

**INTERSTATE 70 CORRIDOR
SECOND TIER EIS
AND SECTION 4(F) EVALUATION
Route BB to Eastern Columbia
Boone County, Missouri**

MoDOT JOB NO. J411341G

Draft Environmental Impact Statement and Section 4(f) Evaluation

Submitted Pursuant to 42 U.S.C. 4332 (2) (c)
and 49 U.S.C. 303 by the

**U.S. Department of Transportation
Federal Highway Administration
and
The Missouri Department of Transportation**

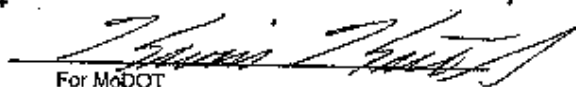
Cooperating Agencies:

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The Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) are investigating improvements to Interstate Route 70 (I-70). In accordance with the National Environmental Policy Act (NEPA), a tiered approach was taken in the Improve I-70 investigation. A First Tier Environmental Impact Statement (EIS) was initiated to examine the entire 200 mile (320 km) section of I-70. The First Tier EIS was approved on 12/18/2001. This document is a Second Tier EIS and addresses Section of Independent Utility 4 (SIU 4). Section of Independent Utility 4 includes the portion of I-70 through Columbia, from just east of, but not including, the Missouri Route BB interchange (exit 115) to just east of the Missouri Route Z interchange (exit 133). This 18 mile (28.8 km) section of 4-lane divided highway has limited access and contains 10 interchanges. Section of Independent Utility 4 spans virtually the entire width of Boone County. This EIS discusses the project's purpose and need, identifies the decision-making process that led to the recommended preferred alternative and evaluates the social, environmental, and economic impacts associated with this project. The recommended preferred alternative proposes to completely reconstruct I-70 along its existing corridor. The project will include additional through lanes, redesigned interchanges and all of the other improvements necessary to insure that I-70 meets the expectations of an interstate highway.

Comments on this Draft EIS are due by 3/28/05 and should be sent to the persons listed above.

Contents

Summary	S-i
I. Purpose and Need Statement	I-1
A. Project Overview	I-1
1. Overview of Improve I-70	I-1
2. Overview of First Tier Process	I-1
B. Proposed Action.....	I-3
1. Project Background	I-3
2. Logical Termini	I-4
3. Study Area Description.....	I-5
a. Western Terminus to MO-J/O	I-5
b. MO-J/O to U.S. 40	I-5
c. U.S. 40 to MO-740	I-6
d. MO-740 to I-70 Business Loop (west)	I-6
e. I-70 Business Loop (west) to MO-163	I-6
f. MO-163 to MO-763	I-6
g. MO-763 to I-70 Business Loop (east)	I-6
h. I-70 Business Loop (east) to U.S. 63	I-7
i. U.S. 63 to St. Charles Road.....	I-7
j. St. Charles Road to MO-Z	I-7
C. Elements of Purpose and Need	I-7
1. Accommodating Existing and Future Traffic Volumes on I-70	I-8
2. Improve Outdated I-70 Design Elements.....	I-12
a. Horizontal Alignment.....	I-13
b. Vertical Alignment.....	I-13
c. Vertical Clearance	I-13
d. Median Width	I-14
e. Pavement Condition	I-14
f. Bridge Condition	I-14
g. Summary	I-15
3. Accommodate All Users of I-70.....	I-15
a. I-70 Traffic Streams	I-16
b. Interchange Operation	I-20
c. Local Connectivity.....	I-21
d. National Security.....	I-22
4. Improve User Safety.....	I-23
a. Traffic Stream Composition and User Safety.....	I-26
b. MoDOT's Access Management Guidelines	I-27
c. Crash Precursors	I-27
D. Summary and Conclusions	I-28
1. Accommodate Existing and Future Traffic Volumes on I-70	I-28
2. Improve Outdated Design Elements	I-28
3. Accommodate All Users of I-70.....	I-29
4. Improve User Safety.....	I-29
II. Alternatives	II-1
A. Development of Alternatives	II-1
1. Identifying Reasonable Alternatives.....	II-1

	a.	Design Criteria	II-2
	2.	Frontage Roads	II-4
B.	Corridors		II-4
	1.	Introduction to Corridors	II-4
	a.	Existing I-70 Corridor	II-5
	b.	Far North Corridor	II-5
	c.	Near North Corridor	II-5
	2.	Corridor Screening Methodology	II-6
	a.	Corridor Traffic Model	II-6
	b.	Corridor Traffic Evaluation	II-6
	c.	Elimination of Far North Corridor from Further Consideration	II-11
	d.	Near North Corridor Impact Assessment	II-11
	e.	Elimination of Near North Corridor from Further Consideration	II-13
C.	Concepts Within the Existing I-70 Corridor		II-13
	1.	Non-Reconstruction Concepts	II-14
	a.	Transportation Demand Management	II-14
	b.	Transportation System Management	II-15
	c.	No-Build Alternative	II-16
	2.	Reconstruction Concepts	II-16
	a.	Mainline Widening	II-16
	b.	Introduction to Concepts	II-17
	3.	Preliminary Concept Evaluation	II-20
	a.	Evaluation Factors	II-20
	b.	Results of the Preliminary Concept Evaluation	II-21
	c.	Conclusions of the Preliminary Concept Evaluation	II-24
	4.	Detailed Concept Evaluation	II-26
	a.	Functional Engineering Depiction of Concepts	II-27
	b.	Iterative Traffic Evaluation of Detailed Concepts	II-31
	c.	Quantitative Impact Evaluation	II-34
	d.	Conclusions of Detailed Concept Evaluation	II-37
D.	Reasonable Alternatives		II-38
	1.	Western Portion of the Project Area: Western Terminus to Stadium	II-39
	a.	Mile Marker 116.2 to Mile Marker 120.0, Including MO- J/O Interchange	II-39
	b.	Mile Marker 120.0 to Mile Marker 124.6, Including U.S. 40 Interchange	II-40
	2.	Central Portion of the Project Area: Columbia – Stadium Boulevard (MO-740) to U.S. 63	II-41
	a.	Mile Marker 124.6 to Mile Marker 125.2, Including Stadium Boulevard Interchange	II-42
	b.	Mile Marker 125.2 to Mile Marker 126.0, Including Business Loop West Interchange	II-44
	c.	Mile Marker 126.0 to Mile Marker 128.0, Including 163/763/Business Loop East Interchanges	II-46
	d.	Mile Marker 128.0 to Mile Marker 130.0, Including U.S. 63 Interchange	II-46
	3.	Eastern Portion of the Project Area: U.S. 63 to MO-Z	II-47

- a. Mile Marker 130.0 to Mile Marker 132.0, Including St. Charles Interchange..... II-47
 - b. Mile Marker 132.0 to Mile Marker 134.0, Including MO-Z Interchange..... II-47
 - 4. Selection of Recommended Preferred Alternative.....II-48
 - a. Western Portion of Project Area: Western Terminus to Stadium Interchange..... II-49
 - b. Central Portion of Study Area: Columbia between Stadium Boulevard U.S. 63..... II-49
 - c. Eastern Portion of Project Area: U.S. 63 to MO-Z II-50
 - d. Traffic Operations of the Recommended Preferred Alternative II-51
 - E. Opinion of Cost II-52
 - 1. Construction CostsII-54
 - 2. Right of Way CostsII-54
 - 3. Design Engineering Costs.....II-55
 - 4. Rehabilitation, Operations and Maintenance Costs.....II-55
 - 5. Intelligent Transportation SystemsII-56
- III. Affected Environment, Environmental Consequences and Measures to Minimize Harm..... III-1**
 - A. Geographic Setting III-1
 - B. Social and Economic Characteristics III-3
 - 1. Affected Environment III-3
 - a. Demographic and Economic Profile..... III-3
 - b. Community Resources—Facilities, Institutions and Services III-22
 - c. Transportation Planning Environment..... III-34
 - d. Land Use Planning Environment III-42
 - 2. Environmental Consequences III-48
 - a. Acquisition Impacts—Structures III-49
 - b. Acquisition Impacts—Parcels III-53
 - c. Characteristics and Needs of Residential Displacements III-57
 - d. Characteristics and Needs of Business Displacements.. III-61
 - e. Travel Patterns and Accessibility III-66
 - f. Community Resources Impacts: Facilities, Institutions and Service III-71
 - g. Neighborhood and Community Cohesion III-75
 - h. Parks and Recreation Areas and Public Use Lands III-79
 - i. Property Values/Tax Revenues of Acquisitions III-79
 - j. Potential Construction Easements..... III-81
 - k. Consistency with Local Transportation Planning III-81
 - l. Land Use Planning Impacts..... III-84
 - 3. Measures to Minimize Harm..... III-84
 - a. Relocation Assistance Program..... III-85
 - b. Relocation Strategies..... III-87
 - c. Continued Coordination with Local Planning Agencies .. III-87
 - d. Local Roadway Improvements..... III-89
 - e. Commitment to Pedestrian/Bicycle Connectivity III-91
 - f. Federal Functional Replacement Program III-91

C.	Environmental Justice	III-92
1.	Identify Study Area	III-93
2.	Compile Characteristics and Identify Populations of Concern for Environmental Justice	III-94
3.	Locations of High Minority and Low-Income Persons in Primary Study Area	III-97
4.	Conduct Public Outreach	III-98
a.	GIS Mapping and Identification of Specific Communities of Concern	III-98
b.	Community Facilities and Organizations as Venues and Contacts.....	III-100
c.	Formation and Recruitment to Advisory Group.....	III-100
d.	Web Site, Telephone Hot Line, Newsletters, Public Open Houses and One-on-One Presentations	III-100
e.	Conducting Outreach through a Business Survey	III-100
5.	Determination of Disproportionately High and Adverse Effects on Populations of Concern	III-100
a.	Prevailing Land Use Patterns and Siting Policies	III-101
b.	Comparative Evaluation of Adverse Project Impacts....	III-101
D.	Environmental and Related Resources.....	III-105
1.	Soil and Mineral Resources	III-105
a.	Affected Environment	III-105
b.	Environmental Consequences.....	III-106
c.	Measures to Minimize Harm	III-106
2.	Farmland Resources	III-108
a.	Affected Environment	III-108
b.	Environmental Consequences.....	III-109
c.	Measures to Minimize Harm	III-112
3.	Groundwater and Water Supply.....	III-112
a.	Affected Environment	III-112
b.	Environmental Consequences.....	III-114
c.	Measures to Minimize Harm	III-115
4.	Surface Water Resources	III-115
a.	Affected Environment	III-115
b.	Environmental Consequences.....	III-118
c.	Measures to Minimize Harm	III-121
5.	Water Quality	III-123
a.	Affected Environment	III-123
b.	Environmental Consequences.....	III-123
c.	Measures to Minimize Harm	III-124
6.	Floodplains.....	III-125
a.	Affected Environment	III-125
b.	Environmental Consequences.....	III-126
c.	Measures to Minimize Harm	III-128
7.	Wetlands and Ponds	III-129
a.	Affected Environment	III-129
b.	Environmental Consequences.....	III-131
c.	Measures to Minimize Harm	III-132
8.	Upland Habitats and Wildlife	III-133
a.	Affected Environment	III-133

	b.	Environmental Consequences	III-134
	c.	Measures to Minimize Harm	III-136
9.		Threatened and Endangered Species	III-137
	a.	Affected Environment	III-137
	b.	Environmental Consequences	III-140
	c.	Measures to Minimize Harm	III-141
10.		Hazardous Waste	III-142
	a.	Affected Environment	III-142
	b.	Environmental Consequences	III-143
	c.	Measures to Minimize Harm	III-145
11.		Air Quality	III-145
	a.	Affected Environment	III-145
	b.	Environmental Consequences	III-147
	c.	Measures to Minimize Harm	III-147
12.		Noise Impacts	III-147
	a.	Noise Analysis	III-147
	b.	Impacts	III-149
	c.	Mitigation	III-150
	d.	Construction Noise	III-151
13.		Cultural Resources	III-152
	a.	Affected Environment	III-152
	b.	Environmental Consequences	III-154
	c.	Measures to Minimize Harm	III-156
14.		Visual Resources	III-157
	a.	Affected Environment	III-157
	b.	Environmental Consequences	III-159
	c.	Measures to Minimize Harm	III-165
15.		Construction Planning	III-168
16.		Energy	III-168
17.		Local Short-Term Uses and Long-Term Productivity	III-168
18.		Irreversible and Irretrievable Commitment of Resources	III-169
19.		Environmental Commitments	III-170
E.		Secondary and Cumulative Impacts	III-172
	1.	Introduction	III-172
	2.	Existing I-70 Overall Corridor	III-174
	a.	Land Use	III-174
	b.	Park Lands	III-175
	c.	Prime Farmland	III-175
	d.	Terrestrial and Aquatic Communities	III-175
	e.	Threatened and Endangered Species	III-176
	f.	Wetlands and Waters of the U.S.	III-176
	g.	Air Quality	III-176
	h.	The Land and Visual Quality	III-176
	3.	Secondary and Cumulative Impacts within SIU 4	III-177
	a.	Introduction/Data Sources	III-177
	b.	Identification of Secondary and Cumulative Impacts	III-183
IV.		Section 4(f)	IV-1
A.		Affected Environment	IV-1
B.		Individual Section 4(f) Statement	IV-3
	1.	Introduction/Purpose and Need	IV-3

2.	Description of Section 4(f) Resource	IV-4
3.	Impacts to Resources.....	IV-5
	a. Mainline Encroachments on Bowling Property	IV-5
	b. Interchange Connector Road Encroachments on Bowling Property.....	IV-5
4.	Alternatives Considered	IV-6
	a. No-Build Alternatives	IV-7
	b. Alternatives that do not Utilize the Existing I-70 Corridor.....	IV-7
	c. Removal of Business Loop 70 East/I-70 Connectivity Alternatives	IV-8
	d. Relocation of Interchange to the East (Paris Road).....	IV-9
	e. Relocation of Interchange to the East (Realignment of Recommended Preferred Alternative)	IV-9
	f. Relocate Interchange to the West of the Bowling Property	IV-10
5.	Measures to Minimize Harm.....	IV-11
	a. Design Modifications.....	IV-11
	b. Footprint Minimization.....	IV-11
	c. Payment of Fair Market Value	IV-11
	d. Restoration and Landscaping	IV-11
	e. Best Management Practices.....	IV-12
	f. Section 106 Programmatic Agreement.....	IV-12
6.	Coordination	IV-12
	a. Property Owner Coordination	IV-12
	b. Transportation Agency Coordination	IV-12
	c. Local Stakeholder Coordination.....	IV-12
	d. SHPO/Section 106 Coordination	IV-13
7.	Conclusions	IV-13
8.	Draft Architectural Inventory Form	IV-14
9.	Draft Section 106 Programmatic Agreement for SIU 4.....	IV-29
V.	Comments and Coordination	V-1
A.	Public Involvement.....	V-1
	1. Project Web Site and E-Mail	V-2
	2. Hot Line Calls and Correspondence	V-3
	3. One-on-One Stakeholder Meetings at Project Kickoff.....	V-3
	4. Improve I-70 Advisory Group Meetings	V-4
	a. Advisory Group Pre-Meeting Publicity	V-6
	b. Summary of Advisory Group Input During Three Study Phases.....	V-6
	5. Public Information Meetings.....	V-7
	a. Pre-Meeting Publicity.....	V-7
	b. Summary of Public Meetings and Input During the Three Study Phases	V-12
	6. Presentations to Community Groups	V-18
	7. Business Survey.....	V-19
	8. Media Coverage	V-19
	9. Mailing Lists	V-20
	10. Newsletters and Other Mailings	V-20
	11. Reaching Out to All Populations.....	V-20

- a. Low-Income and Minority Populations/Environmental Justice..... V-20
 - B. Coordination with Agencies and Local Governments V-21
 - 1. Notice of Intent..... V-21
 - 2. SIU 4 Management Team and CATSO Meetings V-21
 - 3. Study Management Group Meetings V-22
 - 4. Other Agency Coordination and Areas of Concern V-23
 - a. NEPA/404 Merged Process V-23
 - b. Environmental Study Methodology Agreement..... V-23
 - c. Interagency Cooperative Agreement on Agricultural Lands V-23
 - d. Coordination Relative to Wetland Mitigation V-23
 - e. Native American Coordination V-24
 - f. Other Coordination/Issues of Concern..... V-24
- VI. List of Preparers..... VI-1
- VII. Draft EIS Distribution List VII-1
 - A. Federal VII-1
 - B. State Agencies VII-2
 - C. Elected Officials/Local Government Agencies VII-3
 - D. Copies Available for Public Viewing VII-6

List of Tables

- Table S-1 Recommended Preferred Alternative Impact Summary S-xi
- Table S-2 Reasonable Alternative Impact Summary Western Portion of Project Area: MO-BB to Stadium Interchange S-xii
- Table S-3 Reasonable Alternative Impact Summary Central Portion of Project Area: Columbia between Stadium Interchange and US-63..... S-xiii
- Table S-4 Reasonable Alternative Impact Summary Eastern Portion of the Project Area: US-63 to MO-Z S-xiv
- Table I-1 Relationship and Linkage between the First Tier and Second Tier Purpose and Need Elements for SIU 4 I-3
- Table I-2 No-Build I-70 Traffic Volumes..... I-8
- Table I-3 No-Build I-70 LOS Data..... I-11
- Table I-4 Pavement Serviceability Rating Percentages for I-70 I-14
- Table I-5 Number of Bridges Categorized by Bridge Condition Ratings..... I-15
- Table I-6 No-Build Interchange Crossroad/Ramp Terminal Level of Service Data..... I-21
- Table I-7 Number of Crashes—Existing I-70 Freeway Sections (1995 - 2000).... I-25
- Table I-8 Crash Rate Analysis—Existing I-70 Freeway Sections (1995 – 2000).. I-25
- Table I-9 Safety Benefit for Build/No Build for Forecasted 2030 Traffic Volumes I-26
- Table II-1 Corridor Screening Traffic Volume Forecasts (2030) II-7
- Table II-2 Corridor Configurations/Interchange Locations used in the Development/Evaluation of Corridor Screening Measures..... II-8
- Table II-3 Near North Corridor Impact Assessment..... II-12
- Table II-4 Preliminary Concept Evaluation Summary II-22
- Table II-5: Quantitative Impact Evaluation: Detailed Concepts II-35

Table II-6	Key to Reasonable Alternatives	II-40
Table II-7	Level of Service – Recommended Preferred Alternative.....	II-51
Table II-8	Interchange Crossroad/Ramp Terminal LOS – Recommended Preferred Alternative	II-52
Table II-9	Opinion of Cost Comparison (2005 Dollars).....	II-53
Table II-10	Comparison of Costs for Reasonable Alternatives (2005 Dollars)	II-53
Table II-11	Summary of Right of Way Costs (2005 Dollars).....	II-55
Table III-1	Population and Economic Characteristics of the Primary Study Area, 2000 Comparison of Primary Study Area with City of Columbia and Boone County.....	III-5
Table III-2	Highest Level of Schooling Completed, 1990–2000 Persons Age 25 or Older.....	III-6
Table III-3	Socioeconomic Characteristics of Primary Study Area Distributed by Project Corridor Subsection	III-9
Table III-4	Labor Force Characteristics of Study Area and Surrounding Region, 2000	III-14
Table III-5	Employment by Sector in Boone County, Missouri and the U.S. (2000)	III-14
Table III-6	Housing Profile within Study Areas, 1990–2000	III-16
Table III-7	Tenure of Occupied Housing Units, 1990–2000.....	III-16
Table III-8	Contract Rents in the Primary Study Area and Surrounding Region...	III-17
Table III-9	Housing Values in the Primary Study Area and Surrounding Region ..	III-18
Table III-10	Mobile Homes within Primary Study Area of I-70 Study Corridor.....	III-20
Table III-11	Means of Transportation to Work, Comparison of Primary Study Area, City and County	III-21
Table III-12	Neighborhood Associations within Primary Study Area of I-70 Study Corridor	III-23
Table III-13	Location of Schools within Primary Study Area.....	III-25
Table III-14	Senior Citizen Facilities	III-28
Table III-15	Churches within Primary Study Area of I-70 Study Corridor, SIU 4, 2000	III-31
Table III-16	Structure Displacements for Reasonable Alternatives	III-50
Table III-17	Land Acquisition Associated with Reasonable Alternatives	III-54
Table III-18	Residential Displacements by Reasonable Alternative	III-58
Table III-19	Estimate of Persons Affected by Recommended Preferred Alternative	III-59
Table III-20	Availability of Replacement Single-Family Housing within Columbia and the Urban Fringe Area	III-60
Table III-21	Business Survey Results – Type of Business (respondents directly affected by reasonable alternatives)	III-62
Table III-22	Business Survey Results – Percentage of Sales Due to Visibility (respondents directly affected by reasonable alternatives)	III-63
Table III-23	Business Survey Results – Business Response to Displacement/Right of Way Acquisition (respondents directly affected by reasonable alternatives).....	III-64
Table III-24	Estimated Number of Displaced Employees Under the Recommended Preferred Alternatives.....	III-65
Table III-25	Senior Citizen Centers Impacted by Reasonable Alternatives.....	III-73
Table III-26	Other Community Resources Impacted by Reasonable Alternatives..	III-77
Table III-27	Regional and Area Benefits of a Scott Boulevard Interchange	III-89
Table III-28	Population and Economic Characteristics of Primary Study Area and Region, 2000	III-96

Table III-29	Census Block Groups with High Minority and High Poverty Residents	III-97
Table III-30	Census Blocks with High Minority Residents	III-99
Table III-31	Summary of Soil Types in the Project Corridor	III-107
Table III-32	Farmlands Impacts	III-111
Table III-33	Public Water Source Wells within One Mile of the Project Corridor ..	III-113
Table III-34	Streams in the Project Corridor	III-117
Table III-35	Stream Impacts	III-120
Table III-36	Floodplain Impacts	III-127
Table III-37	Wetlands and Pond Impacts	III-132
Table III-38	Natural Communities Impacts	III-135
Table III-39	Rare Species with Populations Recorded in Boone County.....	III-139
Table III-40	Sites Requiring Further Site Assessment.....	III-143
Table III-41	Missouri and National Ambient Air Quality Standards.....	III-146
Table III-42	Noise Abatement Criteria, Hourly A-Weighted Sound Level – decibels (dBA)	III-148
Table III-43	Design Hour Noise Levels, SIU 4 Corridor	III-149
Table III-44	Setback Distances from Centerline for Residential Receptors.....	III-150
Table III-45	Noise Wall Modeled Areas	III-151
Table III-46	Listed and Eligible Historic Properties in the Project Corridor	III-153
Table IV-1	Listed and Eligible Historic Properties in the Project Corridor	IV-1
Table V-1	Improve I-70 Advisory Group Meetings, September 2002–May 2003 Phase 1: Advisory Group Initiation and Corridor Selection	V-8
Table V-2	Improve I-70 Advisory Group Meetings, June to November 2003 Phase 2: Preliminary and Detailed Widening Concepts	V-10
Table V-3	Improve I-70 Advisory Group Meetings, December 2003 Through Spring 2004 Phase 3: Development of Reasonable Alternatives.....	V-11
Table V-4	Public Involvement Meetings, September 2002 to May 2003 Phase 1: Corridor Selection.....	V-14
Table V-5	Public Involvement Meetings, June to November 2003 Phase 2: Preliminary and Detailed Widening Concepts	V-15
Table V-6	Public Involvement Meetings, December 2003 through Spring 2004 Phase 3: Development of Reasonable Alternatives	V-16
Table V-7	Presentations to Community Groups.....	V-18
Table V-8	Summary of Agency Coordination.....	V-24

List of Figures

Figure S-1	SIU 4 Vicinity Map	S-ii
Figure I-1	Improve I-70 First Tier Study Area and Second Tier SIUs	I-2
Figure I-2	SIU 4 Vicinity Map	I-4
Figure I-3	No-Build I-70 Traffic Increases from 2000 to 2030.....	I-9
Figure I-4	Visual Depictions of Level of Service	I-10
Figure I-5	Short-Term or Local Trips (as a percentage of the total).....	I-19
Figure I-6	SIU 4 Crash Type Distribution.....	I-24
Figure II-1	Process of Alternative Development and Evaluation.....	II-2
Figure II-2	Corridor Location Map	II-5
Figure II-3	Local Trips on I-70.....	II-10
Figure II-4	Texas Turnaround	II-29
Figure II-5	Two-Point and Three-Point Interchange Movement Diagrams	II-45

Figure III-1	Project Corridor/Primary Study Area Map	III-2
Figure III-2	SIU 4 Subsection Map.....	III-11
Figure III-3	Spatial Distribution of Minority Populations	III-12
Figure III-4	Spatial Distribution of Poverty	III-13
Figure III-5	Cosmo Park Facility Map	III-35
Figure III-6	Existing Thoroughfare Plan	III-36
Figure III-7	CATSO 2025 Transportation Plan.....	III-39
Figure III-8	Columbia Transit Service Map	III-41
Figure III-9	Bicycle/Pedestrian Network Plan	III-43
Figure III-10	Columbia Land Use Plan.....	III-45
Figure III-11	Spatial Patterns in Population Change for the No-Build (2000) vs. No-Build Future (2030) Scenarios.....	III-185
Figure III-12	Spatial Patterns in Employment Change for the No-Build (2000) vs. No-Build (2030) Scenarios.....	III-186
Figure III-13	Spatial Patterns of Travel Time Savings for Build (2030) Scenario vs. No-Build (2030) Scenario	III-187
Figure III-14	Percentage Change in Travel Time Savings with Build Scenario	III-188
Figure IV-1	Corridor Location Map.....	IV-7
Figure V-1	Decisionmaking Flow Chart.....	V-7
Figure V-2	Study team member Jim Bednar outlines advantages and disadvantages of the widening concepts under consideration at the August 21, 2003 public workshop.....	V-13

List of Exhibits

Exhibit I-1	SIU 4 Study Area Map
Exhibit II-1	Traffic Volumes on I-70 and Far North Bypass, 2030
Exhibit II-2	Traffic Volumes on I-70 and Near North Bypass, 2030
Exhibit II-3	Stacked Section Concept
Exhibit II-4	Basic Widening Concept
Exhibit II-5	One Way Frontage Road Concept
Exhibit II-6	Two Way Frontage Road Concept
Exhibit II-7	Collector/Distributor Road Concept
Exhibit II-8A	Detailed Concept – Columbia Area – West – Two-Way Frontage Road
Exhibit II-8B	Detailed Concept – Columbia Area – East – Two-Way Frontage Road
Exhibit II-9A	Detailed Concept – Columbia Area – West – One-Way Frontage Road
Exhibit II-9B	Detailed Concept – Columbia Area – East – One-Way Frontage Road
Exhibit II-10A	Detailed Concept – Columbia Area – West – Collector/Distributor System
Exhibit II-10B	Detailed Concept – Columbia Area – East – Collector/Distributor System
Exhibit II-11A	Detailed Concept – Treatments Outside of Columbia – Rural West (J/O)
Exhibit II-11B	Detailed Concept – Treatments Outside of Columbia – Rural West (US-40)
Exhibit II-11C	Detailed Concept – Treatments Outside of Columbia – Rural West (US-40 to Stadium)
Exhibit II-11D	Detailed Concept – Treatments Outside of Columbia – Rural East (St. Charles Road)
Exhibit II-11E	Detailed Concept Exhibit – Treatments Outside of Columbia – Rural East (MO-Z)
Exhibit II-12	Reasonable Alternative – MO-J/O with Diamond Interchange
Exhibit II-13	Reasonable Alternative – US-40 with Enhanced Diamond Interchange

Exhibit II-14	Reasonable Alternative – US-40 Diamond Interchange with SW Loop
Exhibit II-15	Reasonable Alternative – Stadium Blvd. NW Loop Interchange
Exhibit II-16	Reasonable Alternative – Stadium Blvd. with Tight Diamond Interchange
Exhibit II-17	Reasonable Alternative – Stadium Blvd. with Single Point Urban Interchange (SPUI)
Exhibit II-18	Reasonable Alternative – Stadium Blvd. with Split Diamond Interchange
Exhibit II-19	Reasonable Alternative – Business Loop I-70 (West)
Exhibit II-20A & B	Reasonable Alternative – MO-163/MO-763/ Business Loop (East) One-Way
Exhibit II-21A & B	Reasonable Alternative – MO-163/MO-763/ Business Loop (East) Collector/Distributor
Exhibit II-22	Reasonable Alternative – US-63 Interchange
Exhibit II-23	Reasonable Alternative – St. Charles Road with Tight Diamond Interchange
Exhibit II-24	Reasonable Alternative – St. Charles with Offset Diamond Interchange
Exhibit II-25	Reasonable Alternative – MO-Z Diamond Interchange
Exhibit II-26	Reasonable Alternative – MO-Z Diamond with Loop Ramp Interchange
Exhibit II-27 A through F	Recommended Preferred Alternative
Exhibit III-1A through III-1J	Community Resources Map
Exhibit III-2A through III-2J	Building Type, Land Use and Business Survey Map
Exhibit III-3A through III-3J	Displacement Map
Exhibit III-4A through III-4J	Ecological Resource Map
Exhibit III-5A through III-5J	Environmental Resources Map
Exhibit III-6	SIU 4 Visual Elements Photo Log
Exhibit IV-1	Bowling Property Map
Exhibit IV-2 A and B	Section 4(f) Alternatives Map

List of Appendices

I-A	First Tier Summary
I-B	Traffic Accident and Safety Data
II-A	Design Criteria
II-B	Construction Staging and Typical Cross Sections
II-C	Preliminary Concept Evaluation Matrix
II-D	Alternatives Investigated and Rejected
III-A	Summary of Improve I-70 Business Survey
III-B	Possible Structure Displacements Associated with Reasonable Alternatives
III-C	Possible Land Acquisition Associated with Reasonable Alternatives
III-D	Farmland Protection Policy Act Coordination, Improve I-70 NPDES Permit and Cooperative Agreement on Farmlands
III-E	Interstate I-70 History and Memorandum of Understanding
V-A	Columbia Advisory Group Membership List
V-B	Advisory Group Meeting Summaries
V-C	Public Involvement Meeting Summaries
V-D	Notice of Intent
V-E	Agency Coordination Correspondence

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Documents Available Upon Request

Documents Applicable to Entire 200-miles of I-70

Environmental Methodologies	-	GEC
Rest Area Study	-	GEC
Frontage Road Master Plan	-	GEC
Median Area Study	-	GEC
Design Criteria and Cost Estimating Guide	-	GEC
I-70 Corridor Enhancement Plan	-	GEC
Cultural Resources Methodologies	-	GEC
Geomorphologic Report	-	GEC

Documents Applicable to I-70 SIU4

Cultural Resources Reports	-	SEC
Wetland Delineation Report	-	SEC
North-South Rural Screening Evaluation	-	SEC
Conceptual Corridor Screening (June 2003)	-	SEC
CATSO Travel Model – Validation and Model Development	SEC -	SEC
Stakeholder Interview Summary Report (June 2002)	-	SEC
I-70 Hotline Calls – Questions and Comments	-	SEC
I-70 Website Contacts – Questions and Comments	-	SEC
Traffic Performance Screening (June 11, 2003)	-	SEC
Business Survey Form	-	SEC

To request available data, please contact:
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Acronyms and Abbreviations

AADT	average annual daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ADT	average daily traffic
APE	Area of Potential Effects
AQCR	Air Quality Control Region
ASLA	American Society of Landscape Architects
ASR	Aquifer Storage and Recover
AST	Aboveground Storage Tanks
BMP	Best Management Practices
C/D	collector-distributor
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CARES	Center for Agricultural, Resource and Environmental Systems
CATSO	Columbia Area Transportation Study Organization
CCRA	Columbia Cosmopolitan Recreation Area
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CO	carbon monoxide
COLT	Columbia Terminal Railroad
CORRACTS	Corrective Action Reports
CRP	Conservation Reserve Program
CSR	Code of State Regulations
CVISN	commercial vehicle electronic clearance system
CVO	commercial vehicle operations
CWA	Clean Water Act
dBA	decibels, A-weighted
DOLIR	Department of Labor and Industry Relations
DOT	Department of Transportation
EDR	Economic Development Research Group
EIS	environmental impact statement
EMS	Emergency Medical Services
EO	Executive Order
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FINDS	Facility Index System
FPPA	Farmland Protection Policy Act
FSA	Farm Service Agency
FTA	Federal Transit Administration
GEC	general engineering consultant

GIS	geographic information system
HAR	highway advisory radio
HCS	Highway Capacity Manual
HOV	high-occupancy vehicle
I-70	Interstate Route 70
ITS	intelligent transportation system
km	kilometer
LF	Landfill Sites
LOS	level of service
LQG	large quantity generator
LUST	Leaking Underground Storage Tank
LWCF	Land and Water Conservation Fund
m	meter
MDA	Missouri Department of Agriculture
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MEGA	Missouri Environmental Geology Atlas
MIS	Major Investment Study
MLTS	Material Licensing Tracking System
MO	Missouri route
MoDOT	Missouri Department of Transportation
MOT	maintenance of traffic
MOU	Memorandum of Understanding
mph	miles per hour
MRP	Major Roadway Plan
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standard
NAC	Noise Abatement Criteria
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
PEM	palustrine emergent wetland
PF01	palustrine deciduous forested wetland
PFO	palustrine forested
PIC	public involvement consultant
PSR	Pavement Serviceability Rating
PSS	palustrine scrub-shrub wetland
PUB	palustrine unconsolidated bottom
PUD	Planned Unit Development
PWSD	Public Water Supply District
RCI	ride condition index
RCRA	Resource Conservation and Recovery Act

RCRIS	Resource Conservation and Recovery Information System
REDI	Regional Economic Development, Inc
ROD	Record of Decision
ROW	right-of-way
RTP	Regional Transportation Plan
RWIS	road weather information systems
SARA	Superfund Amendments and Reauthorization Act
SEC	section engineering consultant
SEMA	State Emergency Management Agency
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SHWS	State Hazardous Waste Sites
SIP	State Implementation Plan
SIU	section of independent utility
SMG	Study Management Group
SPUI	single point urban interchange
SQG	small quantity generator
SSD	Stopping Sight Distance
STIP	State Transportation Improvement Program
STRANET	Strategic Highway Network
SWF	Solid Waste Facilities
TAZ	traffic analysis zone
TDM	transportation demand management
TIP	Transportation Improvement Plan
TMDL	total maximum daily loads
TNM	Traffic Noise Model
TSD	transfer, storage and disposal
TSM	transportation system management
Uniform Act	Uniform Relocation and Real Property Acquisition Policies Act of 1970
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGC	United States Coast Guard
USGS	United States Geological Survey
UST	Underground Storage Tank
V/C	volume to capacity ratio
VCP	Voluntary Cleanup Program
VFW	Veterans of Foreign Wars
VHT	vehicle hours of travel
VMS	variable message signs
VMT	vehicle miles of travel
WRP	Wetland Reserve Program

Summary

A. Location and Termini

The Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) are investigating improvements to Interstate Route 70 (I-70) across Missouri, from Kansas City to St. Louis. This effort is known as Improve I-70. In accordance with the National Environmental Policy Act (NEPA), a tiered approach was taken in the Improve I-70 investigation. A First Tier Environmental Impact Statement (EIS) was initiated to examine the entire 200-mile (321.9-kilometer [km]) section of I-70. The First Tier EIS focused on identifying the most appropriate types of improvements for I-70 on a conceptual level. It also identified seven Sections of Independent Utility (SIU) within the 200-mile (321.9-km) First Tier study area. A series of Second Tier studies was undertaken to identify specific improvements most appropriate to each SIU. This document addresses SIU 4.

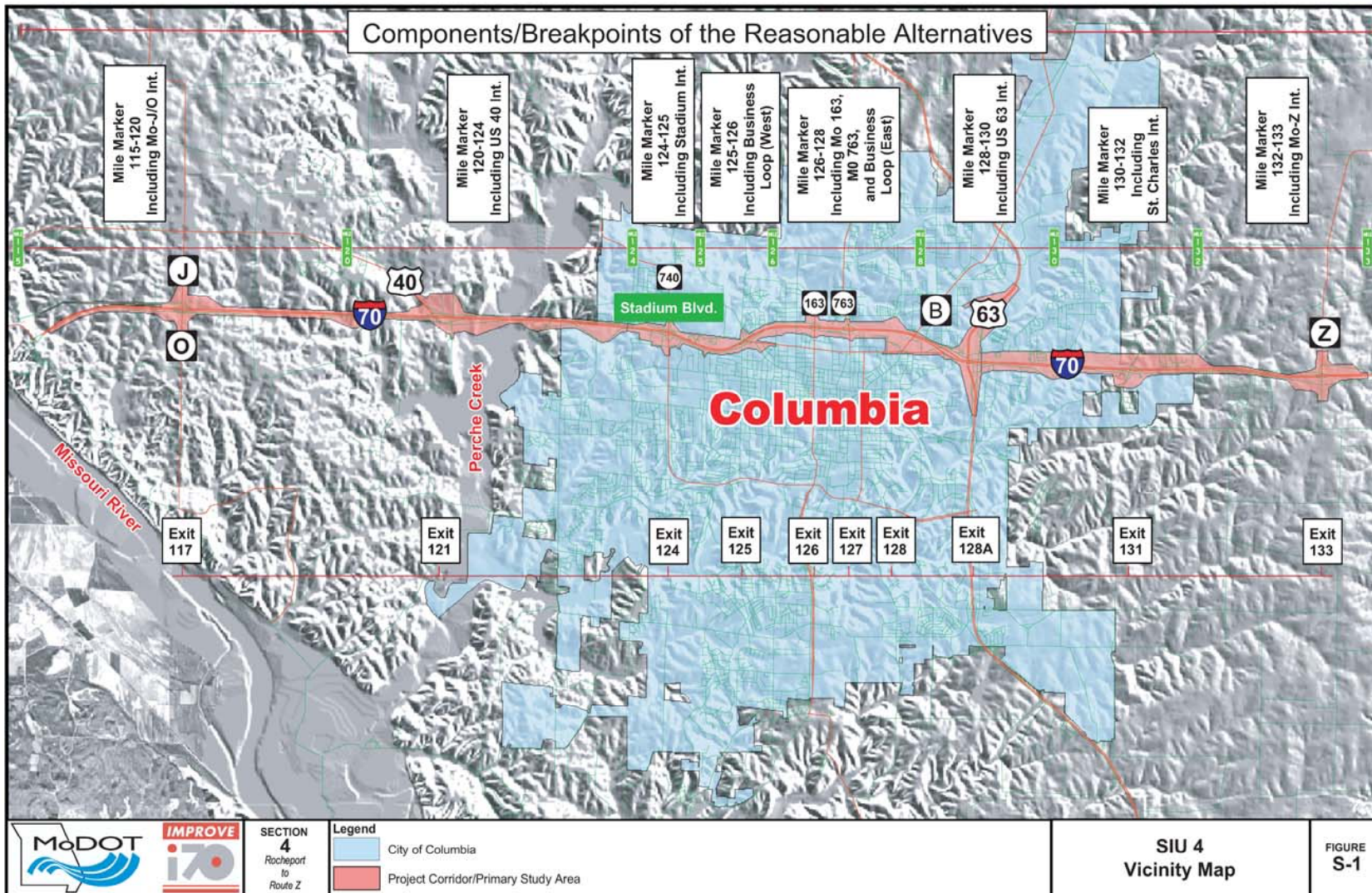
Section of Independent Utility 4 includes the city of Columbia and the portions of I-70, from just east of, but not including, the Missouri Route BB interchange (MO-BB, exit 115) to just east of the MO-Z interchange (exit 133). The MO-J/O interchange (exit 117) is the western-most interchange within SIU 4. This 18-mile (29.0-km) section of four-lane divided highway has limited access and contains 10 interchanges. Section of Independent Utility 4 spans virtually the entire width of Boone County. The logical termini for SIU 4 were initially established in the First Tier EIS and confirmed during the Second Tier EIS (**see Figure S-1**).

B. Proposed Action

The proposed action is the implementation of the recommended preferred alternative for the SIU 4 portion of the Improve I-70 project. As stated in the First Tier EIS, the overall goal of the Improve I-70 project is “to provide a safe, efficient, environmentally sound and cost-effective transportation facility that responds to corridor needs as well as expectations of a national interstate.”

Within SIU 4, the recommended preferred alternative specifies the improvement of I-70 along its existing alignment. Improvements include increasing the number of through lanes on I-70 from three to six, west of the U.S. 40 interchange and east of the MO-Z interchange, and from four to eight from U.S. 40 interchange to the MO-Z interchange. In addition, the recommended preferred alternative would include the reconstruction/reconfiguration of the existing interchanges.

Figure S-1: SIU 4 Vicinity Map



C. Purpose of and Need for Proposed Action

Purpose and need are the transportation-related problems that the project is intended to address. The generation and evaluation of alternatives are conducted to develop the most appropriate solution to the identified problems. A preferred alternative would be selected, in part, on the basis of how well it satisfies the project's purpose and need.

The purpose and need elements associated with the Second Tier of the I-70 (SIU 4) EIS are to:

- **Accommodate existing and future traffic volumes on I-70**—Within SIU 4, the overall volume of traffic on I-70 is projected to at least double between 2000 and 2030. With the No-Build Alternative, these increases would result in future operational difficulties for travelers on I-70. Consequently, one element of the purpose of and need for improvements to I-70 is to develop alternatives that accommodate existing and projected traffic volumes.
- **Improve existing I-70 design**—Interstate 70 has been in place for many decades and several design features do not meet the standards required of modern roadway facilities. In order to satisfy future transportation demand, there is a need to correct outdated design elements. Consequently, one element of the purpose and need is to improve the existing facility by developing it in accordance with current design standards.
- **Accommodate all users of I-70**—Section of Independent Utility 4 is roughly equidistant between the major population centers of Missouri (St. Louis and Kansas City). Interstate 70 plays an important role in freight movement and general inter/intra-state travel. Because SIU 4 also traverses the city of Columbia, it plays an important role in the local roadway network. This creates a situation where the existing traffic streams are in conflict. Trucks present an additional operational challenge because of their size and operating characteristics. It is the intent of this project to accommodate the various traffic streams to the extent practical. Consequently, one element of the purpose and need for SIU 4 is to develop alternatives that accommodate all users of I-70. All other things being equal, the alternative that best accommodates all users of I-70 would be superior.
- **Improve user safety**¹—Both the frequency and severity of crashes on I-70 have been increasing over time. Because traffic volumes on SIU 4 are expected to at least double by the design year of 2030, the number of crashes can also be expected to increase. Consequently, one purpose and need element for SIU 4 is to develop alternatives that improve user safety on I-70.

D. Alternatives

A tiered screening process was used to develop and evaluate alternatives. At the end of each tier, a selection process was undertaken whereby the most appropriate alternatives were advanced for further consideration. At each tier, the amount of data collected (to assist with

¹ Crash statistics and safety data summarized or presented in this paragraph are protected under federal law. See Appendix I-B.

decision-making) was increased. The overall decision-making process of the project started with the corridors that emerged from the First Tier EIS. The three corridors evaluated included improving the existing I-70 corridor, a Near North Corridor and a Far North Corridor. Ultimately, improving the existing I-70 corridor was the only corridor advanced for further evaluation.

Within the existing I-70 corridor, concept development focused on the mainline widening alternatives and the interchange configurations. The First Tier evaluation and subsequent technical studies recommended that the mainline in the subsections west of U.S. 40 be widened to the south of the existing eastbound lanes, establishing a 124-foot (37.8-meter [m]) median width. The westbound lanes would remain in their current location. This approach minimized the impacts in this section of the corridor. East of U.S. 40 to the eastern project limits, the roadway would be widened symmetrically around the existing centerline with a raised median barrier. Slight asymmetrical widening to the north between MO-740 and Business Loop West, and to the south between Business Loop West and MO-163 minimized impacts in these locations. See **Appendix II-B** for typical and special sections.

General design criteria for the mainline include a design speed of 75 miles per hour (mph) in the rural sections and 70 mph in the urban sections. Horizontal curves have a maximum degree of curvature of 1°30'. Vertical clearance for side roads over I-70 is 19'-0" (5.8 m). Ramp design speeds are 50 mph at the gore and 30 mph for loops. Full design criteria information for all roadways is presented in **Appendix II-A**.

Relative to through lane needs, it was determined that three lanes of travel in each direction would need to be provided between the project's western terminus and the U.S. 40 interchange, and east of the MO-Z interchange to the eastern terminus to accommodate 2030 traffic volumes. Between the U.S. 40 interchange and the MO-Z interchange, four lanes of travel in each direction would be required to accommodate 2030 traffic volumes. In addition, room has been allocated throughout SIU 4 for construction beyond 2030 of an additional lane in each direction, or for an alternative mode of transportation. Unless otherwise noted, references to the number of through lanes are for the year 2030, and do not include these potential extra lanes.

In order to properly accommodate the access needs within SIU 4, numerous concepts were considered. Initially, preliminary concepts were developed and evaluated. This was followed by a detailed concept phase. At this stage, a one-way frontage road concept, a two-way frontage road concept and a collector/distributor concept were developed. The detailed concepts included complete engineering depictions, iterative traffic evaluations and quantitative impact assessments. Ultimately, it was determined that none of these individual concepts alone were optimal. Instead, a hybrid or combination of concepts would be needed. The hybrids emerging from the concept-stage are also referred to as the reasonable alternatives. The reasonable alternatives have benefits that the individual concepts cannot attain. The reasonable alternatives were organized by location. Each of the individual components could be combined in every possible way. A detailed evaluation of the costs, benefits and impacts associated with the reasonable alternatives resulted in the identification of the recommended preferred alternative. The recommended preferred alternative satisfies the project's purpose and need, minimizes negative environmental impacts (eliminates avoidable significant negative impacts) and, overall, best balances the costs and benefits of project development. An extensive public involvement process also accompanied the development and evaluation of alternatives. By the time the recommended preferred alternative was announced, at least 19 public involvement events were held.

The recommended preferred alternative consists of the following reasonable alternative elements:

Western Part of Project Area: Western Terminus to Stadium Interchange

This portion of I-70 extends between mile 116.2 to 124.6, including the MO-J/O interchange and the U.S. 40 interchange. The mainline widening would occur to the south and the widened rural median would be maintained. The widening to the south minimizes impacts and allows for a seamless transition to the Missouri River crossing that occurs in SIU 3 (approximately 1.3 miles [2.1 km] west of the SIU 4 termini). It also reduces construction delays and cost by allowing for the maximum reuse of the existing lanes.

The MO-J/O interchange would be constructed as a diamond interchange (**Exhibit II-12**)² and the U.S. 40 interchange would be reconstructed as an enhanced diamond interchange (**Exhibit II-13**).

Central Part of Project Area: Columbia between Stadium and U.S. 63

This portion of the study area extends from mile markers 124.6 to 130.0, including the Stadium Boulevard, Business Loop West, MO-763, MO-163, Business Loop East, U.S. 63 and Business 63 interchanges. Overall, the mainline widening occurs symmetrically on each side for the existing highway³. Room for a maximum of eight lanes would be available. An urban median would be used for impact reductions. The existing frontage roads would be maintained and, in some cases, improved.

The Stadium interchange would be reconstructed as a tight diamond⁴ (**Exhibit II-16**), and the Business Loop West interchange would be reconstructed as a two-point interchange (**Exhibit II-19**). The 163/763/Business Loop East interchanges would be part of a one-way frontage road system (**Exhibit II-20**) and the U.S. 63 interchange would be a four-movement system interchange combined with Business 63 as a tight diamond (**Exhibit II-22**).

Eastern Part of Project Area: U.S. 63 to MO-Z

This portion of the study area extends from mile marker 130.0 to the eastern terminus (mile marker 134.0), including the St. Charles Road and MO-Z interchanges. The mainline widening would occur symmetrically on each side for the existing highway and the urban median would be used. The existing frontage roads would be maintained and, in some cases, improved. West of the MO-Z interchange, there would be eight through lanes and east of the interchange there would be six through lanes.

The St. Charles interchange would be reconstructed as a tight diamond interchange (**Exhibit II-23**), and the MO-Z would be a standard diamond interchange (**Exhibit II-26**).

² Exhibit II-27 depicts the entire recommended preferred alternative at a smaller scale.

³ One important exception occurs in the vicinity of the Business Loop West interchange. An existing substandard curve would be corrected in this area, resulting in widening to the north for the portion of I-70 west of the Business Loop and widening to the south for the portion of I-70 east of the Business Loop.

⁴ With additional ramps to and from the east at Fairview Road.

E. Impacts

The process that led to the identification of the recommended preferred alternative included evaluations of impacts. The impact analysis included right of way impacts, environmental impacts, community impacts, displacement impacts, engineering impacts and issues along with an examination of the compatibility with local transportation priorities. An extensive public involvement plan was also used in the decision-making process.

Impacts associated with the reasonable alternatives include the conversion of farm land, the acquisition of land and structures, stream and floodplain crossings, wetland impacts, woodland impacts and potential impacts to protected species. **Table S-1** is an impact summary for the recommended preferred alternative. **Table S-2** is a more detailed impact matrix for all reasonable alternatives within the western portion of SIU 4 (western terminus to Stadium interchange). **Table S-3** is a more detailed impact matrix for all reasonable alternatives within the central portion of SIU 4 (Columbia between Stadium and U.S. 63). **Table S-4** is a more detailed impact matrix for all reasonable alternatives within the eastern portion of SIU 4 (U.S. 63 to MO-Z/eastern terminus).

F. Lead Agency/Cooperating Agencies

The lead agency of the EIS is FHWA in consultation with MoDOT. Missouri Department of Transportation and its consultants are responsible for conducting the environmental and engineering evaluations, carrying out the public involvement activities, coordinating with state and federal review agencies and preparing the EIS in consultation with FHWA. The federal cooperating agencies include the United States Environmental Protection Agency (USEPA) and the United States Army Corps of Engineers (USACE).

The SIU 4 Study Team, which included staff and representatives from MoDOT Headquarters and MoDOT District Five, met regularly with staff from Columbia Area Transportation Study Organization (CATSO), the City of Columbia and Boone County to determine and study the alternatives developed for the Columbia area. The group met regularly to review land use and traffic data, widening concepts and emerging alternatives. This collaborative effort provided guidance and insight throughout the process. The study team also made at least quarterly presentations to the CATSO board to update them on study progress and seek direction on Columbia-specific issues.

Resource agency coordination was also a priority throughout the Improve I-70 Second Tier studies. A Study Management Group (SMG) was convened to ensure proactive coordination. Group activities included regularly scheduled SMG meetings, phone calls, e-mails, correspondence and face-to-face meetings on SIU-specific issues. Included in the SMG are representatives from the MoDOT headquarters and division offices, FHWA, USACE, USEPA, Missouri Department of Natural Resources (MDNR), Missouri Department of Conservation (MDC), Natural Resources Conservation Service (NRCS), United States Coast Guard (USCG) and United States Fish and Wildlife Service (USFWS). Four SMG meetings involving SIU 4 have been held to date.

G. Regulatory Compliance/Pending Action

The planning, agency coordination, public involvement and impact evaluation for the project were coordinated in accordance with the NEPA, the Clean Water Act (CWA), the Clean Air Act (CAA), the Farmland Provision Policy Act, Executive Order 11988 on Wetland and Floodplain Protection, the Fish and Wildlife Coordination Act, the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA) and other state and federal laws, policies and procedures for environmental impact analyses and preparation of environmental documents.

This document complies with United States Department of Transportation (USDOT) and FHWA policies to determine whether a proposed project would have disproportionate impact on minority or low-income populations. It meets the requirements of the Presidential Executive Order on Environmental Justice 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. Neither minority nor low-income populations would receive disproportionately adverse impacts under the reasonable range of alternatives.

River and wetland impacts associated with the range of reasonable alternatives are subject to permitting and associated water quality certification under Sections 404 and 401 of the CWA. This project is being processed in accordance with the policy of merging the NEPA review and compliance with the CWA. Key to merging the review is the coordination between the MoDOT and FHWA with the USACE and MDNR at several concurrence points. In this way, the full rationale of the decisions by the MoDOT and FHWA can be shared with the regulators as the decisions are made, reducing the potential for having to revisit critical planning decisions at a later time.

Relocation Assistance Plans for all potential acquisitions and displacements would require approval before being implemented. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, provides for payment of just compensation for property acquired for a federal aid project. The relocation program provides assistance to displaced persons in finding comparable housing that is decent, safe and sanitary. This applies to businesses, farms, nonprofit organizations and residential properties.

Upon selection of a preferred alternative, further investigation would be done to verify that the improvements would not affect important archaeological resources. If the proposed improvements affect archaeological or historical resources eligible to the National Register of Historic Places (NRHP), the requirements under Section 106 of the NHPA would be completed. Additionally, the project team is coordinating with FHWA to satisfy Section 4(f) requirements associated with historic site impacts (see Chapter IV).

Informal coordination with the MDC would be continued to determine whether the proposed improvements would affect state-protected species discussed in Chapter III. Coordination would also be continued with the USFWS to determine whether the project would adversely affect federally protected species.

H. Environmental Commitments

During the design and implementation of the selected alternatives, MoDOT is committed to obtaining necessary permits and performing other actions that would minimize and mitigate the impacts of the project on the environment. Those commitments are summarized below:

- Relocation assistance would be provided for all businesses, nonprofit organizations and residents that must be relocated. Assistance would be provided by MoDOT in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Relocation assistance under the program would be made available without discrimination to all who would be relocated.
- The I-70 Study Team would continue to coordinate with local planning agencies, including CATSO and the Columbia Planning and Building Department.
- This project will comply with the American Disabilities Act of 1990.
- 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 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.
- Provisions would be made for bike, pedestrian and wheelchair access across I-70 wherever possible and reasonable.
- The design of roadway crossings over I-70 and bridges over streams in the Columbia area would be coordinated with the City Planning and Building Department and the Parks and Recreation Department to make the crossings as compatible as possible with plans to extend bicycle and pedestrian trails and pathways along the roadways and stream corridors.
- Detailed design of the project would include early coordination with City and County public works departments and the Missouri One-Call System to identify utilities in the project area. The design process would include periodic consultation of utility owners to ensure compatibility of the roadway design with continued service, proper design of any utilities requiring relocation, construction techniques and timing and technical assistance during construction.
- During the final design process, the MoDOT would consider options to minimize new right of way acquisition.
- The MoDOT would coordinate with the USACE to ensure compliance with Sections 401 and 404 of the CWA. This would address impacts to streams, wetlands and other waters of the United States during the design process. Clean Water Act permits would require a detailed delineation and evaluation of waters and wetlands affected by the project and minimization of impacts. In accordance with established procedure, the wetland delineation results will be presented in the Final Environmental Impact Statement. During the design phase specific impacts to wetland and other waters of the United States would be assessed to determine if those impacts can be avoided or further minimized. Unavoidable impacts to wetland and streams would require mitigation. Development of mitigation strategies would be determined through the permitting process with the USACE and the MDNR.
- Best management practices would be implemented to prevent and reduce soil erosion and sedimentation in local waterways and sinkholes. 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, as well as methods included in the joint Columbia/Boone County NPDES Phase II stormwater permit. Disturbed areas would be restored with suitable vegetation to stabilize the area over the long term.
- Floodplain permits would be obtained from the State Emergency Management Agency (SEMA).
 - Landscaping would be in accordance with the statewide *I-70 Corridor Enhancement Plan*. In accordance with MoDOT standards, new seed mixes, mulch and plant materials would be free of invasive weedy species to the extent possible to reduce the spread of invasive species along the highway to natural areas and adjacent properties.
 - To avoid potential negative impacts on the Indiana bat, coordination with the USFWS would be conducted. The USFWS advocates reviewing projects on a case-by-case basis focusing on the following criteria: the project's proximity to known hibernacula; maternity, male roosts and/or important foraging areas; the composition of the woodland; the land use of the area after the project is complete; location in Knox, Macon and Shelby counties and consideration of the magnitude, scope, frequency and duration of the proposed action with regard to the importance of the area to the Indiana bat. 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. Missouri Department of Transportation would continue consultation with the USFWS to avoid or minimize potential impacts to this species.
 - Surveys for populations or potential habitat of the Running Buffalo clover would be performed prior to construction activities.
 - Missouri Department of Transportation is cooperating with MDNR, MDC and USFWS to relocate the population of bristled cyperus known to occur within the right of way to other publicly owned lands prior to construction.
 - Additional study and proper remediation of hazardous waste sites that would be encountered by construction would be performed as needed to minimize exposure of construction workers and the public to hazardous wastes and to ensure proper disposal of contaminated earth and other substances. This includes proper disposal of demolition debris in accordance with state law.
 - 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.

- Noise barriers would be further investigated at five locations, as identified in the study of sensitive receptors, where their installation is feasible and the cost of the barriers does not exceed the state guidelines. This process would comply with MoDOT standard procedures and include more detailed evaluations of cost and effectiveness, public involvement and outreach and, potentially, barrier design and implementation.
- Missouri Department of Transportation would coordinate with the State Historic Preservation Office (SHPO) to ensure compliance with Section 106 of the NHPA.
- The design of new structures such as bridges and noise barrier walls would incorporate the elements contained in the I-70 Corridor Enhancement Plan to the maximum extent possible.
- Missouri Department of Transportation would consult with emergency responder agencies involved in traffic incident management on I-70 in the future design and maintenance of traffic plan development as the Improve I-70 program progresses.

Table S-1 Recommended Preferred Alternative Impact Summary

**Table S-2 Reasonable Alternative Impact Summary Western Portion of Project Area:
MO-BB to Stadium Interchange**

**Table S-3: Reasonable Alternative Impact Summary Central Portion of Project Area:
Columbia between Stadium Interchange and US-63**

**Table S-4: Reasonable Alternative Impact Summary Eastern Portion of the Project Area:
US-63 to MO-Z**



Table S-1
Recommended Preferred Alternative Impact Summary
 Improve I-70: Columbia Area (SIU 4)

IMPACT CATEGORY	MEASURE	TOTAL IMPACTS FOR RECOMMENDED PREFERRED ALTERNATIVE
RIGHT OF WAY IMPACTS (Existing Land Use within Required Right of Way)		
Residential	acres	54
Commercial	acres	63
Industrial	acres	9
Agricultural (Wooded/Vacant)	acres	249
Public (Parks and other publicly owned parcels)	acres	11
Other (e.g. utilities, institutional, fraternal organizations)	acres	11
Total Right of Way Required	acres	397
ENVIRONMENTAL IMPACTS		
Wetland Impacts	acres	8.3
Non-Wetland Pond Impacts	acres	2.2
100-Year Floodplain Impacts	acres	72
Stream Crossings	#	73
Natural Community Impacts	acres	143
Potential Threatened/Endangered Species Impacts	Yes/No	Yes
Number of Sites Requiring Additional Hazardous Material Assessment	#	15
Secondary and Cumulative Impacts	rating	0
Visual Impacts - Existing vs. Proposed	rating	+
COMMUNITY IMPACTS		
National Register of Historic Places Impacted	#	1 - Bowling Napier Estate
Important Community Resources - Displacement of Structures	#	5
Important Community Resources - Property Acquisition	acres	15.7
Potential Impacts to Low Income or Minority Populations (EJ)	rating	0
Potential for Noise Walls	Yes/No	Yes
DISPLACEMENT IMPACTS		
Residential Impacts (Displacement of Dwelling Units)	#	299
Total Number of Structures Acquired	#	142
Business Operation Impacts (Displacement of at Least One Structure)	#	66
Total Number of Tax Map Parcels Affected	#	612
ENGINEERING ISSUES		
Comply with MoDOT Access Management Criteria	rating	0
Construction Staging	rating	0
Traffic Operations	rating	0
Maintenance of Traffic	rating	0
Phased Implementation of Full Build	rating	N/A
Project Costs		
New Construction Cost	2005 Dollars	\$469,630,000
Right of Way Cost, including displacements	2005 Dollars	\$134,886,000
Maintain Existing Travel Patterns	rating	0
Ability to Accommodate Future Expansion	rating	-
COMPATIBILITY WITH CATSO PRIORITIES		
Conformance with Adopted Local Plans	rating	0
Impact on Local Street System	rating	0
Impact on Land Use Patterns	rating	+
Impact on Neighborhood Stability	rating	0

RATING SYSTEM	
Positive Impact/Performs Better than other Alternatives	+
Neutral Impact/No Differentiator	0
Negative Impact/Performs Poorer than other Alternatives	-





Table S-2: Reasonable Alternative Impact Summary
Western Portion of Project Area: MO-BB to Stadium Interchange
Improve I-70: Columbia Area (SIU 4)

IMPACT CATEGORY	MEASUREMENT	MO-J/O Interchange (Mile Markers 116.2 to 120.0)	U.S. 40 Interchange (Mile Markers 120.0 to 124.6)	
		Reasonable Alt. #1: Diamond Interchange	Reasonable Alt. #1: Enhanced Diamond Interchange	Reasonable Alt. #2: Diamond Interchange w/ SW Loop
RIGHT OF WAY IMPACTS (Existing Land Use within Required Right of Way)				
Residential	acres	14	8	7
Commercial	acres	2	8	9
Industrial	acres	0	1	2
Agricultural (Wooded/Vacant)	acres	64	44	62
Public (Parks and other publicly owned parcels)	acres	3	0	1
Other (e.g. utilities, institutional, fraternal organizations)	acres	0	1	1
Total Right of Way Required	acres	83	62	82
ENVIRONMENTAL IMPACTS				
Wetland Impacts	acres	0	4.3	4.3
Non-Wetland Pond Impacts	acres	0.5	0	0.3
100-Year Floodplain Impacts	acres	6	43	41
Stream Crossings	#	18	17	17
Natural Community Impacts	acres	51	36	48
Potential Threatened/Endangered Species Impacts	Yes/No	No	No	No
Number of Sites Requiring Additional Hazardous Material Assessment	#	0	3	3
Secondary and Cumulative Impacts	rating	O	+	-
Visual Impacts - Existing vs. Proposed	rating	-	+	+
COMMUNITY IMPACTS				
National Register of Historic Places Impacted	#	0	0	0
Important Community Resources - Displacement of Structures	#	0	0	0
Important Community Resources - Property Acquisition	acres	0	0.2 acres (CPS Services Building)	0.3 acres (CPS Services Building)
Potential Impacts to Low Income or Minority Populations (EJ)	rating	O	O	O
Potential for Noise Walls	Yes/No	No	No	No
DISPLACEMENT IMPACTS				
Residential Impacts (Displacement of Dwelling Units)	#	5	4	5
Total Number of Structures Acquired	#	11	17	21
Business Operation Impacts (Displacement of at Least One Structure)	#	1	5	7
Total Number of Tax Map Parcels Affected	#	64	88	94
ENGINEERING ISSUES				
Comply with MoDOT Access Management Criteria	rating	N/A	O	O
Construction Staging	rating	N/A	+	+
Traffic Operations	rating	N/A	O	+
Maintenance of Traffic	rating	N/A	+	+
Phased Implementation of Full Build	rating	N/A	N/A	N/A
Project Costs				
New Construction Cost	2005 Dollars	\$47,857,000	\$73,348,000	\$82,788,000
Right of Way Cost, including displacements	2005 Dollars	\$2,415,000	\$3,522,000	\$4,306,000
Maintain Existing Travel Patterns	rating	N/A	+	+
Ability to Accommodate Future Expansion	rating	N/A	+	-
COMPATIBILITY WITH CATSO PRIORITIES				
Conformance with Adopted Local Plans	rating	+	+	-
Impact on Local Street System	rating	O	+	-
Impact on Land Use Patterns	rating	O	+	-
Impact on Neighborhood Stability	rating	O	+	-
		Recommended Preferred Alternative	Recommended Preferred Alternative	

RATING SYSTEM	
Positive Impact/Performs Better than other Alternatives	+
Neutral Impact/No Differentiator	O
Negative Impact/Performs Poorer than other Alternatives	-




**Table S-3: Reasonable Alternative Impact Summary Central Portion of Project Area: Columbia between Stadium Interchange and US-63
Improve I-70: Columbia Area (SIU 4)**

IMPACT CATEGORY	MEASUREMENT	Stadium Interchange (MO-740) (Mile Markers 124.6 to 125.2)				Business Loop West Interchange (Mile Markers 125.2 to 126.0)	MO-163, MO-763 and Business Loop East Interchanges (Mile Markers 126.0 to 128.0)		U.S. 63 Interchange (Mile Markers 128.0 to 130.0)
		Reasonable Alt. #1: NW Loop	Reasonable Alt. #2: Tight Diamond Interchange	Reasonable Alt. #3: Single Point Urban Interchange	Reasonable Alt. #4: Split Diamond Interchange	Reasonable Alt. #1: Two-Point Diamond Interchange	Reasonable Alt. #1: One-Way Frontage Road System	Reasonable Alt. #2: Collector-Distributor System	Reasonable Alt. #1: Tight R/W Interchange Design
RIGHT OF WAY IMPACTS (Existing Land Use within Required Right of Way)									
Residential	acres	11	11	11	11	2	11	11	2
Commercial	acres	11	5	5	6	6	18	18	12
Industrial	acres	0	0	0	0	0	5	5	2
Agricultural (Wooded/Vacant)	acres	27	23	23	29	0	15	15	8
Public (Parks and other publicly owned parcels)	acres	4	1	1	1	2	3	3	2
Other (e.g. utilities, institutional, fraternal organizations)	acres	1	1	1	1	0	7	7	1
Total Right of Way Required	acres	54	41	41	48	10	59	59	27
ENVIRONMENTAL IMPACTS									
Wetland Impacts	acres	0	0	0	0	0	0	0	2.4
Non-Wetland Pond Impacts	acres	0.5	0.5	0.5	0.5	0	0	0	0
100-Year Floodplain Impacts	acres	1	1	1	1	0	0	0	14
Stream Crossings	#	9	7	7	10	1	2	2	7
Natural Community Impacts	acres	23	16	16	19	0	12	11	7
Potential Threatened/Endangered Species Impacts	Yes/No	No	No	No	No	Yes	No	No	No
Number of Sites Requiring Additional Hazardous Material Assessment	#	2	2	2	2	2	6	6	1
Secondary and Cumulative Impacts	rating	-	O	+	-	O	O	O	O
Visual Impacts - Existing vs. Proposed	rating	+	+	+	+	-	+	+	+
COMMUNITY IMPACTS									
National Register of Historic Places Impacted	#	0	0	0	0	0	1 - Bowling Napier Estate	1 - Bowling Napier Estate	0
Important Community Resources - Displacement of Structures	#	2 - Boone Co. Fire Dist. and American Heart Assn	1 - American Heart Assn	1 - American Heart Assn	1 - American Heart Assn	0	3 - VFW Post, Parole Board and Social Services Building, OATS, Inc.	3 - VFW Post, Parole Board and Social Services Building, OATS, Inc.	0
Important Community Resources - Property Acquisition	acres	Boone County Fire District - 4.0a American Heart Assn - 2.4a Columbia United Church of Christ - 0.9a	Boone County Fire District - 0.8 a American Heart Assn - 3.0a Columbia United Church of Christ - 0.9a	Boone County Fire District - 0.8a American Heart Assn - 3.0a Columbia United Church of Christ - 0.9a	Boone County Fire District - 0.7a, American Heart Assn - 2.7a, Columbia United Church of Christ - 0.9a	Memorial Services of Columbia -0.1a US Army Reserve - 1.6a	Rusk Rehabilitation Center - 1.6a Social Services Building - 1.4a Church of God of Columbia - 0.6a OATS, Inc. - 0.9a VFW Post - 1.9a Columbia Utilities & RR - 1.5a	Rusk Rehabilitation Center - 1.2a Social Services Building - 1.0a Church of God of Columbia - 0.9a OATS, Inc. - 0.9a VFW Post - 1.8a Columbia Utilities & RR - 2.3a	Grand Lodge of Masons - 0.2a Praise Assembly of God - 0.1a
Potential Impacts to Low Income or Minority Populations (EJ)	rating	O	O	O	O	O	O	O	O
Potential for Noise Walls	Yes/No	Yes	Yes	Yes	Yes	Yes - Parkade	Yes - Parkade	Yes - Parkade	Yes - White Gate and Pine Grove Village
DISPLACEMENT IMPACTS									
Residential Impacts (Displacement of Dwelling Units)	#	135 (West Village Manor - 120 units)	135 (West Village Manor - 120 units)	135 (West Village Manor - 120 units)	135 (West Village Manor - 120 units)	128 (Terrace Retirement Apartments 128 units)	6	26	17
Total Number of Structures Acquired	#	33	31	31	31	7	33	38	20
Business Operation Impacts (Displacement of at Least One Structure)	#	14	13	13	13	5	26	26	5
Total Number of Tax Map Parcels Affected	#	91	86	86	89	46	85	86	96
ENGINEERING ISSUES									
Comply with MoDOT Access Management Criteria	rating	O	O	O	O	N/A	O	O	N/A
Construction Staging	rating	O	O	-	O	N/A	O	-	N/A
Traffic Operations	rating	O	-	-	+	N/A	O	+	N/A
Maintenance of Traffic	rating	O	O	-	O	N/A	-	-	N/A
Phased Implementation of Full Build	rating	O	O	O	O	N/A	O	O	N/A
Project Costs									
New Construction Cost	2005 Dollars	\$52,588,000	\$53,642,000	\$79,986,000	\$50,941,000	\$23,159,000	\$104,017,000	\$120,950,000	\$81,370,000
Right of Way Cost, including displacements	2005 Dollars	\$55,605,000	\$42,509,000	\$42,509,000	\$45,274,000	\$16,682,000	\$34,543,000	\$37,781,000	\$22,030,000
Maintain Existing Travel Patterns	rating	O	O	O	-	N/A	-	-	N/A
Ability to Accommodate Future Expansion	rating	+	-	-	+	N/A	-	+	N/A
COMPATIBILITY WITH CATSO PRIORITIES									
Conformance with Adopted Local Plans	rating	-	-	-	-	+	-	-	-
Impact on Local Street System	rating	-	-	-	-	O	+	O	+
Impact on Land Use Patterns	rating	-	+/-	+/-	-	O	+	O	+
Impact on Neighborhood Stability	rating	-	-	-	-	O	+/-	+/-	+
			Recommended Preferred Alternative			Recommended Preferred Alternative	Recommended Preferred Alternative		Recommended Preferred Alternative

RATING SYSTEM	
Positive Impact/Performs Better than other Alternatives	+
Neutral Impact/No Differentiator	O
Negative Impact/Performs Poorer than other Alternatives	-



**Table S-4: Reasonable Alternative Impact Summary Eastern Portion of the Project Area: US-63 to MO-Z
Improve I-70: Columbia Area (SIU 4)**

	IMPACT CATEGORY	MEASUREMENT	St. Charles Interchange (Mile Markers 130.0 to 132.0)		MO-Z Interchange (Mile Markers 132.0 to 134.0)	
			Reasonable Alt. #1: Tight Diamond Interchange	Reasonable Alt. #2: Offset Diamond Interchange	Reasonable Alt. #1: Diamond Interchange	Reasonable Alt. #2: Diamond Interchange w/ NW Loop
RIGHT OF WAY IMPACTS (Existing Land Use within Required Right of Way)						
Residential	acres	2	4	4	5	
Commercial	acres	3	8	9	6	
Industrial	acres	0	0	1	1	
Agricultural (Wooded/Vacant)	acres	21	29	74	62	
Public (Parks and other publicly owned parcels)	acres	0	0	0	0	
Other (e.g. utilities, institutional, fraternal organizations)	acres	0	0	1	1	
Total Right of Way Required	acres	26	41	89	75	
ENVIRONMENTAL IMPACTS						
Wetland Impacts	acres	1	1	0.6	0.6	
Non-Wetland Pond Impacts	acres	0	0.5	1.2	0.7	
100-Year Floodplain Impacts	acres	7	7	1	1	
Stream Crossings	#	13	14	8	8	
Natural Community Impacts	acres	13	15	8	7	
Potential Threatened/Endangered Species Impacts	Yes/No	No	No	No	No	
Number of Sites Requiring Additional Hazardous Material Assessment	#	0	0	1	1	
Secondary and Cumulative Impacts	rating	+	-	O	O	
Visual Impacts - Existing vs. Proposed	rating	O	O	+	+	
COMMUNITY IMPACTS						
National Register of Historic Places Impacted	#	0	0	0	0	
Important Community Resources - Displacement of Structures	#	1 - Regional Sewer Line Structure	2 - Regional Sewer Line Structures	0	0	
Important Community Resources - Property Acquisition	acres	Prairie Assembly of God - 0.5 acres	Prairie Assembly of God - 0.5 acres	Prairie Grove Baptist - 0.4 acres	Prairie Grove Baptist - 0.4 acres	
Potential Impacts to Low Income or Minority Populations (EJ)	rating	-	-	O	O	
Potential for Noise Walls	Yes/No	Yes - Fairway Meadows	Yes - Fairway Meadows	No	No	
DISPLACEMENT IMPACTS						
Residential Impacts (Displacement of Dwelling Units)	#	2	4	2	2	
Total Number of Structures Acquired	#	5	12	18	16	
Business Operation Impacts (Displacement of at Least One Structure)	#	1	4	10	10	
Total Number of Tax Map Parcels Affected	#	91	101	56	58	
ENGINEERING ISSUES						
Comply with MoDOT Access Management Criteria	rating	-	O	O	O	
Construction Staging	rating	O	+	O	O	
Traffic Operations	rating	O	O	O	O	
Maintenance of Traffic	rating	O	+	O	O	
Phased Implementation of Full Build	rating	N/A	N/A	N/A	N/A	
Project Costs						
New Construction Cost	2005 Dollars	\$43,383,000	\$40,048,000	\$42,854,000	\$47,096,000	
Right of Way Cost, including displacements	2005 Dollars	\$3,793,000	\$8,273,000	\$9,392,000	\$3,912,000	
Maintain Existing Travel Patterns	rating	O	O	O	O	
Ability to Accommodate Future Expansion	rating	-	O	O	-	
COMPATIBILITY WITH CATSO PRIORITIES						
Conformance with Adopted Local Plans	rating	O	O	O	O	
Impact on Local Street System	rating	O	O	O	O	
Impact on Land Use Patterns	rating	+	-	+	-	
Impact on Neighborhood Stability	rating	O	O	O	O	
		Recommended Preferred Alternative		Recommended Preferred Alternative		

RATING SYSTEM	
Positive Impact/Performs Better than other Alternatives	+
Neutral Impact/No Differentiator	O
Negative Impact/Performs Poorer than other Alternatives	-

