CHAPTER III
Affected Environment, Environmental Consequences and Measures to Minimize Harm

Chapter III is the heart of the NEPA analysis; it describes the affected environment, the environmental consequences and the measures to minimize harm[1] associated with the reasonable alternatives and the preferred alternative. The first three sections of this chapter will very briefly summarize the topics covered in the Draft Environmental Impact Statement (DEIS). The intent is to give the reader an idea of the breadth of the analysis conducted. We strongly urge readers interested in specific resources to refer to the DEIS. The DEIS addressed all of the reasonable alternatives, while also paying particular attention to the recommended preferred alternative. Following the summary, this chapter will address clarifications and updates that have arisen since the publication of the DEIS. Because the preferred alternative is so similar to the recommended preferred alternative the difference in impacts is virtually zero. Consequently, the clarifications will predominantly deal with presenting the data from studies that focused on resources that, for permit-related reasons, require more specific analysis of the preferred alternative.

The process that led to the identification of the preferred alternative included evaluations of impacts. The impact analysis included right of way impacts, environmental impacts, community impacts, displacement impacts, socio-economic impacts, engineering impacts and issues along with an examination of the compatibility with local transportation priorities. These are all covered in Chapter III. Even the briefest summarizations would be very long and potentially misleading. Consequently, it is appropriate to forego a detailed summary and direct interested parties to the DEIS.

Table S-1 is an impact summary for the preferred alternative. The preferred alternative involves the improvement of the existing roadway, it is expected that approximately 400 acres of new right of way will be required. Most of this right of way is agricultural land, but it also includes commercial, residential and industrial land uses. A total of 142 structures are expected to be acquired to build the preferred alternative. This includes 39 single-family residential units, four multiple-family residential units, 66 structures associated with business operations, 23 outbuildings and 10 public or fraternal buildings. The residential units represent a total of 299 dwelling units. The vast majority of these come from two senior citizen residences located on the north side of I-70, between the Stadium and Business Loop West interchanges. The preferred alternative has been configured to avoid the area's public parks. The preferred alternative is in accordance with local and regional planning goals. The input of local leaders was instrumental in the development of the preferred alternative. The project team also sought

[1] The *affected environment* is the existing social, economic and environmental settings for the area affected by the reasonable alternatives. *Environmental consequences* are the probable beneficial and adverse social, economic and environmental effects of the reasonable alternatives under consideration. *Measures to minimize harm* are mitigative efforts that are proposed to reduce the identified impacts.

to avoid impacts to sites on or eligible for the National Register of Historic Places. This proved impossible and the Napier-Bowling Estate is affected by the preferred alternative. While none of the structures on the estate will need to be acquired, a portion of the 30-acre site is required to construct the I-70 Business Loop interchange. This required the development of a Section 4(f) evaluation (see Chapter IV). Ultimately, it was concluded that there was no feasible and prudent alternative to the impacts to this architectural resource. In addition to the impacts to the human environment, the preferred alternative impacts the natural environment. Among the impacts are nearly 19,000 linear feet of stream impacts. Much of this is associated with the expansion of existing bridges or culverts that run under I-70. Additionally, freshwater wetlands, woodland habitat and agricultural lands will be lost. Endangered species impacts are not expected. Because the preferred alternative is the improvement of an existing facility, secondary and cumulative impacts focused largely on growth, density and business investment. The business community saw the preferred alternative as a positive development, albeit one that might have near-term negative consequences. The improvement of I-70 within SIU 4 will also require large expenditures of money. The total cost (in 2005 dollars) is expected to be $627,997,000.

A. Summary of DEIS

1. Affected Environment

This section provided an overview of the resources within the project corridor. The key elements of the affected environment portions of the DEIS are summarized below:

a. Social and Economic Characteristics

In order to establish the essential nature of the affected community, the social and economic characteristics section included the following:

- A Demographic and Economic Profile;
- The Identification of Community Resources—Facilities, Institutions and Services;
- A Summary of the Transportation Planning Environment and
- A Summary of the Land Use Planning Environment.

b. Environmental Justice

Following the guidance and methodologies recommended in the Federal Council on Environmental Quality's (CEQ's) *Environmental Justice Guidance under the National Environmental Policy Act* (December 1997) and the Department of Transportation's (DOT's) *Final Order on Environmental Justice* (April 1997). This portion of the DEIS 1) identified the study area, 2) compiled population characteristics and identified locations with populations of concern for environmental justice, 3) documented public outreach conducted, 4) identified adverse effects on populations of concern and 5) evaluated the project's overall effects.

c. Environmental Resources

This portion of the DEIS identified the location and characteristics of the important elements of the natural environment. Among the resources evaluated were the following:

- Soils, Mineral and Farmland Resources;
- Groundwater and Water Supply;
- Surface Water Resources;
- Water Quality;
- Floodplains;
- Wetlands and Ponds;
- Upland Habitats and Wildlife;
- Threatened and Endangered Species;
- Hazardous Waste;
- Air Quality;
- Noise Impacts;
- Cultural Resources and
- Visual Resources.

2. Environmental Consequences

In addition to identifying the project-related impacts to individual resources, such as quantifying wetland encroachments/fills and establishing post-construction noise levels, the DEIS also provided impact assessments for many other types of impacts, such as:

- Acquisition Impacts—Structures;
- Acquisition Impacts—Parcels;
- Characteristics and Needs of Residential Displacements;
- Characteristics and Needs of Business Displacements;
- Travel Pattern and Accessibility Impacts;
- Community Resource Impacts: Facilities, Institutions and Service;
- Neighborhood and Community Cohesion Impacts;
- Impacts to Parks, Recreation Areas and Public Use Lands;
- Property Values/Tax Revenues Associated with Acquisitions;
- Potential Construction Easements and
- Consistency with Local Transportation Planning.

3. Summary of Measures to Minimize Harm

This section of the DEIS disclosed those elements of the alternatives that are in place to reduce the impacts of the project. These include avoidance techniques employed, as well as mechanisms developed to assist affected populations adjust to the disruptions associated with a project of this magnitude. Many of these concepts have been formalized as environmental commitments. The full list of the project's environmental commitments is contained in the summary chapter of the Final Environmental Impact Statement (FEIS). The following minimization measures were discussed in the DEIS:

- Relocation Assistance;
- Local Roadway Coordination and Improvements;
- Commitment to Pedestrian/Bicycle Connectivity;
- Soil Erosion Control;
- Farmland Protection;
- Water Quality and Surface Water Protection;
- Floodplain Protection;
- Habitat Enhancement;
- Endangered Species Commitments;
- Hazardous Waste Monitoring;
- Air Quality Protection and
- Visual Resource Enhancements.

B. Clarifications to the DEIS

1. Cultural Resources

The DEIS presented an analysis of the cultural resource investigations as they stood in December 2004. The DEIS also outlined the work that would be completed on the recommended preferred alternative to fully comply with the provisions of the National Historic Preservation Act (NHPA). Archaeological and historical sites, buildings, structures, objects, and districts are examples of cultural resources. Cultural resources that are historically or architecturally significant and retain integrity of location, design, setting, materials, workmanship, feeling and association may be eligible for listing on the National Register of Historic Places (NRHP) if they meet one or more of the NRHP criteria. Planning for federally funded, licensed or permitted projects must consider impacts to properties listed on or determined as eligible for listing on the NRHP to be in compliance with Section 106 of the NHPA, as well as Section 4(f) of the Transportation Act.

This section will address the work completed since the DEIS was published. This work documents the project's compliance with the NHPA.

a. Architectural Resources

The architectural survey completed for SIU 4 identified and documented architectural resources (i.e., buildings, structures, objects, bridges and districts/landscapes) that may be eligible for listing on the NRHP. In all, 40 historic properties in the project area were evaluated. Of those, four were recommended as eligible for the NRHP and one (4BO84, the Candlelight Lodge Retirement Center) is currently on the NRHP. See **Table III-1**.

Table III-1: Listed and Eligible Historic Properties in the Project Corridor

Resource Number	Name	Location	Type of Property	NRHP Status	Notes
4BO4	Amerman Farm	Old Rocheport Road, 0.5 mile west of MO-J	Large Queen Anne House, some outbuildings	Eligible, Criterion C	Some outbuildings close to the house are contributing, but the entire farm is not eligible.
4BO28	Dougherty Log Building	Van Horn Tavern Road, southeast of U.S. 40 interchange	Log building	Eligible, Criterion D	1820s tavern, relocated and now used as agricultural outbuilding.
4BO84	Candlelight Lodge Retirement Center	700 feet north of I-70 between the Business Loop 70 West and Stadium Boulevard interchanges	Early twentieth century Colonial Revival hotel	Listed, Criteria A and C	Built in 1929, it is the former Pierce Pennant Motor Hotel. Considered significant for its architecture and history.
4BO91	Dunscombe Insurance Lustron House	West Road, 250 feet south of I-70 Drive SW	Prefab steel Lustron House, garage	Eligible, Criteria A and C	High integrity.
4BO147	Bowling-Napier Estate	Southwest of Paris Road overpass	1913 Eclectic Revival Colonial brick mansion	Eligible, Criterion C	Surrounding lands may be integral to the building's context and therefore included as part of the historic resource.

Since the DEIS, the architectural survey for SIU 4 has been coordinated with the State Historic Preservation Office (SHPO). The SHPO concurred with the findings of the architectural survey that the properties identified in **Table III-1** are on or eligible for the NRHP. Further, they concurred with the findings that SIU 4 will 1) have "no adverse effect" to 4BO4, 4BO28, 4BO91 and 4BO84 and 2) have an "adverse effect" to 4BO147.

Architectural Resource 4BO147 is also known as the Bowling-Napier Estate. The preferred alternative would include extending Bowling Street across the northwest corner of the property to the new Business Loop 70 East interchange. The proposed ramps along I-70 would also result in a narrow encroachment along the property's entire northern border. No buildings would be displaced. In accordance with Section 106 of the NHPA, coordination with the SHPO has been on-going to develop a course of action to minimize impacts. A draft copy of the SIU 4 Section 106 Programmatic Agreement (outlining the minimization efforts) is included in Chapter IV.B.9 of the DEIS. The Section 106 Programmatic Agreement for the entire I-70 corridor has been signed. This agreement, between FHWA, SHPO and the Advisory Council on Historic Preservation, is an "umbrella" document and addresses how the project will be administered, relative to cultural resources. This agreement was signed on the nineteenth of May 2005. It is included in **Appendix III-A**. Among its provisions is the acknowledgment that the final design phase of the I-70 project will not be complete for several years and that the Programmatic Agreement will not expire until the project is complete. The consolidation of the SIUs into a single Programmatic Agreement will maximize SHPOs ability to coordinate activities as the various components of I-70 begin to be constructed. It will also allow for a more systematic approach in regards to mitigation. The Programmatic Agreement also documents that the SHPO was given a reasonable opportunity to comment on the proposed improvements to I-70 and that FHWA has taken into account the effects that improvements to I-70 will have on historic properties. As listed in the Summary chapter of this document (S-I), MoDOT is committed to continuing coordination with the SHPO and to compliance with the NHPA.

b. Archaeological Resources

In accordance with MoDOT's preliminary development process, a Phase I archaeological survey was performed for the Area of Potential Effects (APE) associated with the preferred alternative. The study area consisted of a 164 ft -wide (50 m) area adjacent to the existing right of way (or outer road right of way) where lane expansion is to take place. A similar area was surveyed for construction of any new outer roads. At interchanges, all new right of way was surveyed.

The survey resulted in the identification of 22 archaeological sites (10 previously recorded/12 newly recorded). Twelve of the sites are prehistoric in nature – Native American materials from the period between 9250 B.C. and 1830 A.D. The balance were historic – generally materials during the period following the European discovery of North America.

Of the 22 sites found during the survey, 20 are recommended not eligible for the NRHP, one site was recommended for further testing and one site was made inaccessible by the land owner. The SHPO concurred with these recommendations. As a result, Phase II testing will be conducted on site AS4BO5, in order to determine its eligibility for the NRHP. Site AS4BO5 contains a dense lithic scatter: There were 138 pieces of debitage (stone flakes from tool-making) and eight chipped-stone tools recovered. The area's thin plow zone suggests that the site has not been severely impacted by agriculture. Consequently, subsurface features may be present. An environmental commitment of this project is the completion of the archaeological investigations/coordination outlined in the archaeological survey.

2. Wetlands and Ponds

Executive Order 11990 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[2].

Wetlands are not abundant within the project corridor. Most of the wetland features consist of palustrine forested (PFO) wetlands that occur in association with streams and creeks. The DEIS presented wetland resources and impacts based primarily on the National Wetlands Inventory (NWI). Based on these data, the total area of wetlands affected by the recommended preferred alternative was estimated to be 8.3 acres (3.4 hectares [ha]). Additionally, five non-wetland ponds were estimated to be effected by the recommended preferred alternative (total impacts were estimated at 2.2 acres – 0.9 ha).

To refine the impact estimates, a detailed wetland delineation field study was performed for the preferred alternative. This delineation authoritatively establishes the areas that meet the federal definition of wetlands and waters of the United States (subject to confirmation by the Kansas City District of the United States Army Corps of Engineers [USACOE]). The delineation established that the preferred alternative will affect 2.76 acres (1.11 ha) of jurisdictional wetlands[3]. Additionally, the delineation established that the preferred alternative will have no impact to jurisdictional non-wetland ponds[4]. The location and size of all wetlands and ponds identified during the delineation (jurisdictional and non-jurisdictional) are depicted on **Exhibits III-1A through III-1J**. The wetlands identified during the wetland delineation are also described in **Table III-2**.

3. Surface Water Resources

The SIU 4 project corridor drains to four watersheds within the Lower Missouri-Moreau Basin (from west to east): the Moniteau Creek Watershed, which includes Moniteau Creek and other small tributaries to the Missouri River, the Perche Creek Watershed, the Hinkson Creek Watershed and the Cedar Creek Watershed. The Perche Creek and Hinkson Creek watersheds drain about 85 percent of the project corridor. The western 2.5 miles (four km) of the project corridor drains to Sinking Creek and to Bell Branch, directly to the Missouri River. The extreme eastern end of the project corridor drains to Cedar Creek by way of small tributaries to Little Cedar Creek.

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[2] The Clean Water Act (CWA) is the principal mechanism for determining and regulating impacts to wetlands. Currently, only wetlands and ponds that have a surface water connection to streams are regulated as waters of the United States pursuant to Sections 404 and 401 of the CWA. Isolated wetlands and ponds that do not have a surface water connection to a stream are not regulated under the Act. Ponds created where wetlands were not present historically, such as stock watering ponds, sewage lagoons or aesthetic pools, also are not regulated.

[3] In addition to the 2.76 acres (1.11 ha) of jurisdictional wetland impacts, the delineation established that 1.75 acres (0.71 ha) of non-jurisdictional wetlands fall within the project's footprint.

[4] While the delineation identified no jurisdictional non-wetland ponds within the footprint of the preferred alternative, 12 non-jurisdictional ponds (totaling 1.3 acres [0.5 ha]) will be impacted.

Table III-2. Wetland Delineation Summary

Wetland Number	Location (station & side)	NWI/FSA Designation	Lat/Long	Section Township Range	Adjacent Waterway	Wetland Impact Preferred Alternative (ac)	Total Area of NWI Wetland (ac)	Description	Location on Exhibit III-1
1	1079+10 S	PUBGh	38 58 21.9 -92 31 12.1	8 - 48 - 14	N/A	0.08	0.32	Emergent Wetland	II - 1A
2	1135+51 S	None	38 58 19.2 -92 30 01.0	9 - 48 - 14	N/A	0.01	0.01	Emergent Wetland	III – 1B
3A	**1372+21 - 1373+21 N**	**None**	**38 58 18.2 -92 25 00.4**	**8 - 48 - 13**	**Perche Creek**	**0.22**	**0.22**	**Emergent Wetland**	**III – 1C**
3B	**1374+21 - 1377+88 N**	**None**	**38 58 18.1 -92 24 56.7**	**8 - 48 - 13**	**Perche Creek**	**0.55**	**0.55**	**Emergent Wetland**	**III – 1C**
4A	**1390+25 - 1391+35 N**	**PFO1A**	**38 58 17.5 -92 24 37.4**	**8 - 48 - 13**	**Perche Creek**	**0.24**	**68.92**	**Forested Wetland**	**III – 1C**
4B	**1388+17 - 1391+40 S**	**PFO1A**	**38 58 14.8** -92 24 39.2	**8 - 48 - 13**	**Perche Creek**	**0.83**	**214.08**	**Forested Wetland**	**III – 1C**
5	1493+05 - 1497+19 N	None	38 58 09.3 -92 22 26.6	3 - 48 - 13	N/A	0.3	0.3	Emergent Wetland	III – 1D
6	1720+65 N	PFO1Ch	38 58 05.2 -92 17 38.0	5 - 48 - 12	N/A	<0.1	<0.1	Developed	III – 1G
7	1730+30 S	PFO1Ch	38 57 38.2 -92 17 43.3	8 - 48 - 12	N/A	0.09	0.09	Forested Wetland	III – 1G
8	**1810+65 - 1816+19 S**	**PFO1A**	**38 57 36.4 -92 15 58.4**	**9 - 48 - 12**	**Hominy Branch**	**0.92**	**1.85**	**Forested Wetland**	**III – 1I**
9	1911+42 - 1913+51 S	PFO1Ah	38 57 34.6 -92 13 50.6	11 - 48 - 12	N/A	0.26	0.26	Forested Wetland	III – 1J
10	1985+25 - 1985+68 N	None	38 57 34.3 -92 12 18.6	7 - 48 - 11	N/A	0.15	0.15	Emergent Wetland	III – 1J
11	1983+15 - 1985+07 N	None	38 57 40.7 -92 12 19.0	7 - 48 - 11	N/A	0.86	2.2	Forested Wetland	III – 1J

Jurisdictional wetlands shown in bold. Total jurisdictional wetland impact: 2.76 acres

All crossings of jurisdictional streams are regulated under Sections 401 and 404 of the Clean Water Act (CWA). The DEIS provided an estimate of the jurisdictional waters affected by the project. The location and characterization of these waters were based on existing data. Using these data, the recommended preferred alternative was estimated to result in stream impacts of 21,630 linear feet (6,595 m). These impacts were calculated as those arising from the placement of culverts into existing streams or existing culverts[5]. Roughly, 17,500 linear feet (5,330 m) of the stream impacts would be to smaller (intermittent and ephemeral) streams. The balance of the impacts would be to perennial or larger intermittent streams.

In order to refine these estimates, the delineation effort described above in Chapter III.C.2 included an evaluation of the streams impacted by the preferred alternative. Based on this field review, the total stream impact was revised to 18,996 linear feet (6,096 m)[6]. **Table III-3** provides the data that emerged from the delineation. Among the data contained in **Table III-3** includes the stream type (intermittent/perennial), impact type (culvert/bridge/fill), stream width, and total channel impact.

All jurisdictional waters are depicted on **Exhibits III-1A through III-1J**.

4. Findings

a. Only Practicable Alternative Wetland Finding

As mentioned above, the implementation of the preferred alternative will result in the loss of approximately 2.76 acres (1.11 ha) of jurisdictional wetlands. A comprehensive evaluation of wetland losses is contained in Chapter III of the DEIS. In accordance with Executive Order 11990, avoidance and minimization of wetland impacts have been considered throughout project development; design adjustments were made where feasible. Because of the geometric design considerations associated with the redevelopment of an existing highway, there are no practicable alternative to the wetland impacts identified. All crossings of jurisdictional streams and discharges of fill into freshwater wetlands are regulated under Sections 401 and 404 of the Clean Water Act (CWA). All permits required by the CWA will be obtained prior to construction. It is expected that the Record of Decision will include an umbrella Section 404 permit for SIU 4. Once funding is available, the subsequent detailed design work will allow specific impacts and mitigation to be identified in the context of the alternative selected with the Second Tier NEPA process. This assures that project alternative decisions made in the NEPA process are not re-opened in the subsequent Section 404 permit process unless warranted. Wetland replacement will also be provided for through the permit process. The Missouri Department of Transportation has developed a Conceptual Wetland Mitigation Plan to compensate for wetland impacts. This plan addresses the wetland impacts associated with all of the I-70 SIUs. Wetland mitigation for SIU 4 will emerge from the finalized version of the mitigation plan. Based on these considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands, and that the proposed action includes all measures to minimize harm to wetlands that may result from such use.

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[5] Not included in this figure is the approximately 2,600 linear feet (793 m) of stream estimated to fall under the footprints of proposed bridges.

[6] Approximately 11,646 linear feet of the 18,996 linear feet of stream impact projected in the delineation study falls within the existing right of way of I-70.

TABLE III-3. STREAM CROSSING SUMMARY

Stream Number	Stream Name	Section Township Range	USGS/NWI Designation	Impact Type	OHWM Width (ft)	Channel Impact: Length in Existing ROW (ft)	Total Channel Impact Length (ft)
1	Tributary to Bell Branch	8 - 48 - 14	Intermittent	Culvert	12	178	328
2	Tributary to Sinking Creek	9 - 48 - 14	Intermittent	Culvert	10	283	519
3	Tributary to Sinking Creek	9 - 48 - 14	Intermittent	Culvert	4	95	224
4	Sinking Creek	9 - 48 - 14	Intermittent	Culvert	14	335	702
5	Sugar Creek	11 - 48 - 14	Perennial	Culvert	7	305	453
6	Tributary to Sugar Creek	11 - 48 - 14	Intermittent	Culvert	6	250	484
7A	Tributary to Sugar Creek	12 - 48 - 14	Intermittent	Culvert	3	238	431
7B	Tributary to Sugar Creek	12 - 48 - 14	Intermittent	Culvert	3	60	162
8A	Tributary to Sugar Creek	12 - 48 - 14	Intermittent	Culvert	12	204	309
8B	Tributary to Sugar Creek	12 - 48 - 14	Intermittent	Culvert	12	30	65
9	Tributary to Sugar Creek	12 - 48 - 14	Intermittent	Culvert	4	278	397
10	Tributary to Henderson Branch	7 - 48 - 13	Intermittent	Culvert	8	192	263
11A	Henderson Branch	7 - 48 - 13	Intermittent	Culvert	12	129	255
11B	Henderson Branch	7 - 48 - 13	Intermittent	Culvert/Fill	8	62	1773
12A	Tributary to Henderson Branch	7 - 48 - 13	Intermittent	Culvert	3	167	207
12B	Tributary to Henderson Branch	7 - 48 - 13	Intermittent	Culvert/Fill	3	30	245
13	Perche Creek	8 - 48 - 13	Perennial/PFO1A	Bridge	35	0	0
14A	Tributary to Harmony Creek	8 - 48 - 13	Intermittent	Culvert	2	167	283
14B	Tributary to Harmony Creek	8 - 48 - 13	Intermittent	Culvert	2	61	116
15A	Harmony Creek	9 - 48 - 13	Intermittent	Relocate	4	49	749
15B	Harmony Creek	9 - 48 - 13	Intermittent	Culvert	3	66	248
15C	Harmony Creek	9 - 48 - 13	Perennial	Culvert	10	115	301
16A	Tributary to Harmony Creek	9 – 48 – 13	Intermittent	Culvert	2	0	103
16B	Tributary to Harmony Creek	3 – 48 – 13	Intermittent	Relocate	6	1256	1793
16C	Tributary to Harmony Creek	3 – 48 – 13	Intermittent	Culvert	7	274	333
17	Tributary to Bear Creek	6 – 48 – 12	Intermittent	Culvert	6	1414	1591
18	Hinkson Creek	8 – 48 – 12	Perennial/ R2USA	Bridge	20	0	0

TABLE III-3. STREAM CROSSING SUMMARY

Stream Number	Stream Name	Section Township Range	USGS/NWI Designation	Impact Type	OHWM Width (ft)	Channel Impact: Length in Existing ROW (ft)	Total Channel Impact Length (ft)
19	Tributary to Hinkson Creek	8 – 48 – 12	Intermittent	Fill	10	2523	2523
20	Tributary to Hinkson Creek	8 – 48 – 12	Intermittent	Fill	10	1352	1352
21	Hominy Branch	9 – 48 – 12	Perennial/ PFO1A	Culvert	12	163	489
22	Secondary Channel of Hominy Branch	9 – 48 – 12	None/ PFO1A	Relocate	6	400	673
23	Tributary to Hominy Branch	10 – 48 – 12	Intermittent	Culvert	7	579	734
24	Tributary to North Fork	10 – 48 – 12	Intermittent	Culvert	2	165	212
25A	North Fork	11 – 48 – 12	Perennial	Culvert	15	226	309
25B	North Fork	11 - 48 - 12	Perennial	Culvert	15	0	150
26	Tributary to North Fork of Grindstone Creek	06-48-11	Intermittent	Culvert	7	0	220
TOTAL						**11,646**	**18,996**

b. Only Practicable Alternative Floodplain Finding

Impacts to floodplains have been identified throughout the development of this project. Because of the geometric design considerations associated with the redevelopment of an existing highway, there are no practicable alternatives to the floodplain impacts shown. In accordance with Executive Order 11988 and 23 Code of Federal Regulations (CFR) 650, subpart A, avoidance and minimization of floodplain impacts have been considered during project development, and design adjustments have been made where feasible. The preferred alternative will conform to all applicable state and local floodplain protection standards. A hydraulic design study that addresses various structure size alternatives will be completed during the design phase.

5. Local Assessments of Impacts

As mentioned in the DEIS, the city of Columbia implemented a study to assess the types of economic impacts that may be associated with the construction of "MoDOT's proposed widening of I-70." This work was conducted by the Economic Development Research Group, Inc. (EDR) and is called *Assessing the Economic Consequences of Widening I-70 for the City of Columbia.* The SIU 4 study team worked with the EDR Group to keep them apprised of the status of the I-70 project. The SIU 4 study team also provided input on the methodologies that EDR used to develop their impact determinations. At the time that the DEIS was released, the EDR report was not yet finalized. Now that the EDR report is complete, it is appropriate for the FEIS to comment upon it.

The EDR Group was directed to provide guidance, to the city of Columbia, on design-related issues associated with the selection of a preferred alternative for the I-70 project. The EDR Group was also asked to assess the community impacts of the project. Of particular interest were the economic development implications of frontage road options, land takings, construction disruptions, tax revenue losses and business relocations/disruptions. The remaining portions of this section will summarize the key findings of the EDR report.

In general, the EDR report is consistent with the findings of the EIS. While there are differences in methodology, the EDR report supports most elements of the preferred alternative. This support was made clear on April 26, 2005, when CATSO issued a statement that commended the study team for their work and "supports the findings contained in the I-70 EIS and the recommended improvements for I-70."

a. Design Attribute Recommendations

The EDR report makes several recommendations regarding the preferred alternative. These will be summarized below, along with any appropriate comments.

The EDR report recommends the use of "advanced signage" to help businesses deal with reduced visibility and ramp reconfigurations. From the business survey conducted during the SIU 4 EIS, the I-70 study team learned that visibility from the interstate was one of the top factors influencing their current location. The public involvement plan also made it clear that business owners were concerned about anything that might tend to confound their customers in getting to their location. An appropriate signing plan will be developed when the project enters its design phase.

The EDR report recommended the use of a one-way frontage road system. The preferred alternative includes a one-way frontage road system between the Business Loop West, MO-763, MO-163 and Business Loop East interchanges, in central Columbia.

The EDR report recommends that since the preferred alternative includes a four-movement interchange at the intersection of I-70 and U.S. 63[7] the area around the interchange may be best suited to businesses not dependent on traffic required to stop at the interchange. The study team believes that the redevelopment of I-70 provides an economic development opportunity for Columbia and the other adjoining local communities. The changes resulting from the project are expected to be, on balance, positive assuming the local community implement sound development strategies.

The EDR report suggests that the use of the Fairview Ramps at the Stadium Interchange may argue for a new interchange west of Stadium Boulevard. As discussed in Chapter I.B.2, the study team acknowledges the local desire for a new interchange, west of Stadium. While MoDOT has committed itself to assist local interests with a new interchange, as a stand-alone project; this interchange is not a legitimate component of the Improve I-70 project.

b. Economic Development Implications

The EDR report identified several "economic development implications" associated with the alternatives that reconfigured existing I-70. These impacts are also addressed in the EIS. Because of differences in the methodology used to determine impacts, the specific values referenced may not be identical to those in the EIS. Other factors that prevent the impact analyses from being identical include EDR's limited scope (they focused only on Columbia) and the concurrent nature of the EIS and the EDR report (for example, the EDR report discusses impacts associated with "the probable project foot-print"). Nevertheless, the implications referenced in the EDR report are in concurrence with the impacts depicted in the EIS. The key impacts referenced in the EDR report include the following:

- Land Acquisition – The EIS estimates that the preferred alternative will require acquisition of property from 612 parcels, totaling 397 acres (160 ha). About 31 percent of the affected parcels are commercial in nature.

- Business Relocation – The EIS estimates that the preferred alternative will displace structures from approximately 66 business operations. Depending on the nature of the affected buildings and the configuration of the remaining parcel, the individual business may or may not require relocation.

- Property Tax Losses – The EIS estimates that the 2004 property taxes associated with the land and structures affected with the preferred alternative is approximately $600,000.

- Construction-Related Disruptions – An environmental commitment of the EIS is that a MoDOT-approved maintenance of traffic plan would be developed and implemented for the construction phases of the project. Through traffic would be maintained along I-70 and at access points to the interstate from cross roads. It is likely that some interchange

[7] At this location, a four-movement system interchange combined with Business 63 as a tight diamond is the only reasonable alternative. This configuration optimizes travel between U.S. 63 and I-70 so that the most critical vehicle movements are not required to stop. These major movements include (1) U.S. 63 (southbound) to I-70 (westbound), (2) U.S. 63 (northbound) to I-70 (westbound), (3) I-70 (eastbound) to U.S. 63 (northbound) and (4) I-70 (eastbound) to U.S. 63 (southbound).

ramps and cross roads would be closed and temporary detours required. Construction schedules, road closures and detours would be coordinated with police forces and emergency services to reduce impact to response times of these agencies.

- Potential Economic Development Opportunities – Again, the study team believes that the redevelopment of I-70 provides an economic opportunity for Columbia. It will allow the city to improve the land use environment adjacent to the city's largest transportation artery. This opportunity can result in a more prosperous and cohesive community.

6. Development within the I-70 Corridor

Development and redevelopment along the I-70 corridor continues. The impacts to the built environment reported in the DEIS were accurate as of December 2004. They were developed through comprehensive study of the I-70 corridor and included: a land use survey, a business survey, a business inventory and on-going public involvement. Changes will continue to occur within the corridor. However, the essential nature of the corridor remains as discussed in the DEIS. The impacts of the changes that have occurred since the DEIS was published are inconsequential to the costs and impacts associated with the preferred alternative, as determined in the DEIS. Development/redevelopment will continue throughout the time leading up to the project's construction. Because of the extensive outreach conducted during the EIS, property owners will be able to make decisions with full knowledge of how I-70 will be configured in the future.