IMPROVE i70

# INTERSTATE 70 CORRIDOR

## KANSAS CITY TO ST. LOUIS, MISSOURI

# Second Tier Environmental Assessment and Draft Section 4(f) Evaluation

## Section of Independent Utility #3

Boonville (Route 5) to Rocheport (Route BB)

*MoDOT Job Number: J4I1341F*

***Oct. 15, 2004***

MoDOT

SECOND TIER ENVIRONMENTAL ASSESSMENT AND
DRAFT SECTION 4(f) EVALUATION
SECTION OF INDEPENDENT UTILITY 3
BOONVILLE (ROUTE 5) TO ROCHEPORT (ROUTE BB)
COOPER AND BOONE COUNTIES
MODOT JOB NUMBER J4I1341F

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The proposed project includes the widening and reconstruction of I-70 to a six-lane fully controlled access highway from a western terminus at Route 5 (mile marker 99) in Cooper County to an eastern terminus at Route BB (mile marker 115) in Boone County for a total length of approximately 17 miles. This includes the construction of a second bridge across the Missouri River, widening of the median along I-70 and the reconstruction of the Routes 5, B, 87, 179 and BB interchanges .

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2. Traffic Forecasts and Operations Technical Memorandum, Section of Independent Utility 3
3. Missouri River Bridge Technical Memorandum, Section of Independent Utility 3
4. Interstate 70 Crossing of the Missouri River near Overton, Missouri – Hydraulic Information for Floodplain Structures
5. Plan and Profile Sheets and Cost Estimates, Section of Independent Utility 3
6. Rest Area Study
7. Interstate 70 Enhancement Plan
8. Environmental Methodologies
9. Frontage Road Master Plan
10. Median Area Study, Design Criteria and Cost Estimating Guide
11. Cultural Resources Methodology and Geomorphology Report
12. Interstate 70 Tier II Cultural Resource Investigations Volume 7: SIU 3 Architectural Survey, MoDOT Job No. J4HI1341F
13. Section of Independent Utility 3, Wetland and Stream Delineation Report

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## List of Abbreviations and Acronyms

| | |
|---|---|
| ADT | average daily traffic |
| AADT | annual average daily traffic |
| APE | area of potential effect |
| AQCR | Air Quality Control Region |
| AST | aboveground storage tanks |
| BC | Boone County |
| CC | Cooper County |
| CFR | Code of Federal Regulations |
| CRP | Conservation Reserve Program |
| CSR | Code of State Regulations |
| CWA | Clean Water Act |
| dBA | hourly A-weighted noise levels in decibels (dBA) |
| EA | Environmental Assessment |
| EDR | Environmental Data Resources |
| EIS | Environmental Impact Statement |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| FW | farmed wetland |
| HMVMT | hundred million vehicle miles traveled |
| I-70 | Interstate 70 |
| LOS | level of service |
| LUST | leaking underground storage tanks |
| MASS | Missouri Agriculture Statistics Service |
| MDC | Missouri Department of Conservation |
| MDNR | Missouri Department of Natural Resources |
| MoDOT | Missouri Department of Transportation |
| N. | North |
| NAAQS | National Ambient Air Quality Standards |
| NAC | National Abatement Criteria |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| OHWM | ordinary high water mark |
| PEM | palustrine emergent |
| PFO | palustrine forested |
| PSS | palustrine scrub-shrub |
| PUB | palustrine, unconsolidated bottom, diked/impounded |
| RM | River Mile |
| S. | South |
| SIU | Sections of Independent Utility |
| SMG | Study Management Group |
| STR | stream |
| USACE | U.S. Army Corps of Engineers |
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UST | underground storage tanks |
| vpd | vehicles per day |
| WRP | Wetland Reserve Program |

# Executive Summary

## Introduction

Interstate 70 (I-70) is a major interstate highway crossing the United States in a general east-west direction. Interstate 70 is part of the Eisenhower Interstate System of Highways and retains its separate identity within the National Highway System.

The Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) have proposed improvements to I-70 between the metropolitan areas of Kansas City and St. Louis (I-70 corridor) to meet the current and future transportation-related needs of the corridor. A tiered environmental process was used to evaluate the improvements within this I-70 corridor. A tiering process is a procedure that allows compliance with the National Environmental Policy Act by using two separate stages, or tiers, of decision making.

The tiered process for consideration of potential improvements to I-70 began with the assessment of strategies for transportation improvements within a 199-mile (320-kilometer) long corridor extending from Kansas City to St. Louis. The I-70 Study Corridor was approximately 10 miles (16.1 kilometers) wide, five miles (eight kilometers) on either side of existing I-70.

As a result of a thorough analysis of alternatives during the First Tier Environmental Impact Statement (EIS) (available upon request), Strategy No. 3 (Widen Existing I-70) was selected as the preferred strategy. The Widen I-70 Strategy included the identification of seven Sections of independent utility (SIUs). Within two of the three urban SIUs (SIU 4-Route BB to Route Z and SIU 7-Route 19 to Lake St. Louis), this strategy called for the preparation of EISs as they included options for widening the existing roadway as well as options for constructing a relocation facility on new location. In contrast, within rural sections, the selected strategy called for the development of mainline alternatives that were immediately adjacent to the existing facility. SIU 3 is a rural section and entails the consideration of mainline alternatives immediately to the north or south of the existing I-70 facility. The study area for SIU 3 is defined as an approximately 700-foot (213.3-meter) wide corridor centered over existing I-70 within which alternatives would be developed. The following boundaries were defined for SIU 3:

- approximately two miles (3.2 kilometers) west of the Route 5 interchange in Cooper County near mile marker 99 (western terminus); and
- 0.6 mile (0.97 kilometer) east of the Route BB interchange in Boone County at mile marker 115 (eastern terminus).

Proposed improvements within SIU 3 include upgrading the current roadway design features by widening the median, reconfiguring the five interchanges that currently exist within the study area and constructing an additional bridge over the Missouri River at Overton Bottoms.

Proposed improvements within SIU 3 are evaluated as part of this Environmental Assessment (EA).

## Project Purpose and Need

The purpose of this project is to provide a safe, efficient, environmentally sound and cost-effective transportation facility that is responsive to the local and system-wide need and the expectations of a national interstate. The specific project purposes and needs for this project can be summarized as follows:

- **Service Conditions and Existing Roadway and Bridge Geometry** – Upgrade current roadway design features including mainline roadway, interchanges and crossroads to account for additional I-70 lanes.
- **Roadway Capacity** – Increase roadway system capacity in accordance with the projected travel demands to improve the general operating conditions.
- **Traffic Safety** – Reduce the number and severity of traffic-related crashes.
- **Missouri River Bridge** – Address the functional and structural needs of the bridge over the Missouri River.
- **Goods Movement** – Improve the efficiency of freight movement on I-70.
- **Access to Recreational Facilities** – Facilitate the usage by motorists of nearby regional recreation facilities by maintaining clear accessibility.
- **National Security** – Provide a facility to accommodate potential modal shifts in transportation due to issues related to national security.

These system-wide purposes and needs (substantiated in the First Tier EIS) (available upon request) are incorporated as a basis for the more local purposes and needs of SIU 3.

## Project Alternatives

The formulation of alternatives for the Second Tier Studies in SIU 3 was an iterative process that entailed considerations of a full range of environmental and engineering factors, design guidelines and public and agency input.

Constraint information was developed by acquiring and consolidating information from a variety of sources including public involvement meetings, file information from MoDOT, other state agencies (i.e., Missouri Department of Natural Resources [MDNR]) and federal agencies (i.e., Natural Resources Conservation Service [NRCS], U.S. Fish and Wildlife Service [USFWS], U.S. Environmental Protection Agency [USEPA], Federal Emergency Management Agency, U.S. Geological Survey, U.S. Army Corps of Engineers [USACE]) and field reconnaissance. Alternative development and analysis entailed a consideration of a full range of environmental and engineering issues and also factored in public comments. Factors considered included cultural resources; rare, threatened or endangered species; parklands; floodways; floodplains; residential and commercial displacements; land uses; wetlands and water resources; traffic and access management issues; engineering design guidelines and other factors.

Alternative development was conducted in a step-wise fashion in which the first step in the process entailed a consideration of the mainline, whereas the second step considered improvements at each of the five interchanges. As a result of these analyses, a recommended preferred alternative was identified consisting of I-70 mainline widening to the south and modification of each of the five interchanges that provide for needed improvements in access and safety while minimizing impacts to the human and natural environment.

In addition, because of the potential for greater environmental impacts in the vicinity of Overton Bottoms, a second mainline alternative parallel to and north of the existing alignment was retained for detailed analysis. This alternative extends from the western Missouri River bluff, across the floodplain and the Missouri River and the eastern bluff and crosses over to the south, east of the interchange at Route BB in Rocheport. Design features and potential traffic characteristics of this northern alternative are similar to those of the south alternative.

## Affected Environment and Environmental Consequences

### Land Use and Social and Economic Effects

Section of Independent Utility 3 is located in a predominantly rural rolling landscape within central Missouri. Accordingly, the environmental setting of the project area is largely characterized by a gently rolling terrain west of the Missouri River that is dissected by valleys of tributaries of the Petite Saline Creek. Land use in the rural areas is predominantly agricultural with scattered residential and agricultural based development. In contrast, residential and commercial development characterizes Route 5 and Route BB in Boonville.

Proposed improvements to I-70 would result in 10 residential displacements and 25 commercial displacements. Agricultural lands would be the greatest affected land use type (474 acres, 192 hectares).

### Parkland and Wildlife Refuges

Section 4(f) of the U.S. Department of Transportation Act of 1966, as codified and amended, has afforded publicly owned parkland protection from being converted to uses other than park and recreation. The Katy Trail State Park is the only 4(f) land potentially affected by the proposed project. Interstate-70 crosses the Katy Trail along the Missouri River at the base of the Manitou Bluffs and is crossed by the Katy Trail just west of the Route 5 interchange in Boonville.

Proposed improvements to I-70 within SIU 3 would result in 1.1 acre (0.4 hectare) of direct impact to the Katy Trail at the western crossing.

Other public lands within the project area include the Overton Bottoms Conservation Area and the Big Muddy National Fish and Wildlife Refuge (Big Muddy Refuge). Both of these lands are immediately adjacent to I-70 in the Overton Bottoms. Improvements to I-70 would be made within a 300-foot (91.4-meter) reserved corridor within these lands resulting in approximately 15 acres (6.0 hectares) of impact for either the North Missouri River Alternative or South Missouri River Alternative. Consequently, no adverse impacts to either of these lands will occur.

Taylor's Landing is a public access facility located within the Big Muddy Refuge. It is owned and operated by the Missouri Department of Conservation (MDC) and is located upstream of the existing I-70 bridge. No impact to the landing is expected with either a north or south alignment of future improvements to I-70.

With the reconstruction of existing interchanges, there will be the opportunity to provide increased trails plus bicycle and pedestrian infrastructure. Additionally, these areas could provide the opportunity for community initiated enhancement features.

### Prime Farmland

The proposed reconstruction and widening of I-70 would result in impacts to prime farmland due to farmland conversion along the new required right of way. It is estimated that approximately 80.0 acres (32.4 hectares) of farmland would be directly impacted along the length of the corridor in SIU 3. Additionally, approximately 20.7 acres (8.4 hectares) of Conservation Reserve Program designated lands would be affected by the improvement. No Wetland Reserve Program lands will be impacted.

### Air Quality

With the improved mobility and the access management policy implemented as part of the ultimately reconstructed I-70 corridor, this project is not anticipated to cause a violation of the National Ambient Air Quality Standards. Improvement to the mainline facility coupled with reduced congestion at the interchange intersections will provide for better localized air quality as compared to the No-Build Alternative.

### Terrestrial Communities

It is estimated that approximately 230 acres (93.2 hectares) of forest land would be directly impacted along the length of the corridor. Impacts to wildlife associated with these habitats would also occur in conjunction with loss of habitat and, in some cases, increased fragmentation of riparian corridors.

### Wetlands and Waters of the United States

There is the potential for the proposed reconstruction and widening of the I-70 Corridor to contribute to impacts to wetlands and other waters of the United States. During the construction phase, activities that impact these sites through sedimentation, changes in the nature of stream hydraulics or clearing of vegetation in riparian habitat are likely to have impacts on wetland functions and values of downstream or downslope waters of the United States, including wetlands. It is estimated that approximately 12.1 acres (4.9 hectares) of jurisdictional wetlands and ponds would be directly impacted within SIU 3. It should be noted, however, that there would be wetland mitigation planned within the corridor to ensure, at a minimum, no net loss of wetlands as a resource.

The Missouri River floodplain is the primary floodplain resource. Other smaller floodplains occur in association with tributaries of the Petite Saline Creek. In total, approximately 71.8 acres (29.0 hectares) of floodplain would be impacted by the project.

The Missouri River is the primary jurisdictional riverine resource within the SIU 3 project area. Smaller tributaries of the Petite Saline Creek (west of the Missouri River) and of Moniteau Creek east of the Missouri River) would also be crossed by the project. In total, 18,779 feet (5,724 meters) of jurisdictional stream would be impacted by the improvement.

### Threatened and Endangered Species

According to agency information, federally listed threatened and endangered species potentially occurring within the corridor include the pallid sturgeon (threatened), gray bat (endangered), and Indiana bat (endangered). These species are either directly found within the Missouri River (pallid sturgeon) or the surrounding bluffs. Other state-listed species noted by MDC as occurring within the Missouri River include the sicklefin chub, sturgeon chub, ghost shiner and plains killifish. While these species occur in the project vicinity, the improvements to I-70 will not have an impact on them.

The information of record identified buffalo grass (*Buchloe dactyloides*, state listed as S1, critically imperiled) as being potentially present within the general area of the rest area along eastbound I-70 between Route B and Route 87, and would be impacted by the southern alternative. Field studies conducted indicate that the population at the eastbound rest area is likely to have been extirpated as no population of buffalo grass was observed.

### Noise

Localized noise impacts to residential receptors would occur with the proposed project. A total of 11 noise sensitive receptors were determined to have projected noise levels at or above the Noise Abatement Criteria in the design year.

### Cultural Resources

The data in the information of record does not identify National Register of Historic Places (NRHP) listed archaeological sites within the study area. Any archaeological impacts resulting from a northern or southern alternative are likely to be similar in overall magnitude although locations may vary. A detailed archaeological investigation has been conducted for the recommended preferred alternative and has identified four sites that have the potential for intact subsurface deposits. Results of additional investigation and coordination regarding these sites will be reported in the Final EA.

An architectural investigation of all standing structures and bridges within the area of potential effect resulted in the identification of one structure near the interchange of Route 5 as potentially eligible for NRHP listing. Additionally, the existing I-70 bridge over the Missouri River was also considered to be potentially eligible for NRHP listing. The barn at the Route 5 interchange will not be impacted by the project. By comparison, the I-70 bridge will be part of the future roadway system, but will not be altered by the project. Consequently, there will be no adverse effect on these structures.

The Moses U. Payne house is the only NRHP listed property in the vicinity of SIU 3. The site, however, is located outside the area of potential effect south of the Rocheport interchange and will, therefore, not be affected.

No cemeteries will be impacted by the proposed improvements to I-70 in SIU 3.

**Commitments and Future Actions**

During the course of the Second Tier Studies, MoDOT has agreed to the following commitments and future actions during the design and construction phases of future improvements in the SIU 3 corridor. The agreed upon commitments and future actions include:

- The frontage roads as proposed in the Frontage Road Master Plan (available upon request) may be constructed in the future as needs arise and as funding becomes available. The Missouri Department of Transportation is committed, however, to construct frontage roads for the purposes of maintaining existing local service connections and maintaining existing access to adjacent properties.
- MoDOT would consult with emergency responder agencies involved in traffic incident management on I-70 in future design and maintenance of traffic plan development as the Improve I-70 program progresses.
- Where reasonably possible, the eight-foot (2.4-meter) paved shoulder along the new frontage road construction could serve as a one-way bicycle facility.
- During right of way acquisition and relocations, MoDOT is responsible for assuring that this would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. If acquisition of only a portion of property leaves the owner with a remnant, MoDOT would determine whether the remnant maintains utility or value to the present owner. The Missouri Department of Transportation Right of Way Division would carry out the acquisition and relocation of commercial and industrial properties in accordance with the Act of 1970, as amended.
- Should I-70 or any part thereof be determined eligible for the NRHP at a later date, FHWA and MoDOT would enter into consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation pursuant to 36 Code of Federal Regulations 800.
- Bottomless culverts would be considered in the design phase to minimize indirect impacts to the groundwater system. Detention basins or other engineering controls that treat sediment in surface water before it reaches the losing stream would also be considered in the design phase.
- Through MoDOT's approved Pollution Prevention Plan, the control of water pollution would be accomplished. The plan specifies berms, slope drains, ditch checks, sediment basins, silt fences, rapid seeding and mulching and other erosion control devices or methods as needed. In addition, all construction and project activities would comply with all conditions of appropriate USACE and MDNR permits and certifications.
- Impacts to aquatic communities would be minimized by strict adherence to MoDOT's Temporary Erosion and Sediment Control Procedures.
- For the Missouri River bridge, future design and location of bridge piers would be coordinated with the USFWS and MDC during the design phase to consider seasonal patterns of pallid sturgeon habitat use, avoid potential habitat and enhance existing habitat.
- To address USFWS and MDC concerns, MoDOT would review the Natural Heritage Data Base periodically during the project development process to identify any new locations of Indiana bat activity. The Missouri Department of Transportation would

continue to consult with the USFWS to avoid or minimize potential impacts to this species and the gray bat species.

- The Missouri Department of Transportation would commit to conducting running buffalo clover surveys at the Loutre River crossing, the Auxvasse Creek crossing, in SIU 6, the Cedar Creek crossing in SIU 5 and the Lamine River crossing in SIU 2 prior to construction. The Missouri Department of Transportation recognizes the importance of riverine corridors for a variety of benefits, including habitats suitable for endangered species such as the Indiana bat and running buffalo clover. It has developed a stream mitigation and enhancement plan for the major river crossings, including those noted above.
- Under MoDOT's current design criteria, new bridges must have a backwater for the design flood of no greater than one foot (0.3 meter). In situations where the proposed new bridge would be in the vicinity of an existing bridge that has an existing backwater and other regulations or criteria do not control, MoDOT would make a case-by-case decision as to whether design of the new bridge should consider the existing bridge backwater or only the backwater associated with the new bridge.
- Corridor-wide mitigation planning is currently being addressed by the Study Management Group. Development of a wetland mitigation site or sites would be conducted through consultation with USACE, USFWS, and MDC. The Loutre River valley has been identified as a potential wetland mitigation site.
- The Missouri Department of Transportation has special provisions for construction which require 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 is required to have mufflers constructed in accordance with the equipment manufacturers' specifications.
- To minimize impacts associated with the construction of the recommended preferred alternative, pollution control measures outlined in the Missouri Standard Specifications for Highway Construction would be used. These measures pertain to air, noise and water pollution as well as traffic control and safety measures.
- Applicable parts of the I-70 Enhancement Plan (available upon request) will be incorporated and committed to in the final EA and decision document for this project.
- The Federal Highway Administration and MoDOT would temporarily detour the Katy Trail during construction. The trail currently crosses I-70 approximately at mile marker 100. The detour would consist of re-routing the trail just north of I-70 west of Old Highway 40. It would run approximately 3,400 feet (1,036 meters) along Old Highway 40 to Dunkles Drive. There it would turn left and cross I-70 via Dunkles Drive and continue to the south approximately 1,900 feet (579 meters) to Prairie Lick Road. From there it would run southwesterly approximately 1,500 feet (457 meters) along Prairie Lick Road at which point it would intersect with the trail again.
- Although approximately 1.08 acres (0.44 hectare) of the Katy Trail State Park would be required near mile marker 100, FHWA and MoDOT would compensate for the loss by replacing the existing crossing with a bridge that extends over a wider median and the proposed additional lanes. Compensation for impacts to this area of the park will be determined through coordination with MDNR and may include an acre for acre acquisition of lands to be dedicated to the Katy Trail State Park.
- The Federal Highway Administration and MoDOT would consult with MDNR regarding the design of the new crossing at mile marker 100. Coordination would ensure that vertical and horizontal clearances for the crossing would be established and maintained

according to the National Trails System Act, MDNR and MoDOT guidelines. Consideration would be given to the use of the existing bridge as a part of the crossing during the design phase.

- Regarding the crossing at mile marker 100, the FHWA and MoDOT would provide advance notification of extended trail detour dates and times to the public as well as appropriate information signing on the trail and at nearby trailheads. Additional signage would also be provided to warn motorists of the presence of bicyclists and pedestrians on the detour route.
- Consideration would be given to identification of a bike lane on the detour route.
- The Federal Highway Administration and MoDOT would provide advance notice and signing on the trail and at nearby trailheads for the crossing at mile marker 114, should this crossing require a temporary closure. (Any closure at this location is anticipated to be of short duration, several hours or less.) Either a roofed structure over the trail or a safety net could be installed to protect the trail users and minimize temporary closures.
- If practicable, FHWA and MoDOT would time trail closures and detour (mile marker 100) to occur during periods of off-peak use.
- Further coordination between FHWA, MoDOT and MDNR would result in an intergovernmental agency agreement that addresses project coordination about the Katy Trail and would detail mitigation measures to be followed to minimize any disruptions in use of the trail.
- Compensation for impacts to Overton Bottoms Conservation Area may include the acquisition of adjacent lands and their subsequent title transfer to MDC. Additionally, compensation for impacts may include the dedication of funds for habitat enhancements (i.e., wetland establishment and tree planting) and ecosystem restoration.

**Description of the Recommended Preferred Alternative**

As a result of a thorough investigation of the environmental and engineering constraints of the project area, an evaluation of both mainline and interchange alternatives and an analysis of a second Missouri River crossing alternative (see Chapter III), the recommended preferred alternative within SIU 3 is proposed to consist of the south mainline alternative (including constructing a new parallel bridge over the Missouri River immediately to the south) and reconstructed interchanges at Routes 5, B, 87, 179 and BB. The recommended preferred alternative interchanges consist of the following:

- Route 5 – a diamond interchange with a new overpass immediately east of the existing bridge;
- Route B – a diamond interchange with a new overpass immediately west of the existing bridge;
- Route 87 – a diamond interchange with a new overpass immediately east of the existing bridge;
- Route 179 – a diamond interchange with a new overpass immediately east of the existing bridge and a roundabout at the westbound ramps and Route 98; and
- Route BB – a diamond interchange with a new overpass 200 feet west of the existing bridge.

The recommended preferred alternative also consists of reconstructed eastbound and westbound rest areas at the sites of the existing rest areas just east of Route B in Boonville.

Planimetric depictions of the recommended preferred alternative including an illustration of proposed pavement, grades and rights of way are available upon request.

Final selection of the alternative, however, will not be made until the approval of the final EA after all impacts have been considered and all agency and public comments have been received and evaluated.