Federal Aid Project Number HPP-0268(2)
Arkansas Highway and Transportation Department Project Number 080157

River Valley Intermodal Facilities
Pope County, Arkansas
Final Environmental Impact Statement

Submitted pursuant to: 42 U.S.C. 4332(2)(c)
49 U.S.C. 303
23 U.S.C. 138

by the
U.S. Department of Transportation – Federal Highway Administration
and the
Arkansas Highway and Transportation Department

2-25-13
Date

Roy Reaves
Chairman, River Valley Intermodal Facility Authority

3-14-13
Date

Scott A. Bennett
Arkansas Highway and Transportation Department

3-18-13
Date

Federal Highway Administration

The following persons may be contacted for additional information concerning this document:

Randal J. Looney
Environmental Specialist
700 West Capitol Avenue, Room 3130
Little Rock, Arkansas 72201-3298
(501)324-6430

Roy Reaves
Chairman, River Valley Intermodal Facility Authority
708 West Main Street
Russellville, Arkansas 72801
(479)858-6555

This is a project to construct an intermodal facility in Pope County, Arkansas. The River Valley Intermodal Facility Authority seeks to establish intermodal facilities to promote economic development, transportation capacity/competitiveness, and job creation in the Arkansas River Valley.

Table of Contents

1.0 INTRODUCTION 1
1.1 INTRODUCTION 1
1.2 PROJECT BACKGROUND AND SCOPE 2
1.2.1 Background 2
1.2.2 Previous Studies 2
1.2.3 Court Decision and Implications for the Lead and Cooperating Agencies 3
1.2.3.1 Summary of Plaintiff's Concerns Raised in Court Case "City of Dardanelle vs. U.S. Corps of Engineers" 3
1.2.3.2 Addressing Plaintiff's Concerns Raised in Court Case "City of Dardanelle vs. U.S. Corps of Engineers" 4
1.2.4 DEIS 5
1.2.5 SDEIS 5
1.2.6 SDEIS SUMMARY AND ORGANIZATION 6
1.2.7 FEIS SUMMARY AND ORGANIZATION 7
2.0 PURPOSE AND NEED 9
2.1 INTRODUCTION 9
2.2 PROPOSED ACTION 9
2.2.1 Proposed Action 9
2.2.2 Proposed Action Components 9
2.3 PURPOSE OF THE PROPOSED ACTION 11
2.3.1 Economic Development via New Jobs and Higher Wages 11
2.3.2 Improved Transportation Capacity and Competitiveness 12
2.3.2.1 Advantages of Trucks 13
2.3.2.2 Advantages of Rail 14
2.3.2.3 Advantages of Water Transportation 14
2.3.2.4 Advantages of Intermodal Facilities 16
2.3.3 Efficient Modal Transfers 21
2.4 NEED FOR THE PROPOSED ACTION 21
2.4.1 Determining the Need 21
2.4.1.1 Study to Improve Freight Transportation in Arkansas 21
2.4.1.2 Industry Experts, Port Operators, and Economic Development Professional Interviews 22
2.4.2 Need for the RVIF 22
2.4.2.1 Need for More Slackwater Harbors in the State of Arkansas 22
2.4.2.2 Need for an Integrated Regional Economy 24
2.4.2.3 Need to Promote Social and Economic Growth by Creating Higher Wage Jobs 25
2.4.2.4 Need for Large Industrial Sites with Access to Multimodal Transportation 30
2.4.2.5 Need for Additional Freight Capacity 30
2.4.3 Summary of Needs for RVIF 32
2.5 BENEFITS OF THE PROPOSED ACTION 32
3.0 ALTERNATIVES 33
3.1 DEVELOPMENT OF ALTERNATIVES – INTRODUCTION 33
3.2 ALTERNATIVES ANALYSIS STUDY 35
3.2.1 Alternative Screening Criteria 35
3.2.2 Other Alternative Analysis Considerations 37
3.2.3 Analysis of Potential Alternatives 38

3.3 SUPPLEMENTAL DATA USED IN THE ALTERNATIVE ANALYSIS DECISION-MAKING PROCESS 39
3.4 SUMMARY OF FINDINGS OF THE ALTERNATIVES ANALYSIS STUDY 42
3.5 Preferred Alternative - Green Alternative 47
3.6 No Action Alternative 51
3.7 Other Alternatives Evaluated in Detail in the SDEIS 51
3.7.1 North Dardanelle (Red) Alternative 51
3.7.2 Bend (Purple) Alternative 52
3.8 Alternatives Considered but Eliminated from Detailed Analysis in the DEIS and sdeis. 52
3.8.1 Pittsburgh Road (Yellow) Alternative 52
3.8.2 Keener Cove (Blue) Alternative 53
3.8.3 New Hope (Pink) Alternative 54
3.8.4 Atkins Bottoms (Orange) Alternative 55
3.8.5 Blackwell Bottoms (Black) Alternative 55
3.8.6 Morrilton (Brown) Alternative 56
4.0 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES 57
4.1 INTRODUCTION 57
4.1.1 Affected Environment 57
4.1.2 Environmental Consequences 58
4.1.2.1 Direct vs. Indirect Impacts 60
4.1.2.2 Significance 61
4.1.3 Cumulative Impacts 62
4.1.3.1 Definitions Used in Cumulative Analysis 62
4.1.3.2 Cumulative Impact Geographic Area of Analysis 62
4.1.3.3 Past and Present, and Reasonably Foreseeable Future Actions 63
4.2 LAND USE AND INFRASTRUCTURE 63
4.2.1 Affected Environment 63
4.2.2 Consequences 63
4.2.2.1 Potential Land Use and Infrastructure Consequences of the No Action Alternative 63
4.2.2.2 Potential Land Use and Infrastructure Consequences of the Green (Preferred) Alternative 63
4.2.2.2.1 Direct Impacts 63
4.2.2.2.2 Indirect Impacts 64
4.2.2.2.3 Cumulative Impacts 65
4.2.2.2.4 Mitigation 67
4.2.2.3 Potential Land Use and Infrastructure Consequences of the Red Alternative 69
4.2.2.4 Potential Land Use and Infrastructure Consequences of the Purple Alternative 69
4.3 FARMLAND, SOILS, AND PHYSICAL ENVIRONMENT 70
4.3.1 Affected Environment 70
4.3.2 Consequences 70
4.3.2.1 Potential Farmland, Soils, and Physical Environment Consequences of the No Action Alternative 70
4.3.2.2 Potential Farmland, Soils, and Physical Environment Consequences of the Green (Preferred) Alternative 70
4.3.2.2.1 Direct Impacts 70
4.3.2.2.2 Indirect Impacts 72
4.3.2.2.3 Cumulative Impacts 73

4.3.2.2.4 Mitigation 74
4.3.2.3 Potential Farmland, Soils, and Physical Environment Consequences of the Red Alternative 75
4.3.2.4 Potential Farmland, Soils, and Physical Environment Consequences of the Purple Alternative 76
4.4 SOCIAL ENVIRONMENT 76
4.4.1 Affected Environment 76
4.4.2 Consequences 76
4.4.2.1 Potential Social Consequences of the No Action Alternative 76
4.4.2.2 Potential Social Consequences of the Green (Preferred) Alternative 76
4.4.2.2.1 Direct Impacts 76
4.4.2.2.2 Indirect Impacts 77
4.4.2.2.3 Cumulative Impacts 78
4.4.2.2.4 Mitigation 80
4.4.2.3 Potential Social Consequences of the Red Alternative 80
4.4.2.4 Potential Social Consequences of the Purple Alternative 81
4.5 RELOCATION 81
4.5.1 Affected Environment 81
4.5.2 Consequences 81
4.5.2.1 Potential Relocation Consequences of the No Action Alternative 81
4.5.2.2 Potential Relocation Consequences of the Green (Preferred) Alternative 81
4.5.2.2.1 Direct Impacts 81
4.5.2.2.2 Indirect Impacts 82
4.5.2.2.3 Cumulative Impacts 82
4.5.2.2.4 Mitigation 83
4.5.2.3 Potential Relocation Consequences of the Red Alternative 83
4.5.2.4 Potential Relocation Consequences of the Purple Alternative 84
4.6 ECONOMIC 84
4.6.1 Affected Environment 84
4.6.2 Consequences 84
4.6.2.1 Potential Economic Consequences of the No Action Alternative 84
4.6.2.2 Potential Economic Consequences of the Green (Preferred) Alternative 85
4.6.2.2.1 Direct Impacts 85
4.6.2.2.2 Indirect Impacts 87
4.6.2.2.3 Cumulative Impacts 89
4.6.2.2.4 Mitigation 91
4.6.2.3 Potential Economic Consequences of the Red Alternative 91
4.6.2.4 Potential Economic Consequences of the Purple Alternative 92
4.7 PEDESTRIAN and BICYCLIST CONSIDERATIONS 92
4.7.1 Affected Environment 92
4.8 AIR QUALITY 92
4.8.1 Affected Environment 92
4.8.2 Consequences 93
4.8.2.1 Potential Air Quality Consequences of the No Action Alternative 93
4.8.2.2 Potential Air Quality Consequences of the Green (Preferred) Alternative 93
4.8.2.2.1 Direct Impacts 93
4.8.2.2.2 Indirect Impacts 94
4.8.2.2.3 Cumulative Impacts 94
4.8.2.2.4 Mitigation 96
4.8.2.3 Potential Air Quality Consequences of the Red Alternative 97
4.8.2.4 Potential Air Quality Consequences of the Purple Alternative 97

4.9 NOISE 98
4.9.1 Affected Environment 98
4.9.2 Consequences 98
4.9.2.1 Potential Noise Consequences of the No Action Alternative 98
4.9.2.2 Potential Noise Consequences of the Green (Preferred) Alternative 98
4.9.2.2.1 Direct Impacts 98
4.9.2.2.2 Indirect Impacts 98
4.9.2.2.3 Cumulative Impacts 98
4.9.2.2.4 Mitigation 99
4.9.2.3 Potential Noise Consequences of the Red Alternative 101
4.9.2.4 Potential Noise Consequences of the Purple Alternative 101
4.10 WATER QUALITY 101
4.10.1 Affected Environment 101
4.10.2 Consequences 101
4.10.2.1 Potential Water Quality Consequences of the No Action Alternative 101
4.10.2.2 Potential Water Quality Consequences of the Green (Preferred) Alternative 101
4.10.2.2.1 Direct Impacts 102
4.10.2.2.2 Indirect Impacts 103
4.10.2.2.3 Cumulative Impacts 105
4.10.2.2.4 Mitigation 107
4.10.2.3 Potential Water Quality Consequences of the Red Alternative 108
4.10.2.4 Potential Water Quality Consequences of the Purple Alternative 109
4.11 WETLANDS 109
4.11.1 Affected Environment 109
4.11.2 Consequences 109
4.11.2.1 Potential Wetlands Consequences of the No Action Alternative 109
4.11.2.2 Potential Wetland Consequences of the Green (Preferred) Alternative 110
4.11.2.2.1 Direct Impacts 110
4.11.2.2.2 Indirect Impacts 111
4.11.2.2.3 Cumulative Impacts 111
4.11.2.2.4 Mitigation 112
4.11.2.3 Potential Wetland Consequences of the Red Alternative 114
4.11.2.4 Potential Wetland Consequences of the Purple Alternative 115
4.12 WATER BODY MODIFICATION, WILDLIFE, AND VEGETATION 115
4.12.1 Affected Environment 115
4.12.2 Consequences 115
4.12.2.1 Potential Water Body, Wildlife, and Vegetation Consequences of the No Action Alternative 115
4.12.2.2 Potential Consequences of the Green (Preferred) Alternative on Water Bodies, Wildlife, and Vegetation 115
4.12.2.2.1 Direct Impacts 115
4.12.2.2.2 Indirect Impacts 116
4.12.2.2.3 Cumulative Impacts 117
4.12.2.2.4 Mitigation 119
4.12.2.3 Potential Consequences of the Red Alternative on Water Bodies, Wildlife, and Vegetation 120
4.12.2.4 Potential Consequences of the Purple Alternative on Water Bodies, Wildlife, and Vegetation 121
4.13 FLOODPLAINS 121
4.13.1 Affected Environment 121

4.13.2 Consequences 122
4.13.2.1 Potential Consequences of the No Action Alternative to Floodplains 122
4.13.2.2 Potential Consequences of the Green (Preferred) Alternative to Floodplains 122
4.13.2.2.1 Direct Impacts 122
4.13.2.2.2 Indirect Impacts 123
4.13.2.2.3 Cumulative Impacts 123
4.13.2.2.4 Mitigation 123
4.13.2.3 Potential Consequences of the Red Alternative to Floodplains 123
4.13.2.4 Potential Consequences of the Purple Alternative on Floodplains 124
4.14 COMMERCIAL NAVIGATION 124
4.14.1 Affected Environment 124
4.14.2 Consequences 124
4.14.2.1 Potential Consequences of the No Action Alternative on Navigation 124
4.14.2.2 Potential Consequences of the Green (Preferred) Alternative on Navigation 125
4.14.2.2.1 Direct Impacts 125
4.14.2.2.2 Indirect Impacts 125
4.14.2.2.3 Cumulative Impacts 125
4.14.2.2.4 Mitigation 127
4.14.2.3 Potential Consequences of the Red Alternative on Navigation 127
4.14.2.4 Potential Consequences of the Purple Alternative on Navigation 127
4.15 THREATENED and ENDANGERED SPECIES 128
4.15.1 Affected Environment 128
4.15.2 Consequences 128
4.15.2.1 Potential Consequences of the No Action Alternative on Threatened and Endangered Species 128
4.15.2.2 Potential Consequences of the Green (Preferred) Alternative on Threatened and Endangered Species 128
4.15.2.2.1 Direct Impacts 128
4.15.2.2.2 Indirect Impacts 128
4.15.2.2.3 Cumulative Impacts 129
4.15.2.2.4 Mitigation 129
4.15.2.3 Potential Consequences of the Red Alternative on Threatened and Endangered Species 130
4.15.2.4 Potential Consequences of the Purple Alternative on Threatened and Endangered Species 130
4.16 CULTURAL RESOURCES 130
4.16.1 Affected Environment 131
4.16.1.1 Archaeological Resources 132
4.16.1.2 Architectural Resources 135
4.16.1.3 Native American Resources 136
4.16.2 Consequences 137
4.16.2.1 Potential Consequences of the No Action Alternative on Cultural Resources 138
4.16.2.1.1 Direct Impacts 138
4.16.2.1.2 Indirect Impacts 138
4.16.2.1.3 Cumulative Impacts 138
4.16.2.1.4 Mitigation 140
4.16.2.2 Potential Consequences of the Green (Preferred) Alternative on Cultural Resources 140

4.16.2.2.1 Direct Impacts....140
4.16.2.2.2 Indirect Impacts....141
4.16.2.2.3 Cumulative Impacts....142
4.16.2.2.4 Mitigation....143
4.16.2.3 Potential Consequences of the Red Alternative on Cultural Resources....144
4.16.2.3.1 Direct Impacts....144
4.16.2.3.2 Indirect Impacts....145
4.16.2.3.3 Cumulative Impacts....145
4.16.2.3.4 Mitigation....146
4.16.2.4 Potential Consequences of the Purple Alternative on Cultural Resources 146
4.16.2.4.1 Direct Impacts....146
4.16.2.4.2 Indirect Impacts....146
4.16.2.4.3 Cumulative Impacts....147
4.16.2.4.4 Mitigation....147
4.17 HAZARDOUS WASTE SITES....147
4.17.1 Affected Environment....147
4.17.2 Consequences....147
4.17.2.1 Potential Consequences of the No Action Alternative on Hazardous Waste Sites....147
4.17.2.2 Potential Consequences of the Green (Preferred) Alternative on Hazardous Waste Sites....148
4.17.2.2.1 Direct Impacts....148
4.17.2.2.2 Indirect Impacts....148
4.17.2.2.3 Cumulative Impacts....148
4.17.2.2.4 Mitigation....150
4.17.2.3 Potential Consequences of the Red Alternative on Hazardous Waste Sites....151
4.17.2.4 Potential Consequences of the Purple Alternative on Hazardous Waste Sites....151
4.18 VISUAL IMPACTS....151
4.18.1 Affected Environment....151
4.18.2 Consequences....151
4.18.2.1 Potential Visual Impact Consequences of the No Action Alternative....151
4.18.2.2 Potential Visual Impact Consequences of the Green (Preferred) Alternative....152
4.18.2.2.1 Direct Impacts....152
4.18.2.2.2 Indirect Impacts....152
4.18.2.2.3 Cumulative Impacts....152
4.18.2.2.4 Mitigation....153
4.18.2.3 Potential Visual Impact Consequences of the Red Alternative....154
4.18.2.4 Potential Visual Impact Consequences of the Purple Alternative....154
4.19 Summary of environmental impacts....155
5.0 CUMULATIVE IMPACT SUMMARY....163
5.1 INTRODUCTION....163
5.2 SUMMARY OF CUMULATIVE IMPACTS....163
5.2.1 Arkansas River Navigation Project....164
5.2.1.1 No Action Alternative....164
5.2.1.2 Green (Preferred) Alternative....164
5.2.1.3 Red Alternative....164
5.2.1.4 Purple Alternative....164
5.2.2 Industrial Development in the Arkansas River Bottoms Near Russellville....165

5.2.2.1 No Action Alternative 165
5.2.2.2 Green (Preferred) Alternative 165
5.2.2.3 Red Alternative 165
5.2.2.4 Purple Alternative 165
5.2.3 Expansion of Soil and Gravel Excavation and Removal 166
5.2.3.1 No Action Alternative 166
5.2.3.2 Green (Preferred) Alternative 166
5.2.3.3 Red Alternative 166
5.2.3.4 Purple Alternative 166
5.2.4 Continuation of Agricultural Land Use 167
5.2.4.1 No Action Alternative 167
5.2.4.2 Green (Preferred) Alternative 167
5.2.4.3 Red Alternative 167
5.2.4.4 Purple Alternative 167
5.2.5 Increase Existing Arkansas River Commerce 167
5.2.5.1 No Action Alternative 167
5.2.5.2 Green (Preferred) Alternative 168
5.2.5.3 Red Alternative 168
5.2.5.4 Purple Alternative 168
5.2.6 Summary 168
6.0 MITIGATION SUMMARY 177
6.1 INTRODUCTION 177
6.2 MITIGATION SUMMARY OF THE NO ACTION ALTERNATIVE 177
6.3 MITIGATION SUMMARY OF THE GREEN (PREFERRED) ALTERNATIVE 177
6.3.1 Land Use and Infrastructure 177
6.3.2 Farmland 178
6.3.3 Social Environment 178
6.3.4 Relocation 178
6.3.5 Economic 178
6.3.6 Pedestrian and Bicyclist Consideration 178
6.3.7 Air Quality 179
6.3.8 Noise 179
6.3.9 Water Quality 179
6.3.10 Wetlands 180
6.3.11 Water Body Modification, Wildlife, and Vegetation 182
6.3.12 Floodplains 182
6.3.13 Commercial Navigation 182
6.3.14 Threatened and Endangered Species 182
6.3.15 Cultural Resources 182
6.3.16 Hazardous Waste Sites 183
6.3.17 Visual Impacts 183
6.4 MITIGATION SUMMARY OF THE RED AND PURPLE ALTERNATIVES 183
7.0 REQUIRED PERMITS 185
8.0 RELATION OF SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY 187
9.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 189
10.0 CONSTRUCTION IMPACTS 191
11.0 ACRONYMS 193
12.0 REFERENCES 197
13.0 PREPARERS 203

APPENDICES

Appendix A SDEIS Public Hearing Summary and Response to Comments Received During the Formal SDEIS Public Review Period
Appendix B U.S. Army Corps of Engineers, Little Rock District, River Valley Intermodal Facilities, Floodplain Analysis Report
Appendix C Cultural Resources Programmatic Agreement and Work Plan

LIST OF TABLES

Table 2.1. Freight Shipments To, From, and Within Arkansas: 1998, 2010 and 2020 13
Table 2.2. Top Five Commodities Shipped To, From, and Within Arkansas by All Modes: 1998 and 2020 13
Table 2.3. Standard Modal Freight Unit Capacities 16
Table 2.4. Summary of Emissions – Grams per Ton-Mile 19
Table 2.5. Fatality and Injury Statistics by Mode 20
Table 2.6. Comparison of Large Spills Across Modes 20
Table 2.7. Arkansas River Valley: Population and Percent Change for Six County Region and State, 1990-2008.....27
Table 2.8. Arkansas River Valley: Population and Percent Change for Most Populated Place in Each County, 1990-2008 27
Table 2.9. Arkansas River Valley: Employment Measures, 2010 28
Table 2.10. Arkansas River Valley: Average Weekly Earnings, 2010 29
Table 2.11. Arkansas River Valley: Annual Unemployment, 2011 (Not Seasonally Adjusted) ..29
Table 3.1. Screening Criteria Utilized to Identify Reasonable Alternatives to be Considered in the Arkansas River Valley Environmental Impact Statement. 36
Table 3.2. Summary of Alternatives Analysis for Potential Build Alternatives of the River Valley Intermodal Facilities.....45
Table 4.1. Wetland Impacts from the Green (Preferred) and Red Alternatives for the River Valley Intermodal Facilities EIS*.....110
Table 4.2. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives 156
Table 5.1. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives. 169

LIST OF FIGURES

Figure 2.1. U.S. Inland River System 15
Figure 2.2. Arkansas Commercially Navigable Waterways, Public Ports and Harbors 16
Figure 2.3. Comparison of Cargo Capacity 17
Figure 2.4. Comparison of Fuel Efficiency.....18
Figure 2.5. Comparison of Emissions.....19

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Final Environmental Impact Statement (FEIS) for the River Valley Intermodal Facilities (RVIF) in the Arkansas River Valley (ARV) has been written in accordance with the National Environmental Policy Act of 1969 (NEPA). The purpose of this FEIS is to announce the selection of a preferred alternative and to summarize the comments on the Supplemental Draft Environmental Impact Statement (SDEIS) provided during the comment period. The FEIS will also present new and updated information with regard to the proposed project and environment that have occurred since the October 2010 SDEIS public review. By preparing this FEIS, the Federal Highway Administration (FHWA) and the River Valley Regional Intermodal Facilities Authority (Authority) are providing the public, as well as state and federal review agencies, the opportunity to review and comment on the preferred alternative and the new information provided in this FEIS, in particular the Phase II Archaeology summary.

This FEIS (also found online at www.rivervalleyintermodal.org) contains: a summary of the NEPA process to date; a description of the preferred alternative and summary of other alternatives considered; revisions since the completion of the SDEIS, especially related to Phase II testing of cultural resources; a summary of the comments received on the SDEIS; and a copy of the Cultural Resources Programmatic Agreement.

The City of Russellville and Pope County established a multi-jurisdictional intermodal facilities authority in Arkansas pursuant to the authority of the Intermodal Authority Act, Act 690 of 1997. The purpose of the River Valley Regional Intermodal Facilities Authority (Authority) was to promote economic development and job creation in a six county region (i.e., Conway, Johnson, Logan, Perry, Pope, and Yell Counties) within the ARV by constructing and operating a multi-modal transportation complex in the ARV. The proposed intermodal facilities complex would provide three modes of transportation: water (commercial navigation via a slackwater harbor connected to the Arkansas River), highway (via connection to the interstate highway system), and rail (via connection to the national railroad grid). Additional services at the intermodal facilities would include on-site rail/truck transfers, truck/water transfers, rail/water transfers, freight tracking, a foreign trade sub-zone, warehousing, distribution, consolidation, just-in-time inventory services, and material storage capabilities.

ES.2 PURPOSE AND NEED OF THE PROPOSED ACTION

The purpose of the proposed action is to establish collocated intermodal facilities in the ARV. Establishing intermodal facilities would promote economic development by creating new jobs, specifically higher wage jobs, improve transportation capacity and competitiveness necessary for attracting new businesses and industries to the area, and enhance modal interrelationships by providing more shipping capabilities and capacity.

The RVIF is supported by local, statewide, and nationwide land use, economic, and growth objectives. Within these objectives, specific needs for the RVIF have been

identified. These needs include more slackwater harbors in the State of Arkansas, an integrated regional economy; promotion of social and economic growth by creating higher wage jobs in the ARV region; larger industrial sites with access to multimodal transportation, and additional freight capacity through large-scale freight projects.

ES.3 PROJECT AREA AND ALTERNATIVE ANALYSIS PROCESS

The RVIF would be located within an area with suitable access to a slackwater harbor, the national railroad grid, and the interstate highway system. For purposes of the alternatives analysis, the geographic limits of the proposed project area within the six-county ARV region extend from Highway 109, located just west of Clarksville, to Highway 9 near Morrilton.

A full range of potential project alternatives, including a No Action Alternative, was considered during the development of the River Valley Intermodal Facilities DEIS. Objective screening criteria were developed cooperatively with input from FHWA, United States Army Corps of Engineers (USACE), the Authority, Arkansas State Highway and Transportation Department (AHTD), and the public to help identify potential reasonable alternative locations for the project. Since that time, the screening criteria have been further refined based on additional information gathered for all of the potential sites being considered and due to additional comments from various agencies and the public following the review of the DEIS.

The screening criteria were established to facilitate the selection of an alternative or alternatives for detailed evaluation that would meet the purpose and need of the project, could be constructed in a cost effective manner, and would minimize adverse impacts to human, environmental, and cultural resources.

A total of nine potential build alternative locations for placement of the intermodal facilities were identified within the geographic limits of the six-county ARV region during January through April 2005. No additional sites were identified during the agency scoping meeting. One of the nine sites was identified following public comments received at a March 15, 2005 Public Informational Meeting associated with the DEIS.

After employing the screening criteria, six build alternatives were eliminated from further consideration, and three build alternatives were chosen to be evaluated. The three alternatives chosen to be further evaluated are the Russellville Bottoms (Green) Alternative, North Dardanelle (Red) Alternative, and Bend (Purple) Alternative. These alternatives meet the screening criteria and are considered reasonable alternatives for project implementation. These alternatives and the No Action Alternative will be carried forward and fully evaluated in the EIS.

A preferred alternative was not identified as part of the DEIS or SDEIS, but the Russellville Bottoms or Green Alternative has been selected as the preferred alternative in this FEIS. The preferred alternative was selected after analysis of impacts had been conducted for all reasonable Build Alternatives and the No-Action Alternative discussed in the DEIS and SDEIS. Detailed mitigation measures for the proposed action will be developed primarily during the permitting stage of this project. The Authority will work

directly with the regulatory agencies responsible for the various resources that would be impacted by the intermodal facilities.

ES.4 SUMMARY OF DIRECT AND INDIRECT IMPACTS

Direct and indirect impacts associated with implementing any of the four alternatives (no action and three build alternatives) are associated with the following changes to the baseline conditions: socio-economic changes as a result of the action; commercial, industrial, and infrastructure development; land-based construction activities; water-based construction activities; and increased truck, rail, and river commerce in the region.

At the end of Section ES.4 of the Executive Summary, a table summarizing the direct impacts of the No Action, Green (Preferred), Red, and Purple Alternatives has been provided (see Table ES.1). The following development elements are required to support general purpose intermodal facilities: transportation facilities including the slackwater harbor, rail, and highway access; material handling equipment; support facilities; industrial/distribution facilities; and utility infrastructure. The build-out of these elements would contribute to the following impacts, discussed below for each alternative.

ES.4.1 Socio-Economic Changes

The results of promoting economic development through development of intermodal facilities include the growth of existing businesses and the establishment of new businesses in the ARV.

ES.4.1.1 No Action Alternative

There could be long-term adverse social and economic impacts. The existing substandard economic conditions of the project area would continue. Lack of development of the area as a potential employment center could contribute to stagnant population growth in the region. No additional employment, personal income, or tax revenues would be realized under this alternative.

ES.4.1.2 Green (Preferred) Alternative

There would be both direct short-term adverse and long-term beneficial social impacts. The proposed development would enhance economic functionality and viability of the project area and foster interaction between the project area and the local and regional communities in the form of new transportation and employment opportunities. Short-term beneficial impacts would be realized by employment associated with the construction of the intermodal facilities. Long-term beneficial impacts would be realized by the operation of the intermodal facilities. Additional long-term economic benefits would be realized from increased real property taxes and other tax revenues resulting from development of the intermodal facilities. Because the land would be owned and leased by the Authority, tax revenues would only be generated by private improvements within the project area. Short-term adverse economic impacts would be realized with

the loss of tax revenue-producing real property and subsequent removal from the tax rolls because of acquisition by a public entity.

Long-term beneficial social impacts could include additional population growth attributable to direct and indirect employment and other opportunities afforded by the intermodal facilities. Development of the project area would result in long-term beneficial impacts in the provision of public services.

Relocations are discussed in Section 4.5. It is not anticipated that the Green (Preferred) Alternative would have a disproportionate impact on minorities, elderly populations, or low-income populations.

Substantial long-term beneficial impacts to commercial navigation would be incurred.

ES.4.1.3 Red Alternative

Direct short-term and long-term social impacts would be similar to those under the Green (Preferred) Alternative. The direct economic impacts would be similar to those under the Green (Preferred) Alternative.

Direct impacts on commercial navigation would be similar to those under the Green (Preferred) Alternative.

ES.4.1.4 Purple Alternative

Direct short-term and long-term social impacts would be similar to those under the Green (Preferred) Alternative. The direct economic impacts would be similar to those under the Green (Preferred) Alternative; however, the Purple Alternative would not provide the immediate benefits that the Green (Preferred) and Red Alternatives would, primarily because the site is located distant from existing potential businesses and facilities users.

This alternative has the potential to adversely affect some recreational opportunities on Lake Dardanelle, such as boating and fishing, due primarily to the conversion of the embayment into a slackwater harbor.

Direct impacts on commercial navigation would be similar to those under the Green (Preferred) Alternative.

ES.4.2 Commercial, Industrial, and Infrastructure Development

ES.4.2.1 No Action Alternative

The predominance of floodplain and lack of infrastructure within the Green (Preferred) and Red Alternative project areas poses limitations to future development. The Purple Alternative project area would continue its current land use conditions, with the potential for additional poultry operations likely.

ES.4.2.2 Green (Preferred) Alternative

Direct land use impacts would consist of the conversion of primarily low-density residential and agricultural land (approximately 615 acres of land removed from agricultural production) to industrial and commercial uses. There would be six residential relocations. Direct beneficial impacts to infrastructure would result as utilities, roadways, and railroads would be extended into the Green (Preferred) Alternative project area.

Direct long-term adverse impacts to wildlife would occur due to the conversion of old field, grassland, forest, wetlands, and cropland habitats to industrial and commercial uses.

A long-term potential for short duration impacts exists due to direct releases of hazardous materials from barges, trains, trucks, and other operating equipment used in the intermodal facilities.

Regardless of the alternative chosen, the intermodal facilities would reduce the visual quality of the project area in terms of loss of undeveloped habitats (e.g., cropland, old fields, forests, etc.) and the modification of wetlands. Under the Green (Preferred) Alternative, the view from Dardanelle will be preserved as the riparian forest along the river will remain, resulting in substantially less visual impact in terms of loss of forested areas.

Direct impacts to floodplains and wetlands would be minimally reduced, when compared to the Red Alternative.

ES.4.2.3 Red Alternative

Direct impacts to land use and infrastructure would be similar to those under the Green (Preferred) Alternative. Approximately 460 acres would be removed from agricultural production. Eight residences and one business would be displaced.

Direct impacts to hazardous waste sites would be similar to those under the Green (Preferred) Alternative.

Direct impacts to visual aesthetics would be similar to those listed for the Green (Preferred) Alternative. However, under the Red Alternative, the view from Dardanelle will be viewed as a negative impact by some people due to the removal of the riparian forest and the creation of a grass levee to protect the facilities.

ES.4.2.4 Purple Alternative

Direct impacts to land use and infrastructure would be similar to those under the Green (Preferred) Alternative. Approximately 533 acres of land would be removed from agricultural production. Approximately 69 acres of forested land would be removed. In addition, 15 residences would be displaced.

Direct impacts to visual aesthetics would be similar to those listed for the Green (Preferred) Alternative. Additionally, where the intermodal facilities will be in the viewshed of existing residences, or residences now shielded by trees, shrubs, and/or

distance, there will be an adverse visual impact due to the nearness of the facilities, the effects of traffic, and the loss of trees and shrubs.

ES.4.3 Land-based Construction

Land-based construction would consist of: build-out of the physical infrastructure described in the previous section and a levee system to protect the intermodal facilities from overflow or backwater flooding. It is assumed that all the land within the levee would be altered as the intermodal facilities develop. A levee would not be required for the Purple Alternative.

ES.4.3.1 No Action Alternative

Under the No Action Alternative, there would be no impacts from land-based construction activities, because no construction would occur.

ES.4.3.2 Green (Preferred) Alternative

Minor, long-term adverse impacts to farmland, soils, and the physical environment of the proposed project area would occur, because extensive earth moving activities would be required.

Because much of the project area is actively farmed, direct mortality to wildlife is expected to be minor during the construction phase of the project, because the cropland is not used extensively by many species.

Impacts to riparian forests and wetlands would be substantially less under the Green (Preferred) Alternative than under the Red Alternative, and high quality wetlands and riparian forests located near the confluence of the tributary to Whig Creek and Whig Creek would not be affected.

The proposed River Valley Intermodal Facilities would increase 100-year floodplain water surface elevations by a maximum of 0.09 feet, which is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management. A direct loss of approximately 886 acres of the 100-year floodplain will result from the construction of the intermodal facilities.

Short-term direct impacts to air quality would occur during construction due to operation of construction vehicles and dust created.

ES.4.3.3 Red Alternative

Direct impacts to farmland, soils, and the physical environment as a result of earth moving activities would be similar to those under the Green (Preferred) Alternative.

The type of direct impacts to water bodies, wildlife, and vegetation would be similar to those under the Green (Preferred) Alternative. However, impacts to riparian forests and wetlands would be substantially more under the Red Alternative than under the Green (Preferred) Alternative, and high quality wetlands and riparian forests located near the confluence of the tributary to Whig Creek and Whig Creek would be affected.

The proposed River Valley Intermodal Facilities would increase 100-year floodplain water surface elevations by a maximum of 0.12 feet, which is consistent with EO 11988

and satisfies the requirements of FEMA for good floodplain management. A direct loss of 797 acres of the 100-year floodplain will result from the construction of the intermodal facilities.

ES.4.3.4 Purple Alternative

Minor, long-term adverse impacts to topography and soils of the proposed project area would occur as some earth moving activities would be required. Due to the steep slopes in the area, moderate short-term and long-term adverse impacts to soils are expected. Soil movement would be required for the construction of various buildings, roads, and other infrastructure. Approximately 470 acres of the 700-acre site have slopes greater than or equal to five percent, requiring significant site preparation, grading, and maintenance of the steep slopes (NRCS, 2010), and therefore, the Purple Alternative would be the most difficult build alternative to develop.

The Purple Alternative is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management. A floodplain analysis and HEC-RAS model were not performed for the Purple Alternative based on direction from the USACE, Little Rock District. This is primarily due to its location on higher elevations around Lake Dardanelle and a minimal amount of floodplain that would be potentially impacted. The affected floodplains are within the flowage easement of Lake Dardanelle.

ES.4.4 Water-based Construction

Water-based construction would consist of building a slackwater harbor to provide access from the site to the Arkansas River via barge.

ES.4.4.1 No Action

Under the No Action Alternative, there would be no impacts from water-based construction activities, because no construction would occur.

ES.4.4.2 Green (Preferred) Alternative

The Green (Preferred) Alternative directly borders the Arkansas River along approximately 4,500 linear feet of riverbank. It directly borders Whig Creek along 2,800 linear feet of streambank. Other than the cut for the slackwater harbor, the forested riparian buffer along the east side of the Arkansas River would not be altered, if the Green (Preferred) Alternative were implemented, whereas the Red Alternative would remove 6,258 linear feet of forested riparian riverbank habitat. The Green (Preferred) Alternative would not remove wetlands that drain directly into Whig Creek.

A total of 17.76 acres of wetlands occur in the Green (Preferred) Alternative. It is likely that unavoidable direct long-term adverse impacts would occur to wetlands during the construction phase of the proposed action. The type of direct impacts to water quality due to the implementation of the Green (Preferred) Alternative would be similar to those under the Red Alternative. However, the potential for water quality impacts to Whig Creek and Flagg Lake and their tributaries would be slightly less due to the project area being located south away from those streams and their associated wetlands. In addition, construction of the levee at the Green (Preferred) Alternative site would be set

back from the bank of the Arkansas River. Therefore, potential water quality impacts to the river would be less than those under the Red Alternative.

Excavation and construction of the slackwater harbor (including construction of a levee) hydrologically connected to the Arkansas River could cause some sediment to be released into the river. In addition, turbidity associated with maintenance dredging could cause potential for short duration impacts to water quality in the slackwater harbor over the long term.

A long-term potential for impacts to water quality could result from small incremental releases or large accidental spills of contaminants into the Arkansas River.

Direct long-term adverse impacts to wildlife would occur due to the permanent loss of old field, grassland, forest, wetlands, and cropland habitats.

Short-term direct impacts to air quality would occur during construction due to operation of construction vehicles and dust created.

ES.4.4.3 Red Alternative

The Red Alternative borders the Arkansas River along approximately 6,260 linear feet of riverbank. It directly borders Whig Creek along approximately 3,309 linear feet of streambank. It is within 135-600 feet of Whig Creek along an additional 3,115 feet of streambank. Minimal, direct, short-term, adverse impacts to Whig Creek could occur as a result of a railroad bridge to be constructed across the creek. Channel modifications required for the tributary to Whig Creek and the tributary to Flagg Lake could reduce water quality in those streams and the water bodies they flow into, such as Whig Creek and Flagg Lake. The forested riparian buffer along the Arkansas River would be impacted if the Red Alternative is implemented. A total of 20.62 acres of wetlands occur in the Red Alternative. It is likely that unavoidable direct long-term adverse impacts would occur to wetlands during the construction phase of the proposed action. Several high quality wetlands that drain directly into Whig Creek would be removed.

The type of direct impacts to water quality due to the implementation of the Red Alternative would be similar to those listed for the Green (Preferred) Alternative. However, the potential for water quality impacts to Whig Creek and Flagg Lake and their tributaries would be slightly more due to the project area being located closer to those streams and their associated wetlands. In addition, construction of the levee at the Red Alternative site would not be set back from the bank of the Arkansas River. Therefore, potential water quality impacts to the river would be more than those under the Green (Preferred) Alternative.

Direct impacts to water bodies, wildlife, and vegetation would be similar to those under the Green (Preferred) Alternative.

ES.4.4.4 Purple Alternative

The Purple Alternative borders the Arkansas River (at Lake Dardanelle) along approximately 4,200 linear feet of riverbank. Although 34.5 acres of riparian forested

buffer would be protected along the north side of the Lake Dardanelle shoreline, approximately 53 acres of riparian forest would be removed just north of the buffer, if the Purple Alternative was implemented. Direct long-term adverse impacts to wildlife would occur due to the permanent loss of pasture and forested habitats.

A wetland fringe was identified along the Lake Dardanelle embayment. It is likely that this area would be considered jurisdictional and would be impacted/removed during construction of the slackwater harbor. The total impact would be less than 4 acres. Construction of a roadway and railroad bridge across the tributaries to the Lake Dardanelle State Fish Hatchery and the embayment east of the Fish Hatchery, Keener Cove, could cause short-term adverse impacts to the creeks.

Direct long-term and short-term adverse impacts to Lake Dardanelle, the embayment, intermittent streams, and several ponds are anticipated with construction of the intermodal facilities. Construction of the harbor and intermodal facilities would cross two intermittent streams and remove a portion of the intermittent stream channel and several ponds. Because these features provide little wildlife habitat, there would be negligible impacts to wildlife.

ES.4.5 Increased Truck, Rail, and River Commerce

The proposed intermodal facilities would result in increased truck, rail, and river commerce because of transportation efficiencies (lower costs), greater flexibility, and competiveness (multiple modes of transportation options at one location).

ES.4.5.1 No Action Alternative

Under the No Action Alternative, there would be a potential for long-term adverse impacts from increased truck, rail, and river commerce, because the ARV region would not benefit from the economic opportunities that intermodal facilities would provide.

ES.4.5.2 Green (Preferred) Alternative

There would be long-term beneficial economic impacts as a result of increased truck, rail, and river commerce.

Short-term direct impacts to air quality would occur during construction due to operation of construction vehicles and dust created. Direct noise impacts would occur due to the increase of barge, truck, and train traffic. Machinery at the intermodal facilities and dredging activities would also increase noise around the site.

Short-term increases in noise levels would occur during construction due to construction vehicles and general noise created during construction. The noise impacts would not be substantial due to the lack of receptors.

Increased disturbance to wildlife along the shoreline of the river and potential increases in streambank erosion due to shifts in river currents around barges and increased usage of the river banks to get to and from barges could result from barge fleeting operations.

ES.4.5.3 Red Alternative

The overall impacts of the Red Alternative as a result of increased truck, rail, and river commerce would be similar to the Green (Preferred) Alternative.

ES.4.5.4 Purple Alternative

The overall impacts of the Purple Alternative as a result of increased truck, rail, and river commerce would be similar to the Green (Preferred) Alternative.

Table ES.1. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Land Use & Infrastructure	Land uses within the proposed project areas would continue without major changes. Without major public or private investment, lack of infrastructure within the project area would continue to pose limitations to future development.	Land use impacts would consist of the conversion of primarily low-density residential and agricultural land to industrial and commercial uses. Beneficial impacts to infrastructure would result as utilities, roadways, and railroads would be extended into the project area to support the intermodal facilities.	Impacts would be similar to those of the Green (Preferred) Alternative.	Impacts would be similar to those of the Green (Preferred) Alternative.
Farmland, Soils, & Physical Environment	No direct impacts to farmland, soils, and physical environment.	Minor, long-term adverse impacts to topography and soils of the proposed project area resulting from earth moving activities. Approximately 615 acres of land would be removed from agricultural production.	Impacts would be similar to those of the Green (Preferred) Alternative. Approximately 155 fewer acres would be removed from agricultural production than under the Green (Preferred) Alternative.	Moderate short-term and long-term adverse impacts to soils resulting from earth moving activities in the proposed project area are expected. Minor short-term adverse impacts would occur as a result of soil disturbance.
Social Environment	There could be long-term adverse social impacts as a result of lack of development.	There would be both short-term adverse (displacements and relocations) and long-term beneficial (population growth and employment) social impacts.	Short-term and long-term social impacts would be similar to those under the Green (Preferred) Alternative.	Short-term and long-term social impacts would be similar to those under the Green (Preferred) Alternative.
Relocation	There would be no relocation impacts.	There would be six residential relocations, one business displacement, and a partial business displacement.	There would be eight residential relocations, one business displacement, one partial business displacement, and one institutional displacement.	There would be fifteen residential relocations.
Economic	The project area would most likely remain under utilized and undeveloped.	Short-term and long-term beneficial (employment, increased tax revenues) and adverse (loss of property tax revenue) economic impacts would occur.	Economic impacts would be similar to those of the Green (Preferred) Alternative.	Economic impacts would be similar to those of the Green (Preferred) Alternative.

Table ES.1. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Pedestrian & Bicyclist Considerations	No impacts would occur to existing pedestrian or bicycle routes.	No new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.	No new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.	No new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.
Air Quality	There would be no impacts to air quality.	Short-term impacts to air quality will occur during construction due to operation of construction vehicles and dust created.	Impacts would be similar to those of the Green (Preferred) Alternative.	Impacts would be similar to those of the Green (Preferred) Alternative.
Noise	There would be no impacts as a result of noise.	Noise impacts will occur due to the increase of barge, truck, and train traffic related to the new facilities. Machinery at the facilities and dredging activities will also increase noise around the site. Short-term increases in noise levels will occur during construction due to construction vehicles and general noise created during construction.	Impacts would be similar to those of the Green (Preferred) Alternative.	Impacts would be similar to those of the Green (Preferred) Alternative.

Table ES.1. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Water Quality	There would be no impacts to water quality.	The potential for water quality impacts to the tributary to Whig Creek, the tributary to Flagg Lake, and Whig Creek would be slightly less than under the Red Alternative. Because the levee at the Green (Preferred) Alternative site would be set back from the bank of the Arkansas River, potential water quality impacts to the river would be less than those under the Red Alternative. A long-term potential impact exists due to the possibility for small incremental releases or large accidental spills of contaminants into the Arkansas River or Whig Creek.	Impacts would be similar to those for the Green (Preferred) Alternative. However, because the Red Alternative area is closer to Whig Creek and contains more of its tributaries, impacts would be slightly greater under the Red Alternative. Short-term adverse impacts to Whig Creek could occur from a railroad bridge required to cross the creek. Water quality could be reduced by potential channel modifications for the tributary to Whig Creek and the tributary to Flagg Lake. Construction of a levee on the bank of the Arkansas River would adversely impact the river due to sedimentation during construction.	Short-term adverse impacts could be caused by construction of a roadway and railroad bridge across the unnamed tributary to the Lake Dardanelle State Fish Hatchery and the unnamed tributary to the embayment east of the Fish Hatchery. Water quality could be reduced by potential channel modifications to the tributary to the embayment that would be converted into a slackwater harbor. Excavation and maintenance dredging of the harbor would cause some sediment to be released into the reservoir. A long-term potential impact exists due to the possibility for small incremental releases or large accidental spills of contaminants into the tributaries of Lake Dardanelle.

Table ES.1. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Wetlands	There would be no impacts to wetlands.	It is likely that unavoidable long-term adverse impacts would occur to approximately 18 acres of wetlands during the construction phase of the proposed action. The total number of wetland acres adversely affected would be determined using the final site development plans.	It is likely that unavoidable long-term adverse impacts would occur to approximately 21 acres of wetlands during the construction phase of the proposed action. The total number of wetland acres adversely affected would be determined using the final site development plans.	The total number of wetland acres adversely affected would be determined using the final site development plans. The total impact would be less than 4 acres.
Water Body Modification, Wildlife, & Vegetation	There would be no impacts to water bodies, wildlife, or vegetation	Long-term and short-term adverse impacts to the Arkansas River, Whig Creek, the tributary to Whig Creek, and the tributary to Flagg Lake are anticipated with construction of the intermodal facilities. Long-term adverse impacts to wildlife would occur due to the permanent loss of old field, grassland, forest, wetlands, and cropland habitats. There would be a long-term potential for minor releases of chemicals and fuels that could result in short-term adverse impacts to fish and wildlife and their habitats.	Impacts to water bodies, wildlife, and vegetation would be similar to those of the Green (Preferred) Alternative. However, impacts to riparian forests and wetlands would be more under the Red Alternative.	Long-term and short-term adverse impacts to Lake Dardanelle, the embayment, the intermittent streams, and several ponds are anticipated with construction of the intermodal facilities. Long-term adverse impacts to wildlife would occur due to the permanent loss of pasture and forested habitats. Other impacts to water bodies, wildlife, and vegetation would be similar to those of the Green (Preferred) Alternative.

Table ES.1. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Floodplains	There would be no impacts to the floodplain Without major public or private investment, floodplain within the Green (Preferred) Alternative project areas would continue to pose limitations to future development.	The computer program HEC-RAS was used to compute existing condition water surface elevations for the 10-year, 50-year, 100-year, and 500-year flow events. The HEC-RAS analysis shows the proposed Intermodal Facilities will increase 100-year floodplain water surface elevations by a maximum of 0.09 feet for the Green (Preferred) Alternative. Therefore, the Green (Preferred) Alternative is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management.	HEC-RAS analysis shows the proposed Intermodal Facilities will increase 100-year floodplain water surface elevations by a maximum of 0.12 feet for the Red Alternative. Therefore, the Red Alternative is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management.	A floodplain analysis and HEC-RAS model were not performed for the Purple Alternative based on direction from the USACE, Little Rock District. Although portions of the Purple Alternative are within the flowage easement of Lake Dardanelle, and therefore the Arkansas River floodplain, negligible floodplain would be removed as a result of this alternative. Therefore, the Purple Alternative is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management.
Commercial Navigation	There would be no realization of the region's potential for greatly expanded intermodal transportation opportunities.	Substantial long-term beneficial impacts (savings in transportation costs, employment, personal income, and additional business revenue) to commercial navigation would be incurred.	Impacts on commercial navigation would be similar to those of the Green (Preferred) Alternative.	Impacts on commercial navigation would be similar to those of the Green (Preferred) Alternative. There would be minor adverse impacts to commercial navigation due to congestion from recreational boating in Lake Dardanelle.

Table ES.1. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Threatened & Endangered Species	There would be no impacts to any federally listed threatened or endangered species.	There would be no measurable impacts to federally listed threatened or endangered species.	There would be no measurable impacts to federally listed threatened or endangered species.	There would be no measurable impacts to federally listed threatened or endangered species.
Cultural Resources	There would be no impacts to cultural resources.	Implementation of the Green (Preferred) Alternative would disturb or destroy 27 archaeological sites that are considered eligible or potentially eligible for the NRHP (pending further Phase II testing) resulting in an adverse effect to archaeological resources.	Implementation of the Red Alternative would disturb or destroy nine archaeological sites that are considered eligible or potentially eligible for the NRHP (pending further Phase II testing) resulting in an adverse effect to archaeological resources.	Implementation of the Purple Alternative would disturb or destroy one archaeological site that is eligible for the NRHP resulting in an adverse effect to archaeological resources. Additional archaeological sites are likely to occur in the unsurveyed portions of the Purple Alternative project area and some may be considered NRHP-eligible. These sites would also be disturbed or destroyed with the implementation of this alternative.
Hazardous Waste Sites	There would be no impacts associated with Hazardous Waste Sites.	Because no hazardous waste sites exist in the project area, impacts associated with existing hazardous waste sites would not occur at this site.	Because no hazardous waste sites exist in the project area, impacts associated with existing hazardous waste sites would not occur at this site.	Because no hazardous waste sites exist in the project area, impacts associated with existing hazardous waste sites would not occur at this site.

Table ES.1. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Visual Impacts	No impacts to the view shed are anticipated, because no activities related to the proposed intermodal facilities would occur.	The intermodal facilities would reduce the visual quality of the project area in terms of loss of undeveloped habitats (e.g., cropland, old fields, forests, etc.), and the modification of wetlands. Under the Green (Preferred) Alternative, the view from Dardanelle would be preserved because the riparian forest along the river would remain, resulting in substantially less visual impact in terms of loss of forested areas. During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.	Impacts due to the implementation of the Red Alternative would be similar to those of the Green (Preferred) Alternative. However, under the Red Alternative, the view from Dardanelle would be considered a negative impact by some due to the removal of the riparian forest and the creation of a grass levee to protect the facilities. During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.	Impacts to the view shed would include a reduction in the visual quality of the project area in terms of loss of undeveloped habitats (e.g., cropland, old fields, forests, etc.), and minimal modifications of wetlands and floodplains. Additionally, where the intermodal facilities will be in the view shed of existing residences, or residences now shielded by trees, shrubs, and/or distance, there will be an adverse visual impact due to the nearness of the facilities, the effects of traffic, and the loss of trees and shrubs.

ES.5 CUMULATIVE IMPACT SUMMARY

ES.5.1 INTRODUCTION

A cumulative impact occurs due to a change in the environment that results from the incremental impact of the proposed action when added to other closely related past, present, and reasonably foreseeable future projects. Past and present actions occurring within the area have affected the existing conditions of the surrounding area and are discussed in the affected environment description for each of the resources evaluated. The following reasonably foreseeable future actions have been identified in the study area:

- Arkansas River Navigation Project;
- Industrial Development in the Arkansas River Bottoms Near Russellville;
- Expansion of Soil and Gravel Excavation and Removal;
- Continuation of Agricultural Land Uses; and
- Increase Existing Arkansas River Commerce.

At the end of Section ES.5 of the Executive Summary, a table summarizing the cumulative impacts of the No Action, Green (Preferred), Red, and Purple Alternatives has been provided (see Table ES.2).

ES.5.2 Arkansas River Navigation Project

ES.5.2.1 No Action Alternative

No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur under the No Action Alternative. However, cumulative impacts caused by past, present, and reasonably foreseeable future projects would continue to impact the proposed project area regardless of whether the proposed intermodal facilities are built. Improvements to the Arkansas River Navigation could result in increased barge and truck traffic at the existing Port of Dardanelle as well as potential future expansion of infrastructure in this area. The expansion of current operations would continue and some economic growth would occur. However, benefits associated with the improvements provided by the Arkansas River Navigation project would not be as valuable for the region if the intermodal facilities are not constructed to take full advantage of the commercial navigation resources available.

ES.5.2.2 Green (Preferred) Alternative

An overall improvement in infrastructure that would result from development of the intermodal facilities proposed for the Green (Preferred) Alternative in combination with improvements in commercial navigation on the Arkansas River would provide long-term beneficial impacts to commercial navigation throughout the ARV. New transportation capabilities would promote economic growth and provide social benefits for the ARV region.

Implementation of the Green (Preferred) Alternative along with the improvements planned as part of the Arkansas River Navigation project could cumulatively reduce overall risks to the human and natural environments from hazardous materials by enabling more hazardous materials to be transported by river.

ES.5.2.3 Red Alternative

Cumulative impacts of implementation of the Red Alternative together with the increase in commercial navigation on the Arkansas River would be similar to those described for the Green (Preferred) Alternative.

ES.5.2.4 Purple Alternative

Cumulative impacts to social and economic resources associated with implementation of the Purple Alternative together with the impacts of the increase in commercial navigation on the Arkansas River would be similar to those described for the Green (Preferred) Alternative. However, cumulative benefits in the form of additional jobs, personal income, transportation costs savings, and other monetary returns associated with manufacturing and distribution activities would be limited by the lack of current businesses in the immediate area, when compared to the Green (Preferred) and Red Alternatives.

ES.5.3 Industrial Development in the Arkansas River Bottoms Near Russellville

ES.5.3.1 No Action Alternative

No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur under the No Action Alternative. However, cumulative impacts caused by past, present, and reasonably foreseeable future projects would continue to impact the proposed project area regardless of whether the proposed intermodal facilities are built. It is unlikely that substantial industrial development would occur in the Arkansas River bottoms near Russellville without the construction of the intermodal facilities as proposed for the Green (Preferred) and Red alternatives. This would result in the region not taking full advantage of the long-term beneficial cumulative impacts to the local and regional social and economic environments that could be provided through improvements to commercial navigation realized by the Arkansas River Navigation Project.

ES.5.3.2 Green (Preferred) Alternative

Most of the industrial development in the Russellville Bottoms in the reasonably foreseeable future is anticipated to occur within the actual intermodal facilities property as infrastructure and utilities would be provided in this area. Cumulative benefits would likely be further in the future once the intermodal facilities property has reached capacity to support new developments.

ES.5.3.3 Red Alternative

Cumulative impacts of implementation of the Red Alternative together with the industrial development in the Arkansas River Bottoms near Russellville would be similar to those described for the Green (Preferred) Alternative.

ES.5.3.4 Purple Alternative

Impacts associated with the industrial development in the Arkansas River Bottoms near Russellville would occur outside of the cumulative impact analysis area defined for the Purple Alternative (see Section 4.1.3.2). Therefore there would be no cumulative impact associated with implementation of this project and the construction of intermodal facilities proposed under the Purple Alternative.

ES.5.4 Expansion of Soil and Gravel Excavation and Removal

ES.5.4.1 No Action Alternative

It is possible that the expansion of soil and gravel operations in the region would result in long-term adverse impacts to economic resources, because once those lands are mined they have less potential to be used for other more productive land uses, such as agriculture or commercial and industrial areas. Impacts from mining operations would be incremental to other impacts that are likely to result from reasonably foreseeable future projects or activities.

ES.5.4.2 Green (Preferred) Alternative

The proposed intermodal facilities project under the Green (Preferred) Alternative would likely result in shifts in the sand, soil, and gravel excavation operations from within the proposed project boundaries to adjacent areas. There could be some cumulative loss of agricultural land in the areas where the soil and gravel operations occur. The expansion of soil, sand, and gravel operations in the project area would result in additional cumulative impacts to water bodies, wildlife, and vegetation resources, primarily due to erosion and sedimentation in nearby streams and/or wetlands.

ES.5.4.3 Red Alternative

Cumulative impacts of implementation of the Red Alternative together with the expansion of soil and gravel excavation would be similar to those described for the Green (Preferred) Alternative.

ES.5.4.4 Purple Alternative

Impacts associated with the expansion of soil and gravel excavation would occur outside of the cumulative impact analysis area defined for the Purple Alternative (see Section 4.1.3.2). Therefore, there would be no cumulative impact associated with implementation of this project and the construction of intermodal facilities proposed under the Purple Alternative.

ES.5.5 Continuation of Agricultural Land Use

ES.5.5.1 No Action Alternative

No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur under the No Action Alternative. However, cumulative impacts caused by past, present, and reasonably foreseeable future projects would continue to affect the proposed project area regardless of whether the proposed intermodal facilities are built. Agricultural land uses within and adjacent to the proposed project area boundaries would likely continue under the No Action Alternative. This would create a minor beneficial impact to farmland and soil resources in general; however, no additional benefits in terms of improving regional economic growth would be realized.

ES.5.5.2 Green (Preferred) Alternative

The agricultural land uses in the Green (Preferred) Alternative project area would be complemented by the anticipated product storage capacity and shipping options provided at the intermodal facilities. The revenues generated by new industries within the intermodal facilities and continued agriculture production on remaining farmland adjacent to the site would result in beneficial cumulative economic impacts. In the long-term, overall dust emissions from the area would be slightly reduced as the exposed soils in cultivated areas and gravel and dirt roads currently in the intermodal facilities area would be replaced by hardened surfaces, paved roads, and permanent vegetation in non-developed areas.

ES.5.5.3 Red Alternative

Cumulative impacts of implementation of the Red Alternative together with the continuation of agricultural land uses would be similar to those described for the Green (Preferred) Alternative.

ES.5.5.4 Purple Alternative

Cumulative impacts of the Purple Alternative together with the continuation of agricultural land uses would be similar to those described for the Green (Preferred) Alternative. It is likely that adjacent poultry and cattle operations would benefit from the intermodal facilities.

ES.5.6 Increase Existing Arkansas River Commerce

ES.5.6.1 No Action Alternative

No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur under the No Action Alternative. Commerce along the Arkansas River would likely remain at current levels. The Arkansas River ports and harbors would remain underutilized resources for commerce in the State of Arkansas (AHTD, 2005).

ES.5.6.2 Green (Preferred) Alternative

Beneficial cumulative impacts would be expected if the proposed intermodal facilities could potentially support additional use of the available commercial navigation system provided on the Arkansas River. The incremental increase in commercial navigation from the intermodal facilities would compliment any other increase in the existing Arkansas River commerce. This would provide potential additional economic and social benefits for the region.

ES.5.6.3 Red Alternative

Cumulative impacts of implementation of the Red Alternative together with the increase of existing Arkansas River commerce would be similar to those described for the Green (Preferred) Alternative.

ES.5.6.4 Purple Alternative

Cumulative impacts of implementation of Purple Alternative together with the existing Arkansas River commerce would be similar to those described for the Green (Preferred) Alternative.

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Land Use & Infrastructure	No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur.	Cumulative impacts would include potential land use changes, infrastructure improvements, and increased truck, rail, and barge traffic. All of these changes would result from a combination of the intermodal facilities project and other reasonably foreseeable improvements, including the Arkansas River Navigation Project.	Cumulative impacts on land use would be similar in type and magnitude to those of the Green (Preferred) Alternative.	Cumulative impacts would include potential land use changes, infrastructure improvements, and increased truck, rail, and barge traffic. All of these changes would result from a combination of the intermodal facilities project and other reasonably foreseeable improvements such as the Arkansas River Navigation Project.
Farmland, Soils, & Physical Environment	There would be no cumulative impacts to farmland, soils, and physical environment that could occur in combination with other past, present, or reasonably foreseeable activities near the project area.	Dredging impacts associated with this project would not cause substantial increases in impacts to farmland or soils when combined with the proposed MKARNS improvements. It is possible that some of the lands adjacent to the intermodal facilities proposed for the Green (Preferred) and Red project areas would be converted to industrial or commercial land uses by the City of Russellville or private individuals. Cumulative impacts to farmland and soils due to additional industrial and commercial development anticipated in the reasonably foreseeable future are not expected to be substantial. There may be some cumulative loss of agricultural land uses where farmland soils are excavated and transported to areas outside the project vicinity. The combination of the intermodal facilities project and increased likelihood that agricultural land uses would continue in adjacent areas would result in minor beneficial cumulative impacts to farmland and soils resources.	Cumulative impacts to farmland, soils, and the physical environment would be similar to those under the Green (Preferred) Alternative.	The combination of the intermodal facilities project and increased likelihood that agricultural land uses would continue in adjacent areas would result in minor beneficial cumulative impacts to farmland and soils resources.

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Social Environment	No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur.	Construction of the intermodal facilities would allow the ARV region to take full advantage of the MKARNS and the provision of additional interconnection between barges and land-based shipping options via trucks and trains. The combination of the Highway 247 improvements, MKARNS improvements, and construction of the proposed intermodal facilities is expected to provide cumulative benefits in terms of social and economic improvements and growth in the ARV. Cumulative benefits from other industrial developments in the Russellville bottoms would likely be further in the future once the intermodal facilities property has reached capacity to support new developments. Continuing agricultural land uses in areas surrounding the intermodal facilities would have primarily beneficial impacts to social and economic resources in the region.	Cumulative social impacts would be similar to those of the Green (Preferred) Alternative.	Cumulative impacts would be similar as those of the Green (Preferred) Alternative. The communities of Knoxville, Clarksville, and the ARV would be afforded the opportunity to take full advantage of the resources available to the area.
Relocation	No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur under the No Action Alternative.	Relocations required due to the intermodal facilities project would be cumulative to relocations required for other known past, present, and reasonably foreseeable projects in the area. It is anticipated that there is currently enough replacement housing available in the general project vicinity to provide comparable, suitable options for the relatively few relocations. In the long-term, additional residential developments may be required in the ARV region.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.
Economic	No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would	Improved and expanded transportation services would be created in the ARV by providing for more economically efficient movement of goods. Currently, the region lacks shipping choices and transportation	Cumulative economic impacts would be similar to those realized under the Green (Preferred)	Cumulative economic impacts would be similar to those realized under the Green (Preferred) Alternative. These

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Economic (Continued)	occur under the No Action Alternative.	support facilities that facilitate the use of different transportation modes. The proposed facilities would result in cumulative benefits in the form of additional jobs, personal income, transportation costs savings, and other monetary returns associated with manufacturing and distribution activities. In addition, establishing the intermodal facilities close to existing industries would encourage these industries to stay and/or expand their business in the region. Potential cumulative impacts include the expansion or establishment of existing and new market areas. Potential long-term, cumulative economic effects could be realized by the private Port of Dardanelle from loss of employment and personal income associated with the intermodal facilities and their activities. The recent improvement of Highway 247 could offset some of the potential adverse impacts associated with the intermodal facilities because the improvements to Highway 247 provided the same types of benefits for the existing port as they would for the proposed intermodal facilities.	Alternative, except for there would be less farmland revenue lost under the Red Alternative due to less farmland being impacted.	cumulative benefits would be limited by the lack of current businesses in the immediate area of the Purple Alternative, when compared to the Green (Preferred) and Red Alternatives. It is anticipated that there would be economic benefits from future residential and/or commercial developments that could occur in the Knoxville and Clarksville area due to the proximity to the proposed intermodal facilities.
Pedestrian & Bicyclist Considerations	Due to the industrial nature of this project, no new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.	Due to the industrial nature of this project, no new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.	Due to the industrial nature of this project, no new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian	Due to the industrial nature of this project, no new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
			or bicycle routes.	
Air Quality	There would be no cumulative impacts as the result of the No Action Alternative.	Cumulative impacts to local air quality may be beneficial in the long-term as a result of reduced emissions from trucks from promoting the use of barge and/or train transportation versus primarily truck transportation and lower dust emissions. Lower dust emissions would result from fewer gravel or dirt roads being utilized in the project area.	Impacts would be similar to those of the Green (Preferred) Alternative, except that the long-term reduction in dust emissions in the project area may be slightly worse under the Red Alternative because more gravel roads and agricultural lands would be replaced with hardened surfaces, structures, or permanent vegetation compared to the Green (Preferred) Alternative.	Impacts would be similar to those of the Green (Preferred) Alternative.
Noise	There would be no cumulative impacts as the result of the No Action Alternative.	Long-term cumulative impacts would be anticipated when the noise associated with the intermodal facilities is combined with the additional noise expected due to other reasonably foreseeable projects in the area. The increased noise levels would mainly affect the residences interspersed along Highway 247.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative. The increased noise levels would mainly affect the residences interspersed along Highway 64.
Water Quality	No addition to cumulative impacts on water quality would occur in combination with other unrelated activities near the project area.	Most of the potential cumulative water quality impacts associated with reasonably foreseeable projects or activities in the area would be short-term impacts that occur during the construction phase of the intermodal facilities project. It is unlikely that construction for the various foreseeable projects, including	Cumulative impacts would be similar to those of the Green (Preferred) Alternative. However, the potential for cumulative impacts to water quality would	Cumulative impacts to water quality would be similar to those of the Green (Preferred) and Red Alternatives. However, the potential for cumulative impacts to water quality

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Water Quality (Continued)		the intermodal facilities, would occur at the same time. Water quality impacts to surface and groundwater resources in the area remain minimal.	be somewhat higher due to impacts to wetlands associated with the Whig Creek watershed and the riparian buffer zone along the Arkansas River.	would be somewhat less because the Purple Alternative location does not contain any water bodies listed on the State 303(d) list, is not located near a major urban groundwater source, and would retain a riparian buffer zone along Lake Dardanelle.
Wetlands	There would be no cumulative impacts to wetlands associated with any of the past, present, or reasonably foreseeable future actions.	There would be minor cumulative impacts to wetlands associated with the intermodal facilities project under the Green (Preferred) Alternative in combination with other past, present, and reasonably foreseeable future projects. Due to the small size of most of the mining operations anticipated to occur in the area, and the number of wetlands remaining in the floodplains surrounding the Green (Preferred) Alternative, it is not likely that substantial cumulative impacts to wetlands would occur as a result of expansion of sand and gravel removal.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.	No cumulative impacts are anticipated due to the combination of the proposed action and other projects. It is unlikely that developments would occur outside of the proposed intermodal facilities boundaries within the reasonably foreseeable future.
Water Body Modification, Wildlife, & Vegetation	There would be no cumulative impacts associated with any of the past present or reasonably foreseeable future actions.	Construction of the intermodal facilities would result in minor cumulative adverse impacts due to modifications to water bodies and removal of wildlife habitats (riparian forests and wetlands). Proposed water body modifications, such as construction of a new railroad bridge over Whig Creek, construction of the levee system, and dredging in the Arkansas River, would combine with modifications associated with past, present,	The cumulative impacts to water bodies, wildlife, and vegetation would be substantially higher compared to those of the Green (Preferred) Alternative. The Red Alternative would impact more riparian	Construction of the intermodal facilities would result in minor cumulative adverse impacts to water bodies, wildlife, and vegetation due to modifications to water bodies and removal of wildlife habitats. Proposed water body modifications,

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Water Body Modification, Wildlife, & Vegetation (Continued)		and reasonably foreseeable projects in the area. The main cumulative impacts would be due to the removal of wetlands associated with the existing water bodies causing decreased water quality and reduced stream bank integrity in those areas.	forests and wetlands adjacent to streams.	such as dredging in Lake Dardanelle, would combine with modifications associated with past, present, and reasonably foreseeable projects in the area. The main cumulative impacts would be due to the removal of forested habitat associated with the existing water bodies causing decreased water quality and reduced shoreline integrity.
Floodplains	There would be no cumulative impacts of the No Action Alternative that could occur as the result of other unrelated activities near the project area.	Due to the negligible increase of flood impacts as determined by the floodplain analysis conducted for the intermodal facilities project, measurable cumulative impacts are not anticipated.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative. Even though the Red Alternative would impact fewer acres of floodplain than the Green (Preferred) Alternative, the potential impacts to flood levels would be higher, primarily due to the levees for the Green (Preferred) Alternative being offset from the Arkansas River. The Red Alternative would have more impact on flood levels than the Green Alternative.	Cumulative impacts are not anticipated due to the negligible floodplain disturbance that would occur.

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Commercial Navigation	The potential cumulative social and economic benefits provided by the improved barge transportation capabilities of the Arkansas River Navigation project, the Highway 247 project, industrial development in the project area, and the proposed intermodal facilities would not be realized.	The combination of transportation services provided at the intermodal facilities and the existing transportation services and storage capabilities provided by the adjacent private Port of Dardanelle could complement each other to attract additional users of the commercial navigation system. Any increased use of the MKARNS would provide cumulative benefits to the regional economic and social environments.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.
Threatened & Endangered Species	There would be no cumulative impacts to threatened and endangered species.	Increased barge traffic using the Arkansas River due to the proposed action and the Arkansas River Navigation project could have minimal cumulative adverse impacts on the interior least tern.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.
Cultural Resources	No impacts are expected that could contribute to the cumulative disturbance or destruction of NRHP-eligible cultural resources resulting from other reasonably foreseeable projects in the area as identified below.	Direct impacts are expected that would contribute to the cumulative disturbance or destruction of cultural resources resulting from all past, present, and future construction projects in the area. Such cumulative effects would further diminish the regional archaeological record decreasing the potential of its overall research contribution; would disrupt the regional architectural character and historic setting; and would diminish the Native American cultural resources.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative.	The intermodal facilities, which would involve dredging operations and grading work mainly associated with construction of the levee, could result in cumulative impacts to cultural resources when combined with impacts from the Arkansas River Navigation project.

Table ES.2. Summary of Cumulative Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives.				
	No Action Alternative	**Green (Preferred) Alternative**	**Red Alternative**	**Purple Alternative**
Hazardous Waste Sites	There would be no cumulative impacts associated with Hazardous Waste Sites.	Improvements to the commercial navigation channel of the MKARNS would combine with industrial development and the intermodal facilities project to increase the potential for hazardous materials and wastes to be transported throughout the project vicinity and ARV region. An increase in hazardous materials and wastes in this area would increase the possibility that these materials could be accidentally released. Therefore, there is a long-term potential for short-term impacts to occur.	Cumulative impacts to hazardous waste sites would be similar to those of the Green (Preferred) Alternative.	Cumulative impacts to hazardous waste sites would be similar to those of the Green (Preferred) Alternative.
Visual Impacts	No cumulative impacts to the view shed are anticipated, because no activities related to the proposed intermodal facilities would occur.	No substantial cumulative visual impacts are anticipated in the project vicinity due to the combination of the proposed action and reasonably foreseeable future actions in the area.	Cumulative impacts would be similar to those of the Green (Preferred) Alternative. However, removal of the riparian vegetation along the Arkansas River would increase the potential for cumulative adverse impacts.	When viewed cumulatively, increased use of river transportation via barges would result in minor visual impacts for the entire region.

ES.6 MITIGATION

Mitigation measures would be implemented to eliminate or reduce adverse impacts as defined in 40 CFR 1508.20: “Mitigation” includes:

1) Avoiding the impact altogether by not taking a certain action or parts of an action;

2) Minimizing impacts by limiting the degree of magnitude of the action and its implementation;

3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action and/or;

5) Compensating for the impact by replacing or providing substitute resources or environments.

Only those mitigation measures that are practicable (i.e., can be accomplished using existing technology with a reasonable commitment of resources) have been identified. In addition to the mitigation commitments identified in Section 7.0 – Mitigation Summary of this FEIS, the Authority would use a wide range of ongoing environmental management programs, Best Management Practices (BMPs), Standard Operating Procedures (SOPs), monitoring programs, and permit compliance procedures to lessen the type and magnitude of adverse impacts identified in this FEIS. The Authority would adhere to all permit conditions in effect at the time the action occurs, under any circumstance.

ES.7 CONCLUSIONS

This FEIS was prepared in accordance with the requirements of the National Environmental Policy Act, regulations promulgated by the President’s Council on Environmental Quality (40 CFR 1500-1508). The analysis of environmental consequences indicates that implementation of any of the Project Alternatives will not produce significant impacts, either by itself, or through cumulative effects of past, present, or reasonably foreseeable actions.

Consultation with regulatory agencies will be ongoing to ensure compliance with all Federal, state, and local regulations and guidelines.

Page Intentionally Left Blank