Level (L_{eq}) (Design Hour)			Noise Impact (Yes/No)
			Existing (dBA)	2030 Build (dBA)	2030 No-Build (dBA)	
1	10	B (67dBA)	63.0	65.8	65.0	No
2	8	B (67dBA)	63.4	63.8	65.4	No
3	1	B (67dBA)	65.9	67.7	67.9	Yes
4	6	B (67dBA)	62.1	64.8	64.1	No
5	1	B (67dBA)	66.5	67.2	68.4	Yes
6	1	B (67dBA)	35.7	37.8	37.7	No
7	8	B (67dBA)	45.7	51.7	51.6	No
8	2	B (67dBA)	65.2	66.9	67.2	Yes
9	3	B (67dBA)	56.4	64.9	58.4	No

Noise impacts occur when predicted noise levels approach or exceed the NAC. When noise impacts occur, mitigation must be considered. Noise mitigation can include techniques such as construction of noise barriers within the proposed right of way, modifying the proposed horizontal and/or vertical alignment of the roadway, earthen berms, acquisition of property to serve as a buffer zone to preempt development that would be adversely impacted by traffic noise, modifying speed limits, restricting truck traffic and noise insulation. Of these mitigation measures, the noise barrier option is the only practical choice for the Route 65 project.

When evaluating the effectiveness and feasibility of noise barriers, the following criteria must be met:

1. The noise barrier must provide noise reductions of at least five dBA for all primary receptors.
2. The noise barrier must provide attenuation for more than one receptor.
3. The noise barrier must be 18 feet or less in height.
4. The noise barrier must not interfere with normal access to the property.
5. The noise barrier must not pose a traffic safety hazard.

Application of these criteria eliminates the use of noise barriers. The receptors that are expected to experience noise impacts. Receptor 3, receptor 5 and receptor 8 are either single facilities (criterion 2) and/or use driveways to access Route 65 (criterion 4).

b. Construction Noise

To reduce the impacts of construction noise, MoDOT has special provisions in the construction contract that requires that all contractors comply with all applicable local, state and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. Construction equipment would be required to have mufflers constructed in accordance with the equipment manufacturer's specifications. Further, MoDOT would monitor project construction noise and require noise abatement in cases where the criterion is exceeded.

The major construction elements of the project are expected to be demolition, earthmoving, hauling, grading, paving and bridge construction. General construction noise impacts for passersby and individuals living or working near the project can be expected particularly from demolition, earthmoving and paving operations. Noise generated by construction equipment would vary greatly depending on the equipment type, mode and duration of operation and specific type of work in progress. Considering the short-term nature of construction noise, impacts are not expected to be substantial.

12. Cultural Resources**a. Architectural Resources**

As part of the environmental study process, MoDOT Historic Preservation staff performed a screening-level investigation for all reasonable alternatives for the presence of historic resources. During an interagency consultation meeting on May 23, 2006, SHPO concurred with MoDOT's preliminary findings that the project was not likely to affect any historic buildings.

For the preferred alternative identified in the DEA, additional investigations were conducted to verify compliance with the National Historic Preservation Act and National Environmental Policy Act. On October 3, 2006, SHPO concurred with MoDOT that no NRHP-eligible resources (architectural or archaeological) are present within the footprint of the selected alternative or situated in its immediate vicinity.

b. Archaeological Resources

In accordance with Section 106 of the National Historic Preservation Act (as amended), the MoDOT conducted a background literature search to identify known and potential archaeological sites within the study area for the reasonable range of alternatives. No recorded archaeological sites occur in the project area. However, there is a relatively high potential for unrecorded historical sites to be located along the existing Route 65 corridor. Predictive models suggest that as many as 15 nineteenth-century archaeological properties may exist within the study area. There is also potential for prehistoric archaeological sites in undeveloped areas, primarily along major stream valleys.

Based on preliminary analysis, each of the alternatives north and south of Lincoln appear to have the same likelihood of affecting potential prehistoric archaeological sites, because they all pass through similar environments and landscape positions. South of Lincoln, the western widening alternative appears to have a somewhat greater risk of affecting potential historical archaeological sites than the eastern alternative. In Lincoln, the Near East Bypass (LE-1) has a significantly greater potential to impact prehistoric sites than the alternatives through Lincoln

because of the greater amount of new right of way that has not been impacted by prior construction. However, the alternatives through Lincoln have a greater potential for impacting historical sites, because a portion of the existing highway falls along the historic Springfield Road⁴.

Based on the preferred alternative described in the DEA, a systematic archaeological survey was designed and conducted in cooperation with the State Historic Preservation Office. Existing bridge and culvert structures were also evaluated as part of this survey. The survey identified two previously unreported historical sites: 23BE2155 and 23BE2156. Neither site appears to have the potential to answer significant research questions. They are therefore not considered eligible for listing on the NRHP. In addition to the archaeological sites, the survey identified two isolated finds, a modern building foundation and a trash dump; these resources likewise do not represent significant deposits or properties eligible for listing on the NRHP. The SHPO concurred with these recommendations in a letter dated October 3, 2006.

13. Visual Resources

Views of the proposed roadways from surrounding areas and views from the facility to the surrounding areas are considered in evaluating visual impacts. Among the most important characteristics used in evaluating visual impacts is the extent to which the views can be described as "intact." Intactness refers to the degree to which the landscape has retained natural conditions. Generally, segments located on new right of way would create greater visual changes than segments using existing road right of way. This separates the Near East Bypass alternative (LE-1) from the balance of the alternatives.

The Near East Bypass (LE-1) would create a new visual element to the landscape. The alignment of the bypass was chosen to be as short as possible while minimizing displacements. This creates a situation where the bypass is near (within the viewshed) of the residential areas that currently exist in Lincoln.

Relative to the other reasonable alternatives, the differences in visual impacts are negligible. All represent the improvement of an existing facility. In fact, to the extent practicable, the alternatives will maintain the existing roadway as it is and develop a new pair of roadway lanes adjacent to it. This minimizes the changes that will occur in the visual environment. Additionally, the non-bypass alternatives will convert the existing roadway to a format that is familiar to residents in Benton County. The rural portions of the roadway will be a four-lane divided highway, identical to the section of Route 65 north of Cole Camp. Within Lincoln, the five-lane configuration will be similar to that present in Sedalia, as well as numerous other places. Consequently, visual impacts are not expected to be significant, and the differences among the reasonable alternatives are considered to be low.

The No-Build Alternative is not expected to affect the visual environment.

⁴ The St. Francois Mountains run east to west across southern Missouri. When the first Europeans came to the area in 1798, drawn largely by mining possibilities, there were many Native Americans. The Osage Indians had historically occupied southern Missouri and many of the early settler roads followed more ancient trails. This is the case with the Springfield Road, which ran from near Springfield to St. Louis. The settlement of southern Missouri was facilitated by the Springfield Road. Consequently, the possibility for historic resources is higher along the path of the road than in other locations. The Springfield Road is believed to have been located in the vicinity of existing Route 65 in Benton County. The Springfield Road is not listed on the NRHP.

14. Construction Planning

Construction of the proposed improvements would require the expenditure of public funds on labor, material and equipment. This would benefit the construction workers hired to construct the proposed improvements, suppliers/contractors hired to provide material (gravel, concrete, fill, etc.) and manufacturers and retailers who provide the necessary equipment for construction of the project. These are direct, albeit temporary, economic impacts of construction that would occur during the construction period (about two years).

Some workers who will construct the project may be local residents, but many would likely temporarily relocate to the project area. The influx of construction workers to the project area would result in an increased demand for services in the project area, ranging from gasoline to groceries. Material and equipment suppliers both within and outside the project area would benefit from increased demand for their products. This would, in turn, create benefits for businesses that provide inputs to material and equipment suppliers. These are indirect impacts of construction. Like direct impacts, indirect impacts would also be temporary.

The direct and indirect economic impact of such a project can be calculated based on the employment, earnings and other output based on the amount of money spent on construction. The construction cost for the selected alternative is expected to be approximately \$52 million. A doubling of this amount is not unusual, meaning that the economic impact could be \$100 million, with the creation of several hundred jobs. Note that these economic impacts would not be experienced solely in the project area. The project-area impact would depend on availability of local labor and materials. Also, not all the jobs created by the project would necessarily be filled by newly hired employees; some of the jobs created represent existing jobs that would remain filled because of the road reconstruction project. Jobs created include temporary and full-time jobs. This methodology does not distinguish between full-time and part-time employment nor can it determine the duration of a worker's employment. Not all job creation would occur in the project area.

15. Secondary and Cumulative Impacts

a. Secondary Impacts

Secondary impacts are impacts to the natural or built environment beyond the right of way, or "footprint," of the project. Secondary impacts (both beneficial and adverse) result from changes in project-area features, such as increased traffic volumes, population, employment, tax base and land use changes, that may occur as an indirect result of the project. Because secondary impacts and direct impacts have similar consequences (for example, removing agricultural land from production or filling wetlands), secondary impacts must be considered in order to ensure that this project's total benefits and impacts can be evaluated.

Secondary impacts cannot be assessed for every potential change that could occur, large or small, but are roughly assessed for those changes that are reasonably foreseeable as consequences of the project. The most likely secondary impacts of transportation improvement projects such as this one result from land use changes, such as commercial development, that may accompany a larger volume of through traffic or roadway realignment. The added development is most likely to be located on parcels adjacent to the improved roadway.

Therefore, the analysis of secondary impacts is focused on lands adjacent to each of the reasonable alternatives.

Current Land Use Trends/Development Issues

Most land development in the project vicinity is centered on Route 65. Recent development in the study area includes commercial development in the Warsaw area, around the Truman Dam Access Road and Route 7 interchanges and the Gold Key residential development off Route 65 just north of the Lost Valley Fish Hatchery. There is a limited amount of new development in the Lincoln commercial area. Anticipated new development in Lincoln would be an expansion or redevelopment of properties in this commercial area.

There is some anticipation that the Warsaw and Lincoln airports could lead to additional interest in these areas for industry, and the improved roadway may help to promote that development. Both airports are located adjacent to existing Route 65, and any additional development around the airports would also be adjacent to the improved roadway.

Extent of Land Use Planning/Regulation

The City of Warsaw is the only governmental entity in the study area with a comprehensive plan and zoning ordinance. Warsaw incorporates the area west of Route 65 from the city center, south of Route 7, to the Truman Dam Access Road interchange. East of Route 65, the city incorporates only a small area just north of Route 7.

Benton County does not have county-wide zoning, but does regulate floodplain development in accordance with the Federal Emergency Management Agency regulations by requiring buildings to be elevated out of the floodplain. Floodplains are limited in the project area, and therefore this regulation would not likely have any great impact on potential future development. Lincoln has no published development regulations, but in project coordination, the local stakeholders have clearly emphasized the community's desire to locate new commercial development in the existing commercial area.

Reasonable Alternatives' Secondary Development Potential

There is no indication that improved roadway will change the existing pace or pattern of residential or commercial development in the study area. While the improved roadway will improve capacity and make travel along Route 65 safer, it will not provide new access to tourist attractions or other traffic-generating destinations. The primary destinations for regional traffic in the project area would remain the same, that is, the Truman Reservoir and Lake of the Ozarks. Thus, new commercial interests will likely continue the current pattern of locating near the existing commercial centers in Warsaw, primarily, and Lincoln, secondarily. In Warsaw, commercial development of the larger, most accessible lands around the Truman Dam Access Road and Route 7 interchanges west of Route 65 is in progress. While the improved roadway could provide some impetus for currently planned or unplanned development of open parcels, or the conversion of some properties from their existing commercial uses, it is not expected that the project would lead to widespread expansion of commercial development around these interchanges.

In Lincoln, the bypass alternative (LE-1) would have the greatest potential for secondary impacts. This alternative would direct traffic from the existing commercial area and bisect some large agricultural parcels. These combined direct impacts could lead to the development of

properties adjacent to the new roadway. Such development would have consequences for the conversion of farmland, as well as additional impacts to wetlands, streams and woodlands. The through-town alternatives may similarly encourage development on open lands, extending the commercial area north or south, with additional impacts to farmlands and natural resources. However, the tendency for secondary development may be somewhat tempered with the through-town alternatives because the existing businesses would have less reason to relocate, and there are available lots within the commercial area that could attract some of the new development.

b. Cumulative Impacts

The Council on Environmental Quality (1997) defines cumulative impacts as:

The impact on the environment which 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 (40 Code of Federal Regulations § 1508.7).

Unlike direct impacts, which are well-defined and occur within the proposed alignment, and secondary impacts, which occur within a limited geographical context, the focus of cumulative impact analysis is on resource sustainability in an expanded geography and time period.

The assessment of cumulative impacts does not necessarily require a cumulative assessment of all resources, but those resources that are of the greatest regional or local importance.

Based on agency and public input, the project team decided to assess the reasonable alternatives' cumulative impacts to farmlands, wetlands and floodplains. The project team decided to evaluate these resource categories because:

- They are ecologically and/or economically important components to the project area and larger project-area ecosystem,
- The Route 65 study is one of several actions affecting these resources and
- Past effects on these natural resources have been historically notable for these resources.

The Missouri Department of Transportation 2001 Long-Range Plan indicates a general preference for “taking care of the system” as opposed to adding new lanes or new highways. Therefore, for transportation projects, at least, most impacts will be limited to encroachments onto resources along existing roadways. In Benton County, the improvement of Route 65 is the largest and most expensive transportation project under consideration through at least the year 2010. Because of its local and regional importance, any alterations to Route 65 have the potential to impact other resources. The other projects under consideration for Benton County are limited in scope, such as are resurfacings, and will not have the potential impact that the Route 65 project can have. Consequently, for the analysis of cumulative impacts, the Route 65 project can be considered without these other improvements. An examination of cumulative impacts will be presented below. This examination will focus on the Route 65 project and known development projects, in general, and other land affecting activities, such as agriculture.

Most land development in the project vicinity is centered on Route 65 and is largely ad hoc. Recent development trends include commercial development in the Warsaw area. Commercial development is primarily expected around existing interchanges. Residential development is expected to be largely parcel by parcel conversions to single-family homes. Large scale residential developments are expected to be relatively rare. Finally, there is some expectation that the Warsaw and Lincoln airports could lead to additional interest in these areas for industry.

This general pattern of development is expected to continue into the foreseeable future and should be incorporated into the cumulative impact assessment.

Farmland

The project area and Benton County are dominated by agricultural land uses. The loss of farmland from urban sprawl around major cities is well-documented, but this type of economic growth is not apparent in Benton County or the project area. Transportation projects, such as the Route 65 project, could lead to the conversion of farmland directly or secondarily. However, as discussed above, this impact is expected to be localized, and there are currently no other projects in the county that are of the magnitude of the Route 65 project. For the foreseeable future, then, it does not appear that there will be a large cumulative impact on farmlands in the county.

Wetlands

Missouri, like other "Corn Belt States" of the Midwest, has lost a large percentage of its wetlands. This loss is evident in the project area, comparing the extent of mapped hydric soil types, the majority of which have been drained for agriculture, to the area of remnant wetlands. This situation is typical for Benton County at large and much of Missouri.

The strengthening of wetland regulations limits the further net loss of wetlands. Wetlands have gained a higher profile in the public eye, as well as a greater sensitivity across a number of federal and state agencies. Thus, the expansive, unchecked impacts to wetlands of the past are relatively rare in recent times. Through the Clean Water Act permitting process, wetlands that are part of the tributary system and are affected by draining or filling activities are mitigated, usually by replacement and usually in the same watershed. These regulations apply to any land development activities, not just state and federal actions. Further offsetting impacts are wetland restoration programs sponsored by NRCS and other federal and state agencies across the state. The Route 65 project will be subject to Clean Water Act permitting and will include a wetland mitigation plan so that it will not cause net loss of wetlands. While some wetland losses may still occur from unpermitted activities, it is expected that most activities affecting wetlands, including agriculture, will be permitted through similar processes, requiring mitigation and limiting the cumulative impact to wetlands.

Floodplains

Statewide, urban development in floodplains and the construction of levees to protect agricultural land have reduced floodplain acreage and increased the severity of flooding. As a result of the substantial economic losses caused by flooding in the state, all levels of government have been more diligent in preventing floodplain losses. Nevertheless, unavoidable floodplain encroachments are likely to continue as a result of transportation projects and other development. For example, floodplain losses for the Route 65 project would be about 10 to 11 acres, mostly as encroachments to widen existing road crossings. As a result, federal

floodplain regulations, which also serve as the basis for state and local regulations, are written to allow some encroachment while controlling the cumulative floodplain impacts within allowable levels. In accordance with these regulations, new structures associated with transportation projects located in floodplains are designed not to raise flood elevations beyond the allowable levels; these projects are reviewed by the SEMA for compliance. Similarly, some floodplain losses to commercial and residential development are also possible. Assuming regulations are enforced, the cumulative impact to floodplains should be managed to a reasonable level.

16. Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 limits FHWA participation in projects that adversely impact publicly owned park and recreation lands, wildlife and waterfowl refuges and historic sites. The Secretary of Transportation may only approve projects requiring the use of these lands if there is no feasible and prudent alternative to the use and the project includes all planning to minimize harm. As discussed in **Chapter III.C.15** there are no Section 4(f) impacts associated with this project. The reasonable alternatives and the selected alternative will impact and require acquisition of land from the Truman Reservoir and the Lost Valley Fish Hatchery. The selected alternative will acquire 17.8 acres from the Truman Reservoir and 5.4 acres from the Lost Valley Fish Hatchery. These are both publicly owned facilities that have recreational components. However, Section 4(f) does not apply because the primary purpose of the affected areas is not recreational.

The officials with jurisdiction over the Truman Reservoir (ACOE) and the Lost Valley Fish Hatchery (MDC) are supportive of the project. The Route 65 project team has coordinated extensively with these agencies. The coordination material is included in **Appendix V-F**. Among the appendix material are coordination letters from the ACOE and MDC documenting support for the project and establishing that the areas adjacent to Route 65 are not primarily for park/recreation/wildlife refuge use and are not significant for those purposes.

C. Measures to Minimize Harm

Measures to minimize harm are efforts that are proposed to reduce the identified impacts associated with the selected alternative. The purpose of this section is to provide an overview of these efforts.

1. Right-of-Way Acquisition and Relocation Program

The Missouri Department of Transportation's right-of-way acquisition and relocation program is carried out in compliance with the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970 (Uniform Act), as amended in 1987 (42 U.S.C. 4601). The Uniform Act, as well as Missouri law, requires that just compensation be paid to the owners of private property taken for public use. An appraisal of fair market value is the basis for determining just compensation to be offered the owner for the property to be acquired. The Uniform Act defines an appraisal as a written statement independently and impartially prepared by a qualified appraiser setting forth an opinion of defined value of an adequately described property as of a specific date, supported by the presentation and analysis of relevant market information.

The Missouri Department of Transportation's right-of-way acquisition and relocation program is designed to provide uniform and equitable treatment for those persons who are displaced from their residences, businesses or farms. The program is carried out without discrimination and in compliance with Title VI, the President's Executive Order on Environmental Justice, Limited English Proficiency and the Americans with Disabilities Act. It provides advisory assistance to owners and tenants who are displaced and relocation assistance payments designed to compensate displaced persons for costs that have been imposed on them by a MoDOT highway project. Relocation assistance under this program is made available to all affected parties without discrimination.

Any displaced owner-occupant or tenant (of a dwelling) who qualifies as a displaced person is entitled to payment of his or her actual moving and related expenses as MoDOT determines to be reasonable and necessary. A displaced owner-occupant who has occupied an affected dwelling for at least 180 days is also eligible to receive up to \$22,500 for a replacement housing payment, which includes the amount by which the cost of a replacement dwelling exceeds the acquisition cost of the affected dwelling, increased interest costs and incidental costs. A displaced owner-occupant who has occupied an affected dwelling for at least 90 days but less than 180 days or a tenant who has occupied an affected dwelling for at least 90 days is entitled to a payment not to exceed \$5,250 for either a rental or down payment assistance.

Any displaced business, farm operation or nonprofit organization that qualifies as a displaced person is entitled to payment of actual moving and related expenses, as MoDOT determines to be reasonable and necessary. In addition, a business, farm or nonprofit organization may be eligible to receive a payment, not to exceed \$10,000, for expenses incurred in re-establishing the business, farm operation or nonprofit organization at a replacement site.

A displaced business may be eligible to choose to receive a fixed payment in lieu of the payments for actual moving and related expenses and actual and reasonable re-establishment expenses. The payment amount for this entitlement alternative is based on the average net earning of the business. This fixed payment amount cannot be less than \$1,000 or more than \$20,000. The Uniform Act requires that comparable, decent, safe and sanitary replacement housing within a person's financial means be made available before the person may be displaced. Should this project include persons who cannot readily be moved using the regular relocation program benefits and procedures (i.e., when there is a unique housing need or when the cost of available comparable housing would result in payments in excess of the \$22,500 or \$5,250 statutory payment limits), MoDOT's relocation policy commits to utilizing housing of last resort. Housing of last resort involves the use of payments in excess of statutory maximums or the use of other unusual methods of providing comparable housing. The Missouri Department of Transportation would utilize housing of last resort on a case-by-case basis.

The Missouri Department of Transportation's relocation program is designed to ease the property transition for the property owner or renter who is displaced. The Missouri Department of Transportation's relocation agents work closely with residents, as needed or requested, and provide the needed guidance to relocate any eligible party. Housing of last resort would be provided as needed, but the local residential and commercial property market is expected to more than absorb the displacements associated with this project.

2. Needs of those Affected by Right-of-Way Acquisition

Interviews, public involvement and site surveys have led to a preliminary understanding of the needs of potentially affected residents, landowners and businesses. Those needs will be discussed here.

a. Landowners Affected by Property Acquisition

The vast majority of property owners affected by the selected alternative are affected by the acquisition of portions of their property. Generally, this is in the form of a narrow sliver of land adjacent to the existing right of way of Route 65. The right-of-way acquisition associated with the selected alternative is depicted on **Exhibits IV-1A–J**. The selected alternative is expected to affect 144 parcels in this way. **Table IV-3** is a summary of the project's right-of-way acquisition. For these landowners, the expressed concerns include:

Access/Driveway Configurations – Most of the landowners access their property from Route 65. Consequently, the landowners are concerned that access to Route 65 is adequate. Generally, their concerns are limited to maintaining an acceptable driveway. In most cases, the driveways will only be accessible through a right turn. This is an unavoidable consequence of a divided highway configuration. Most landowners understand this constraint. During the May 2006 Public Involvement Meeting, the roadway configuration presented was detailed enough to make it clear when and where this would occur. The project team has discussed this issue with many property owners. In Lincoln, specific access management measures are proposed. See **Chapter II** for details. The concerns of property owners located at existing intersections are generally more complicated. In some cases the issues pertain to intersection operation – most intersections include turn lanes to facilitate turns. In some cases the concerns pertain to the ability of large vehicles (trailers/farm equipment) to navigate the cross-over. The project's design criteria were established with this in mind. Another issue was the number and location of crossovers. The project maintains the existing intersections which are expected to adequately minimize the amount of out-of-direction travel that land owners will be forced to do.

Uneconomic Remnants – In the right-of-way acquisition estimates presented here, an effort was made to count the parcels with uneconomic remnants as total takes. This methodology has resulted in the 11 parcels predicted to be total parcel acquisitions (see **Table IV-3**). The right-of-way acquisition process is lengthy and detailed. It is intended to compensate affected property owners fairly. The notion of uneconomic remnants will be considered throughout the project.

Loss of Use – The final issue expressed by many property owners, from whom right of way will be acquired, is the notion of impacts, up to and including loss of use. Again, the acquisition of right of way from each parcel is unique. The conditions on each parcel will need to be considered as the project progresses. The project team will continue to work with property owners to investigate and make any appropriate alterations that will improve post-construction conditions without impacting the project.

b. Residents Affected by Dwelling Displacements

The selected alternative is expected to result in the displacement of 29 existing buildings (see **Tables IV-4 and 5**). This includes six residential dwellings. These dwellings are single-family detached homes. Currently, several of these dwellings are vacant. A review of the available housing stock in Lincoln, Warsaw and Benton County shows a broad range of types

and locations available. Benton County communities are actively encouraging residential growth. This has led to an ample stock of available homes. The available housing stock includes types similar to those being displaced. Available housing varies from custom homes approaching \$1 million down to \$38,000 for a home in Warsaw and \$58,000 in Lincoln. Based on the extensive stock of available housing, the few residential displacements associated with the selected alternative should be readily absorbed into the housing market. It is not anticipated that there will be difficulty finding safe and sanitary housing for those displaced.

c. **Businesses Affected by Structure Displacements**

Of the 29 existing buildings expected to be displaced by the selected alternative, 18 are commercial or industrial. This represents eight individual businesses (see **Tables IV-4 and 5**). Discussions with these individuals revealed the following concerns:

Rising Real Estate Values and Available Replacements – Many of the businesses that will be displaced have been in their current locations for extended periods. This has resulted in a feeling that any replacement structure will be very expensive. It seems unlikely that the limited number of proposed displacements will create market pressure to raise property values unduly. Currently, there are numerous vacant structures throughout the Route 65 corridor. While it is true that many of the businesses in Lincoln are very small, and thus susceptible to disruption, market forces will continue to set prices, regardless of the selected alternative. Some businesses were concerned that suitable replacement buildings would be available at all. Based on a review, it does not seem that the displaced businesses have unusual requirements that would make finding replacements difficult.

Concern over the Post-Construction Environment – Some of the affected businesses could stay in their current location by reconfiguring their operations. These individuals tended to be concerned with the effect that the roadway reconfiguration would have on their businesses. This concern was also expressed by other businesses, as well. In Lincoln, specific access management measures are proposed. See **Chapter II** for details. The conversion of Route 65 will alter local access. However, the improvement of Route 65 is expected to be a net positive to the business community. The project team will continue to work with the affected community to improve the selected alternative and minimize impacts.



Study->Design->Construction



• **Study Phase: 2006 – 2007**

- Investigate existing problems
- Develop wide range of solutions
- Select a preferred alternative



• **Design Phase: 2007 – 2009**

- Develop final design plans
- Acquire right-of-way
- Prepare construction documents



• **Begin Construction 2009**

CH2MHILL



Project Schedule Display from Route 65 Public Involvement Meeting

Timing of Project and Displacements – Nearly all of the affected individuals were interested in the timing associated with acquisitions and displacements. While the schedule is considered aggressive for transportation projects, this schedule seemed to allay fears of rapid transitions.

Hardships to Family-Run Businesses – All of the eight affected businesses report fewer than 10 employees. Most are run by a single family. Business disruptions are often hardest on these types of small businesses. The right-of-way acquisition process is sensitive to this situation.

3. Traffic Management

A traffic management plan will be developed and implemented during future engineering phases to ensure reasonably convenient access to agricultural fields, residences, businesses, community services and local roads during construction. Existing local roads that would intersect the new highways would remain open to traffic with minor interruptions during intersection construction. The Missouri Department of Transportation will coordinate construction activities, sequencing and traffic management plans with local fire, police and emergency rescue services to minimize delays during the construction period.

4. Noise and Air Quality

To reduce the impacts of construction noise, the special provisions of the construction contract will require that motorized equipment be operated in compliance with all applicable local, state and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. At a minimum, the provisions will require that motorized construction equipment not be operated between 10:00 p.m. and 6:00 a.m. without prior written approval of the project engineer. All construction equipment will be required to have mufflers constructed in accordance with the equipment manufacturer's specifications, or a system of equivalent noise-reducing capacity. Mufflers and exhaust systems would be required to be maintained in good operating condition, free from leaks and holes.

Construction contractors would be required to comply with regulations on air pollution control. These regulations would apply to fugitive dust control and open burning of grub material. Dust control during construction would be performed in accordance with MoDOT's standard methods, which require application of water or approved dust control measures on haul roads and during grading. Pavement material batch plants would be situated in accordance with the *Standard Specifications* or any special provisions developed during coordination with MDNR regarding air quality standards and emissions. Portable material plants would be operated in accordance with MDNR air quality requirements/guidelines. A permit must be obtained from the MDNR to open burn or open burn with restrictions.

5. Borrow and Disposal

Selection of any material borrow sites would be the responsibility of the construction contractor subject to approval by the MoDOT. Unusable excavated material would be disposed of by the contractor in accordance with MoDOT's *Standard Specifications for Highway Construction* and special provisions to ensure protection of wetlands and waterways. All waste and demolition material from project construction activities will be disposed of in accordance with the standard specifications or special provisions to ensure protection of wetlands and waterways.

6. Water Quality, Hydrology and Hydraulics

To protect water quality and reduce impacts during and after construction, best management practices would be implemented to prevent and reduce soil erosion and sedimentation in local waterways and sinkholes, if any are found in the area. The Missouri Department of Transportation would employ methods for stormwater management during and after construction in accordance with its *Standard Specifications Book for Highway Construction* and National Pollutant Discharge Elimination System (NPDES) stormwater permit. Erosion control devices would be installed before the onset of construction activities that are likely to cause erosion. Temporary and permanent erosion control methods would include silt fences, retention basins, detention ponds, interceptor ditches, seeding and sodding, installing riprap on exposed embankments, installing erosion mats and mulching. Disturbed areas would be graded and seeded as soon as possible to minimize erosion.

Development within floodplains is regulated under the National Flood Insurance Program. The Federal Emergency Management Agency has mandated that projects can cause no rise in the regulatory floodway and a one-foot cumulative rise for all projects in the base (100-year) floodplain. For projects that involve the state of Missouri, the SEMA issues floodplain development permits. In accordance with MoDOT's Bridge Design Manual, encroachments into the floodplain, including culvert construction, replacements or extensions, would require a floodplain development permit from SEMA. Structure sizing will be performed in accordance with state and federal guidelines regarding floodplain encroachment and hydraulic capacity. All new structures would be in compliance with state guidelines.

7. Threatened Species

Any potential impacts to the Mead's milkweed would require the initiation of either an informal or formal Section 7 (Endangered Species Act) Consultation between MoDOT and the USFWS. The Missouri Department of Transportation would write a Biological Assessment (BA) concerning the subject federally listed species and submit it to the USFWS. The USFWS would then write a Biological Opinion (BO) as a response to the BA, stating how the proposed roadway improvement would likely affect the subject species.

At this time, no impacts to the Mead's milkweed are anticipated from the selected alternative. During the project's engineering phase, MoDOT and MDC will review the plans to ensure that impacts to the Rock Hill Prairie are avoided.

Potential impacts to the Indiana bat will be minimized by prohibiting tree clearing between April 1 and September 30. The Missouri Department of Transportation will also continue to coordinate with the USFWS and MDC to assess the habitat of the selected alternative and actions to minimize potential impacts to the Indiana bat.