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**River Valley Regional
Intermodal Facilities
Authority**

and



**Arkansas State Highway
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In cooperation with:
**Little Rock District,
U.S. Army Corps of
Engineers**

River Valley Intermodal Facilities Final Environmental Impact Statement

December 2012



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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 competitiveness (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.	<p>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.</p> <p>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.</p> <p>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.</p>	<p>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.</p> <p>Short-term adverse impacts to Whig Creek could occur from a railroad bridge required to cross the creek.</p> <p>Water quality could be reduced by potential channel modifications for the tributary to Whig Creek and the tributary to Flagg Lake.</p> <p>Construction of a levee on the bank of the Arkansas River would adversely impact the river due to sedimentation during construction.</p>	<p>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.</p> <p>Water quality could be reduced by potential channel modifications to the tributary to the embayment that would be converted into a slackwater harbor.</p> <p>Excavation and maintenance dredging of the harbor would cause some sediment to be released into the reservoir.</p> <p>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.</p>

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	<p>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.</p> <p>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.</p>	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.	<p>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.</p> <p>Long-term adverse impacts to wildlife would occur due to the permanent loss of pasture and forested habitats.</p> <p>Other impacts to water bodies, wildlife, and vegetation would be similar to those of the Green (Preferred) Alternative.</p>

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.	<p>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.</p> <p>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.</p> <p>During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.</p>	<p>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.</p> <p>During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.</p>	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.	<p>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.</p> <p>Potential cumulative impacts include the expansion or establishment of existing and new market areas.</p> <p>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.</p>	Alternative, except for there would be less farmland revenue lost under the Red Alternative due to less farmland being impacted.	<p>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.</p> <p>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.</p>
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.	<p>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.</p> <p>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.</p>	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.

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- 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

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1.0 INTRODUCTION

This Final Environmental Impact Statement (FEIS) is prepared for the River Valley Intermodal Facilities (RVIF) proposed for the Arkansas River Valley (ARV) in west-central Arkansas. 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 section of the FEIS reviews the history of the proposed project and the relevant issues presented in this document.

1.1 INTRODUCTION

The City of Russellville and Pope County established a multi-jurisdictional Intermodal Facilities Authority in Arkansas pursuant to the Intermodal Authority Act, Act 690 of 1997. The purpose of the Authority is to promote economic development and job creation in the ARV by serving existing industry and providing services necessary to attract new business and industry to the area. The specific mechanism the Authority proposed to use to promote economic development was to construct and operate a multi-modal transportation complex in the ARV.

A Notice of Availability (NOA) for the DEIS for the RVIF was published in the Federal Register on March 17, 2006. An NOA for the DEIS was published in a local newspaper, The Courier, on March 21, 2006. The DEIS public hearing was held in Russellville, Arkansas on April 20, 2006, with a comment period that ended on May 3, 2006. An SDEIS was prepared to describe changes, new information, and further developments on the project that resulted following the DEIS. An NOA for the SDEIS for the RVIF was published in The Courier on August 17, 2010. An NOA for the SDEIS was published in the Federal Register on August 20, 2010. The SDEIS public hearing was held in Russellville, Arkansas on September 16, 2010, with a comment period that ended on October 9, 2010. Comments received during the public comment period resulted in new information being gathered and added to the FEIS; specifically additional Phase II Archaeology testing was completed. The information contained in the DEIS and SDEIS is summarized in this FEIS. The DEIS and SDEIS and the associated technical reports are incorporated by reference rather than being restated. The DEIS and SDEIS should be referenced when reviewing the FEIS. The Executive Summary is provided to highlight important information and to provide a synopsis of the overall findings of the FEIS.

1.2 PROJECT BACKGROUND AND SCOPE

1.2.1 Background

As discussed in the DEIS and SDEIS, the ARV consists of six counties in central Arkansas: Conway, Johnson, Logan, Perry, Pope, and Yell. The proposed intermodal facilities would include:

- A slackwater harbor with direct access to the McClellan-Kerr Arkansas River Navigation System (MKARNS);
- Access to the national railway grid; and
- Roadway access to Interstate 40 (I-40).

The proposed intermodal facilities would be located in the ARV with direct access to the MKARNS via a slackwater harbor on the Arkansas River with dockside loading and unloading capabilities. The intermodal facilities would provide a connection to the Tulsa Port of Catoosa in eastern Oklahoma via the Arkansas and Verdigris Rivers and would provide a connection to the Mississippi River, thus allowing ready access to the United States (U.S.) inland waterway system.

Access to the national railway grid would be provided through the Class I Union Pacific Railroad (UPRR), and/or through the Class III short line Dardanelle Russellville Railroad (DRRR).

The intermodal facilities project would also provide access to Highway 247 which then provides direct access to I-40. 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.

Currently, three public ports/terminals exist along the Arkansas portion of the MKARNS. These facilities are located in Pine Bluff, Little Rock, and Fort Smith, and one is being considered in Van Buren. There are no public port facilities within 30 miles of the project area. However, within this same 30 mile area three private docks exist, including: Pine Bluff Sand & Gravel, the Port of Dardanelle, and Oakley Port. None of these existing ports include a slackwater harbor.

1.2.2 Previous Studies

The U.S. Army Corps of Engineers (USACE) Little Rock District prepared an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) in January 2000 for construction of a slackwater harbor along the MKARNS near Russellville. Three alternative locations for the slackwater harbor were evaluated in the USACE EA including sites at Arkansas River Mile (ARM) 197.7, ARM 199.3, and ARM 202.6.

Option 1, located at ARM 197.7, was considered due to the existing natural, channel-like features of the site. This alternative was not considered beyond initial investigations

since the location was determined to be situated in ecologically important wetlands, located near the Galla Creek State Wildlife Management Area, and would require extensive infrastructure development that would not be cost effective.

Option 2, located at ARM 199.3, was considered due to its proximity to future planned developments for the City of Russellville. This site was located entirely within the 100-year floodplain in a dike field area, which resulted in additional financial responsibilities for the City of Russellville, and did not show any additional environmental benefits over Option 3, the EA preferred alternative.

Option 3, the preferred alternative in the EA, was identified in the Russellville Bottoms area on the left descending bank in the Winthrop Rockefeller Lake pool of the MKARNS at ARM 202.6. Option 3 was located in a large borrow pit area adjacent to the MKARNS and was relatively close to an existing railway and highway. Option 3 was determined to have the least environmental impact and was considered to be the most cost effective out of the three alternatives studied. Neither Option 2 nor Option 3 was determined to have significant impacts.

On January 26, 2000, a FONSI was signed for the slackwater harbor project. Approval of the FONSI would have allowed the USACE to construct the slackwater harbor as proposed, most likely utilizing the Option 3 location described in the EA.

The FHWA subsequently prepared an EA for construction of the land-based intermodal facilities adjacent to the slackwater harbor that was approved for public dissemination in November 2002. The FHWA planned to join their proposed Intermodal Facilities project into the already approved USACE slackwater harbor project to provide a connection to the MKARNS. Three various alternative site layouts were developed and studied in the EA, all utilizing the preferred USACE slackwater harbor location described under Option 3 in the EA completed by the USACE in 2000.

1.2.3 Court Decision and Implications for the Lead and Cooperating Agencies

1.2.3.1 Summary of Plaintiff's Concerns Raised in Court Case "City of Dardanelle vs. U.S. Corps of Engineers"

Upon completion of public review of the November 2002 FHWA EA for the proposed Intermodal Facilities, several organizations and private individuals challenged the sufficiency of the original January 2000 USACE FONSI/EA in court (Case No. 4:03-CV-00176-WRW, March 14, 2003). The Plaintiffs contended the following:

1. The proposed action is a "major federal action" and an environmental impact statement should have been prepared.
2. The USACE Little Rock District failed to give any serious consideration to the cumulative impacts of the slackwater harbor's development, which included an Intermodal Transportation System around the harbor consisting of an industrial park; warehouses with rail and truck docks; a rail car marshaling yard with a

connection to the UPRR; an interstate highway connection; a rail-truck terminal; and a truck break-bulk terminal.

The 2000 USACE EA did include analysis of impacts associated with some features necessary for intermodal facilities including loading/unloading docks, berthing facilities, utilities, and upgrading existing roads in the immediate harbor area. However, the plaintiffs contended that the information gathered in preparation of the USACE EA indicated that the harbor was only one portion of much larger planned Intermodal Facilities that should have been considered as reasonably foreseeable future actions within the potential cumulative impacts analysis. They argued that all the components of the Intermodal Facilities would occur in a relatively small geographical area, and were closely enough related to the slackwater harbor project that the USACE should have considered the impact of the entire project, not just the slackwater harbor, docks, and other minor components.

3. The USACE failed to comply with Council on Environmental Quality (CEQ) requirements regarding incomplete or unavailable information.
4. The USACE action is contrary to law in that the USACE failed to follow its own regulations requiring an Environmental Impact Statement (EIS).
5. The USACE EA failed to adequately assess various key effects of the proposed action on the human environment.
6. The USACE failed to consider all feasible alternatives and the impact of the proposed harbor on the existing privately-owned ports.

On October 10, 2003 a preliminary injunction was entered that prohibited the USACE from entering into contracts or from beginning construction on the slackwater harbor. United States District Judge William R. Wilson, Jr. granted the plaintiff's motion for Summary Judgment on August 16, 2004. The preliminary injunction entered by the court on October 14, 2003 was converted to a permanent injunction pending the completion of an EIS.

1.2.3.2 Addressing Plaintiff's Concerns Raised in Court Case "City of Dardanelle vs. U.S. Corps of Engineers"

Based on the Plaintiff's concerns raised in the USACE court case involving the slackwater harbor EA and because the Judge ruled that a permanent injunction remain in place for the construction of the slackwater harbor until an EIS was completed, it was determined by the FHWA that the 2002 FHWA EA would not be sufficient for basically the same reasons as the 2000 USACE EA. Therefore a FONSI was never issued for the 2002 FHWA EA for the Intermodal Facilities. It was determined that the scope of the FHWA environmental studies would need to be expanded to include all components necessary for the proposed Intermodal Facilities to function, including a slackwater harbor. Basically, the USACE and FHWA projects needed to be combined into one project, as they were no longer considered to have independent utility from one another.

Additionally, it was determined that the purpose and need and alternative development sections of the 2002 FHWA EA would need to be refined as part of a new NEPA study.

In response to the court case findings, the broadened scope of the project, potential controversy associated with the project, and the CEQ guidelines for implementation of NEPA, the FHWA decided to prepare an EIS for the proposed project in order to better assess the project and its associated environmental impacts.

In November 2004 the FHWA announced that they intended to prepare an EIS for the entire RVIF project, including: a slackwater harbor; an intermodal transportation system including rail, road, and river connections; supporting facilities and infrastructure; and an industrial park. It was estimated an area of approximately 800 acres in size would be required for the entire RVIF being proposed. Since the slackwater harbor was to be considered part of the FHWA Intermodal Facilities project, the USACE agreed to serve as a Cooperating Agency for the development of the RVIF EIS; however, FHWA was considered the Lead Agency. The USACE planned to adopt the FHWA EIS for their portion of the project involving the slackwater harbor.

1.2.4 DEIS

Since 2004, the FHWA, in cooperation with the Arkansas State Highway and Transportation Department (AHTD), USACE, and the Authority, has worked to refine the purpose and need, alternatives, and scope of the RVIF project. A DEIS was developed to include studies of the potential environmental impacts of the RVIF including the slackwater harbor, several intermodal transfer facilities, industrial areas, access roadways, railroads, and other infrastructure expected to be needed for fully functional intermodal facilities.

The DEIS released for public review in March 2006 included a revised purpose and need for the intermodal facilities project and a description of proposed alternatives identified using criteria based on social, environmental, and economic impacts of the proposed project. The alternatives were developed, screened, and carried forward for detailed analysis in the DEIS based on their ability to address the project purpose and need while avoiding substantial adverse impacts to known sensitive resources.

Following the public review period for the DEIS, further internal review by FHWA legal staff determined that the March 2006 DEIS needed additional information before an FEIS or Record of Decision (ROD) could be prepared.

1.2.5 SDEIS

In response to public comments and FHWA legal review of the DEIS in March 2006, the FHWA, in a joint venture with the AHTD and the Authority, prepared the SDEIS in order to incorporate additional details regarding: the purpose and need for the project; the alternatives development and screening process used to identify potential reasonable locations for placement of the RVIF project; and responses to public comments received during the 2006 DEIS review period. These details were provided in the subsequent sections of the SDEIS.

The SDEIS was a complete, stand-alone document that provided a comprehensive description of the proposed action, purpose and need for the proposed action, detailed evaluation of the alternatives, description of the affected environment and the direct, indirect, and cumulative impacts/consequences associated with implementing the proposed action.

As a separate stand-alone project, FHWA and AHTD completed an EA/FONSI for the Highway 247 (Russellville Bypass) project, which has been completed near the proposed RVIF project area. A Draft EA for the Russellville Bypass project was released for public review in January 2004, and according to the AHTD website (January 2010), a FONSI for the EA was issued November 8, 2007.

The Russellville Bypass project was considered to have independent utility from the proposed intermodal facilities project and was therefore studied separately from this project. However, as part of the cumulative impacts analysis for the Russellville Bypass EA, additional traffic anticipated to be associated with the proposed RVIF project was considered. As such, any additional impacts to Highway 247, or the residents living along the project route, as a result of the Russellville Bypass project were also considered in the SDEIS and this FEIS.

The NEPA process will continue to be applied to this project to study the potential transportation improvements in the region, as well as the potential impacts to social, environmental, and economic resources associated with the project. The USACE continues to serve as a Cooperating Agency for development of this FEIS.

1.2.6 SDEIS SUMMARY AND ORGANIZATION

The SDEIS (found online at www.rivervalleyintermodal.org/deis.htm) contained a complete, updated, and revised EIS comprised of the following:

- Executive Summary for the entire project, encompassing the entire DEIS and the information supplied in this SDEIS;
- Section 1 (Introduction) provides additional project background and history information as well as a description of what information is presented in the SDEIS;
- Section 2 (Purpose and Need) has been expanded to include support documentation and technical appendices information;
- Section 3 (Alternatives) has been expanded to include a brief description of the No Action and Action alternatives analyzed in this document, the process used for selecting the alternatives for further study, and the four alternatives (includes the No Action alternative) that were analyzed;
- Section 4 (Affected Environment and Environmental Consequences) has been expanded to include: a) detailed evaluation of an additional alternative, b) updated affected environment data, and c) expanded analysis of secondary and cumulative impacts considered for each element of the natural and built environment;

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- Section 5 (Impacts Summary) provides a concise summary of impacts described in detail in Sections 4 and 5 of the SDEIS;
 - Section 6 (Cumulative Impact Summary) includes substantial information about resources, past actions that have contributed to trends, and reasonably foreseeable effects of the RVIF;
 - Section 7 (Mitigation Summary) suggests potential avoidance and minimization measures to address the impacts in Section 5;
 - Section 8 (Required Permits) identifies the various permits/certifications that may be required during the project development phase of the RVIF project;
 - Section 9 (Relation of Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity) examines and compares the potential short-term impacts of the project on the environment with the maintenance and enhancement of long-term environmental productivity;
 - Section 10 (Irreversible and Irrecoverable Commitment of Resources) describes the irreversible and irretrievable commitments of resources associated with the implementation of the proposed action or any of the alternatives;
 - Section 11 (Construction Impacts) details the foreseeable impacts associated with the construction of the RVIF in proximity to Russellville, Arkansas;
 - Section 12 (Acronyms) provides definitions for key abbreviations used in this SDEIS;
 - Section 13 (References) lists the documents referenced throughout the SDEIS;
 - Section 14 (List of Preparers) lists the SDEIS preparers;
 - Appendix A (Agency Coordination & Public Scoping) summarizes the coordination and consultation with federal, state, and local agencies that FHWA and the Authority has undertaken throughout the RVIF project, as well as the public participation process;
 - Appendix B (Floodplain Analysis) addresses the potential impacts of the alternatives on floodplains, as designated by the Federal Emergency Management Agency (FEMA); and,
 - Appendix C (Cultural Resources Programmatic Agreement) provides the requirements and associated work plan established to ensure that impacts to cultural resources sites are adequately addressed and mitigated.

1.2.7 FEIS SUMMARY AND ORGANIZATION

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.

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2.0 PURPOSE AND NEED

2.1 INTRODUCTION

This section defines the purpose and need for the study and identifies a number of related project benefits. The purpose and need is a method for outlining both the reasons for proposing a project and the underlying need for the project. The purpose and need for this project – as described in the DEIS dated March 2006 – was not changed. However, as a result of the coordination process, various elements of the purpose and need were expanded and reorganized for clarification in the August 2010 SDEIS.

2.2 PROPOSED ACTION

2.2.1 Proposed Action

The Authority proposes to construct and operate an approximate 800-acre intermodal facilities complex in the ARV. As stated in Section 1.3, the proposed transportation complex would include 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).

The geographic limits of the proposed action consist of the six-county ARV region, which extends along the Arkansas River from Highway 109, located just west of Clarksville, Arkansas, to Highway 9 near Morrilton, Arkansas. The cost estimate range for the proposed intermodal facilities alternatives is between \$10 and \$30 million.

2.2.2 Proposed Action Components

The Authority was established by both the City of Russellville and Pope County. Other locations within the ARV have been, and will continue to be considered for the placement of the project, with the ultimate goal of finding the best location for the proposed facilities in the ARV.

The following components were identified by the Authority¹ as desired for the proposed general purpose intermodal facilities of approximately 800 acres:

- Transportation facilities, including infrastructure such as:
 - Railroad team track;
 - Railroad access and marshalling yard;
 - Railroad tramp (metal separator) loading site;
 - Truck staging areas;
 - Vehicular access and internal roadways;

¹ Planning and Research Division, Arkansas State Highway and Transportation Department, *Intermodal Transportation Needs-Economic Development Study: Potential Benefits and of Regional Transportation Center and Manufacturing/Freight Consolidation/Distribution Complex*, August 1998; and Dr. Gregory Hamilton, et al, *Economic Feasibility and Debt Capacity of the Russellville River Port Project*, September 2002.

-
- Parking/Holding areas;
 - Towing operator facilities;
 - Barge company facilities;
 - Stevedore facilities;
 - Fleet operators facilities; and
 - Waterway service firms facilities.
 - Material handling equipment such as:
 - Cranes;
 - Conveyors;
 - Forklifts;
 - Loaders; and
 - Heavy lift equipment.
 - Support facilities including:
 - Administrative offices (for the marine terminal);
 - Docks;
 - Wharves;
 - Truck scales; and
 - Fuel depot.
 - Industrial/Distribution facilities such as:
 - Offices;
 - Warehouses (for traditional and specialized storage including refrigerated-frozen products, as well as other industrial uses with specialized truck-rail docks);
 - Vehicular parking;
 - Mechanical shops;
 - Smaller general storage units;
 - Open storage areas (truck trailers and containers);
 - Dry and liquid bulk storage tanks;
 - Transloading facilities;
 - Trailer-on-flat-car service;
 - Container-on-flat-car service;
 - Transit sheds;
 - Side loader; and
 - Grain elevators.
 - Utility infrastructure including:
 - Gas lines;
 - Pipelines;
 - Electrical power (substation and distribution system);
 - Sewer;
 - Cable;
 - Telephone lines; and
 - Water.

2.3 PURPOSE OF THE PROPOSED ACTION

The purpose of the proposed action is to establish a functional arrangement of 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 transfer efficiency and interrelationships by providing more shipping capabilities and capacity.

This region is well suited for these objectives as it currently exhibits a strong regional manufacturing orientation, with a higher percentage of the workforce in manufacturing jobs than the national average, strong regional educational facilities (e.g. Arkansas Tech University and the University of Arkansas - Morrilton), favorable geographic location (on the approved 12-foot navigation channel of the MKARNS), and a history of public support for economic development.

Benefits of intermodal facilities may include reduced highway congestion, improved air quality due to fewer pollutants associated with trucks, fewer accidents, and lower fuel consumption (United States Department Of Transportation [USDOT], 1994). These would be achieved through connectivity with waterway and rail transportation and a subsequent reduction in reliance on the truck mode as the primary method of transportation.

Described in detail in subsequent sections are the benefits of the proposed intermodal facilities in the ARV, as they relate to the following aspects of the purpose:

- Economic development via new jobs and higher wages;
- Improved transportation capacity and competitiveness; and
- Efficient modal transfers.

2.3.1 Economic Development via New Jobs and Higher Wages

Promoting economic development would include the growth of existing businesses and the establishment of new businesses in the ARV. The proposed intermodal facilities have benefits in terms of economic growth and development through transportation efficiencies (lower costs) and greater flexibility (multiple modes of transportation options at one location). Examples of the potential direct economic benefits may include increased jobs (keeping jobs in the United States and in the region), earnings, cargo handling proficiency, and manufacturing activities. Secondary economic benefits to the region would include transportation cost savings, inventory cost reduction, increased tax revenues, and the strengthening of economic connections within the ARV.

To help meet the purpose of this project, it is important the proposed intermodal facilities are located in an area within the ARV that is in proximity to existing communities that currently have a large enough population to provide a workforce for operating the facilities and for industries relocating operations within or near the site. Placement of the intermodal facilities near existing industry and other existing

infrastructure would help to maximize early and sustained usage of the facilities; thereby, providing immediate benefits to the region upon project completion.

2.3.2 Improved Transportation Capacity and Competitiveness

The efficiency and competitiveness of different transportation systems is essential to economic growth and productivity (USDOT, 2004). The efficient movement of goods and products is vital to manufacturers and other businesses in the ARV, because freight transportation costs have a direct impact on the final price of a product at the marketplace and the resulting revenues. A viable freight transportation system is important in retaining existing industries and in recruiting new industrial activities.

Understanding future freight activity is important for matching infrastructure supply to demand and for assessing potential investment and operational strategies. To help decision-makers identify areas in need of capacity improvements, the USDOT developed the Freight Analysis Framework (FAF), a comprehensive national data and analysis tool, including county-to-county freight flows for the truck, rail, water, and air modes. The original FAF forecasted freight activity in 2010 and 2020 for each of the modes. A newer version of the FAF, known as FAF^{2.2} superseded the original FAF. The newer version contains projected data for the year 2035 (FHWA, 2010).

The U.S. freight transportation network moves a staggering volume of goods each year. Over 15 billion tons of goods, worth over \$9 trillion, were moved in 1998. The movement of bulk goods, such as grains, coal, and ores, still comprises a large share of the tonnage moved on the U.S. freight network. However, lighter and more valuable goods, such as computers and office equipment, now make up an increasing proportion of what is moved. The data from FAF estimated that trucks carried about 71 percent of the total tonnage and 80 percent of the total value of U.S. shipments in 1998. Based on the original FAF, by 2020 the U.S. transportation system is expected to handle about 23 billion tons of cargo valued at nearly \$30 trillion (FHWA, 2007).

A freight analysis was conducted for the State of Arkansas by the FHWA Office of Freight Management and Operations using data from the newer FAF^{2.2} (FHWA, 2007). The analysis looked at current and projected freight shipments to, from, and within Arkansas. The FAF integrates data from several sources to estimate commodity flows and related freight transportation activity among major metropolitan areas, states, regions, and international gateways (FHWA, 2007a). The following tables, Table 2.1 and Table 2.2 summarize the latest data available for the State of Arkansas. Additional information is available at www.ops.fhwa.dot.gov/freight/freight_analysis/faf.

Table 2.1. Freight Shipments To, From, and Within Arkansas: 1998, 2010 and 2020

Arkansas	Tons (millions)			Value (billions \$)		
	1998	2010	2020	1998	2010	2020
State	224	335	428	151	307	512
By Mode						
Air	<1	<1	<1	6	17	34
Highway	163	253	331	133	268	445
Other ¹	<1	<1	<1	<1	<1	<1
Rail	48	62	72	10	18	28
Water	14	20	24	2	4	6
By Destination						
Domestic	218	323	410	142	283	465
International	7	12	18	10	24	47

¹ The "other" category includes international shipments via pipeline or by an unspecified mode.
Source: FHWA, 2007

Table 2.2. Top Five Commodities Shipped To, From, and Within Arkansas by All Modes: 1998 and 2020

Commodity	Tons (millions)		Commodity	Value (billions \$)	
	1998	2020		1998	2020
Lumber/Wood Products	33	69	Secondary Traffic	28	120
Farm Products	27	36	Food/ Kindred Products	25	93
Food/ Kindred Products	27	61	Chemicals/Allied Products	14	40
Secondary Traffic	27	78	Lumber/Wood Products	13	46
Nonmetallic Minerals	25	32	Transportation Equipment	10	21

Source: FHWA, 2007

2.3.2.1 Advantages of Trucks

The interstate highway system, the largest public works program in history, has had an enormous impact on the way business is done. Most of the national domestic freight is distributed by trucks. The U.S. DOT's FAF estimates that trucks carried 71 percent of the total tonnage of U.S. shipments in 1998. The State of Arkansas transports approximately 76 percent of its freight, in term of tonnage, by truck. Manufacturers and consumers like the convenience and door-to-door delivery of goods that truck transport provides. Direct deliveries by truck between manufacturer and retailer/consumer also can reduce manufacturer warehouse needs. The interstate system provides flexibility when it comes to moving freight by truck. Routes and pick-up and delivery times can be adjusted to the needs of the individual. In addition, trucks are suitable and more economical than other modes of transportation for short distances or small shipments.

The interstate highway system now serves all major cities, and in some instances, runs right through the downtown. In 2006, the interstate system covered approximately 47,000 miles. Trucks have the advantage of providing good and services easily to both

urban and rural areas. There is also an existing network of roadways used by a multitude of vehicles, and maintenance costs and repairs are split among States or may be financed by toll-roads.

The current interstate system also addresses the growing need for transportation corridors connecting the northern and southern border with the rest of the country. International trade from Canada and Mexico into the U.S. increased 47 percent between 1995 and 2005 (AHTD, 2007a). Arkansas is one example of a “bridge” state. The State contains I-40 which links the east and west coast while I-55 links Canada and Mexico.

2.3.2.2 Advantages of Rail

According to the Association of American Railroads, there are approximately 133 regional and 510 local railroads in the U.S., and railroads have been used as a primary mode of transport since the 1800’s. In Arkansas, there are approximately 2,750 miles of rail. Railroads can carry freight in areas where there are no waterways. Furthermore, railway can transport goods quickly, because they do not have to worry about traffic congestion or traffic volume, and the current rail system has ample carrying capacity to accommodate more freight movement.

Rail is an option when manufacturer’s need to transport heavy, bulky items over long distances. The carrying capacity of a train is large and can easily accommodate unexpected or larger loads by adding more cars. In addition, rail is a safe way to transport goods, because the cars protect the goods from sun, wind, rain, and snow.

2.3.2.3 Advantages of Water Transportation

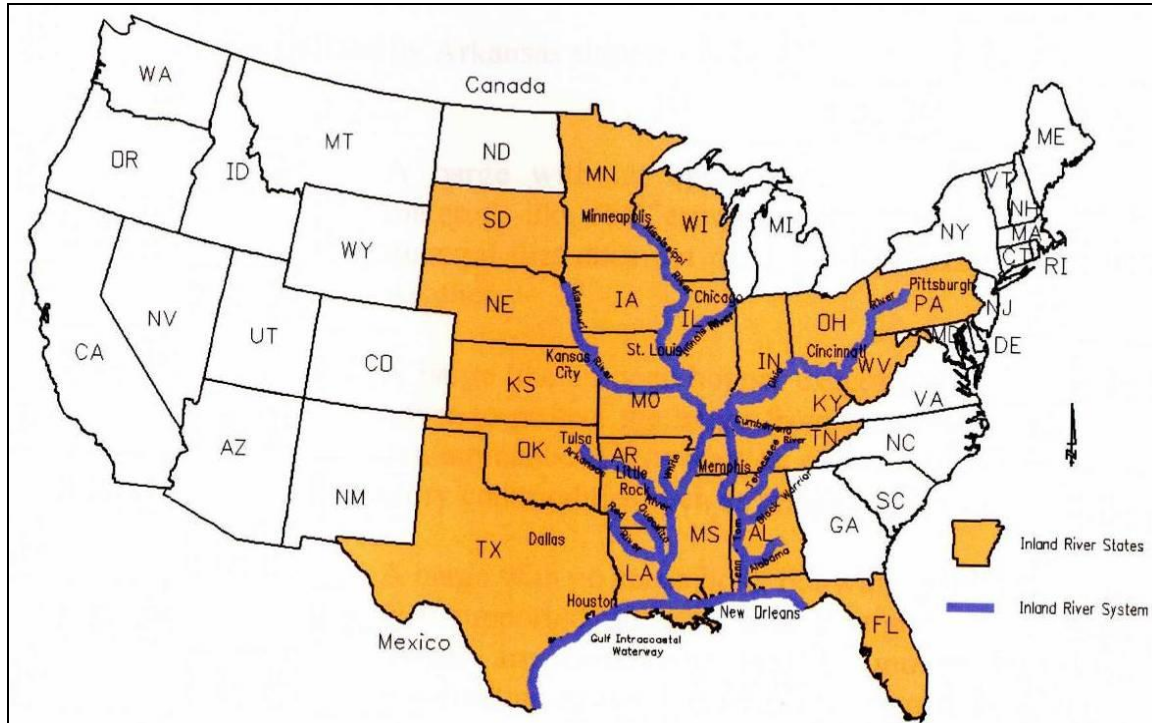
Water transportation offers greater opportunities for cost savings from lower fuel consumption and economies of scale (barges carry more cargo farther distances using less fuel than any other type of transportation). Water transportation also provides better environmental protection, because towboat haulage requires less fuel than truck or rail on a ton-mile basis resulting in less air pollution.

The RVIF project would include a slackwater harbor attached to the Arkansas River, an essential nexus of intermodal facilities to the inland waterway system. Several industry experts and port operators noted the increased ability and safety to transfer goods from water to land without incident, via a slackwater harbor. Furthermore, these individuals identified that the river within the study area is the only U.S. inland waterway system with potential for a 12-foot navigation channel, which adds to the benefits a slackwater harbor provides to the transportation capabilities of the region.

The nation’s inland navigable waterways provide a viable system for transporting bulk commodities within the U.S. and for accessing deep-water ports for overseas shipping. The ARV is linked to this system via the Arkansas River, which was recently approved to be converted from a 9-foot to a 12-foot navigation channel, pending funding availability. Figure 2.1 shows the location of the inland navigable waterways within the U.S. Additionally, Figure 2.2 shows the commercially navigable waterways and existing public ports in Arkansas. Cargo moved by the inland waterways system yields an

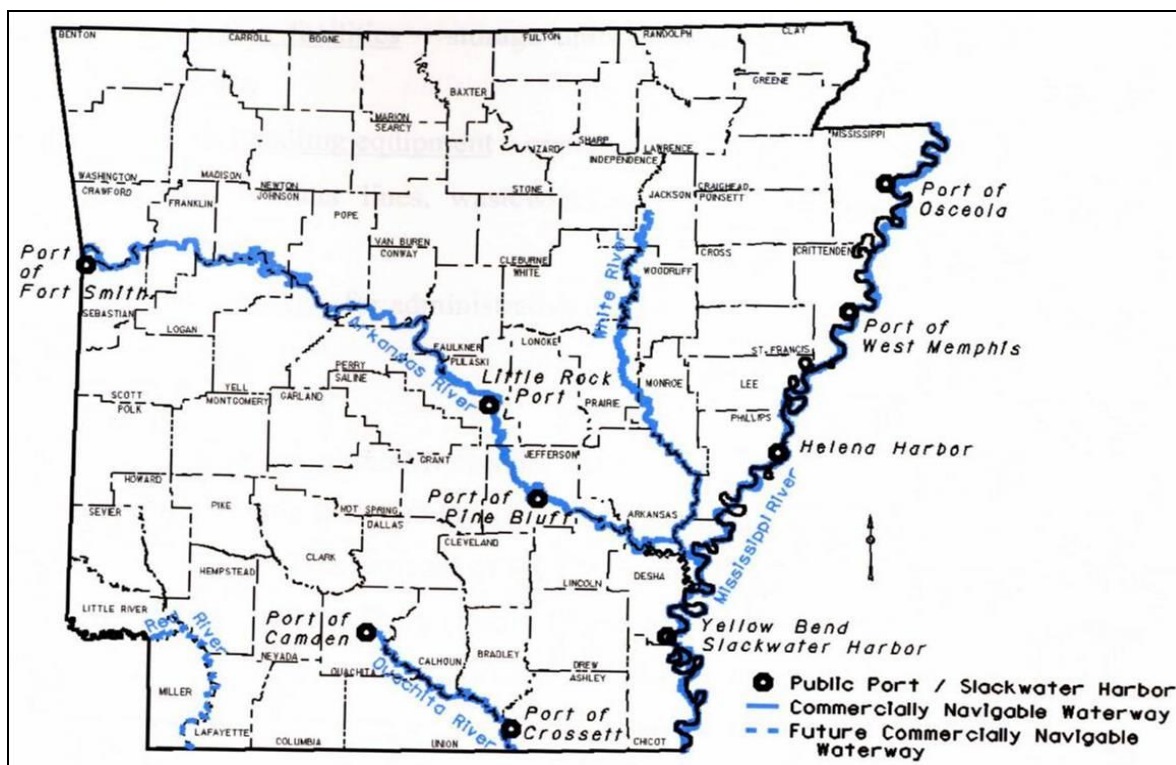
average transportation savings of approximately \$11 per ton over the cost of shipping by alternative means, translating into an annual savings of over \$7 billion to the consumer (CARIA, 2007).

Figure 2.1. U.S. Inland River System



Source: AHTD 2005.

Figure 2.2. Arkansas Commercially Navigable Waterways, Public Ports and Harbors



Source: AHTD 2005.

2.3.2.4 Advantages of Intermodal Facilities

The strength of a transportation system lies in its diversity, with each mode having its own system-specific advantages. Highway carriers have the ability to provide door-to-door service; water carriers can handle bulk commodities safely and at very low costs; and rail carriers can transport a broad range of commodities over long distances. The public good is best served by the most efficient use of transportation options, regardless of mode.

Cargo Capacity

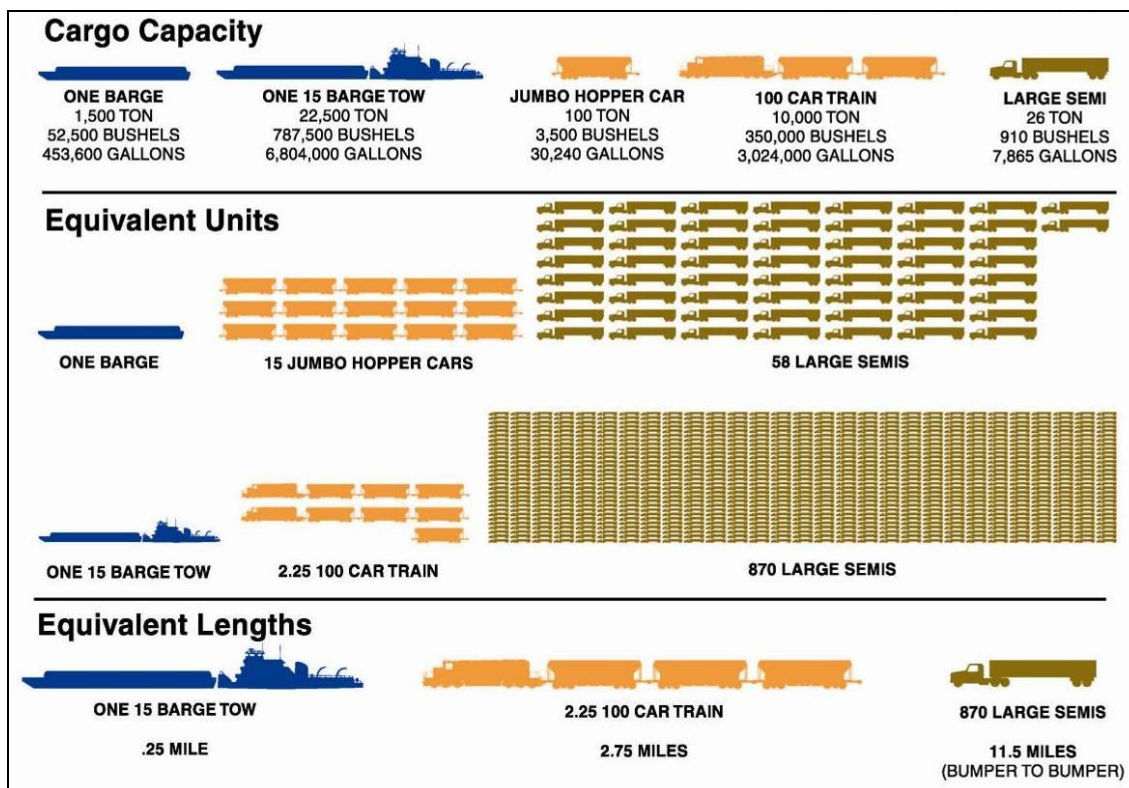
The standard capacities for the various freight units for truck, rail, and barge are provided in Table 2.3.

Modal Freight Unit	Standard Cargo Capacity
Highway – Truck Trailer	25 Tons
Rail – Bulk Car	110 Tons
Barge – Dry Bulk	1,750 Tons
Barge – Liquid Bulk	27,500 Bushels (bbl)

Source: Center for Ports and Waterways Texas Transportation Institute, 2009.

Figure 2.3 depicts a comparison of cargo capacity, equivalent units, and equivalent lengths for barges versus trains and trucks.

Figure 2.3. Comparison of Cargo Capacity



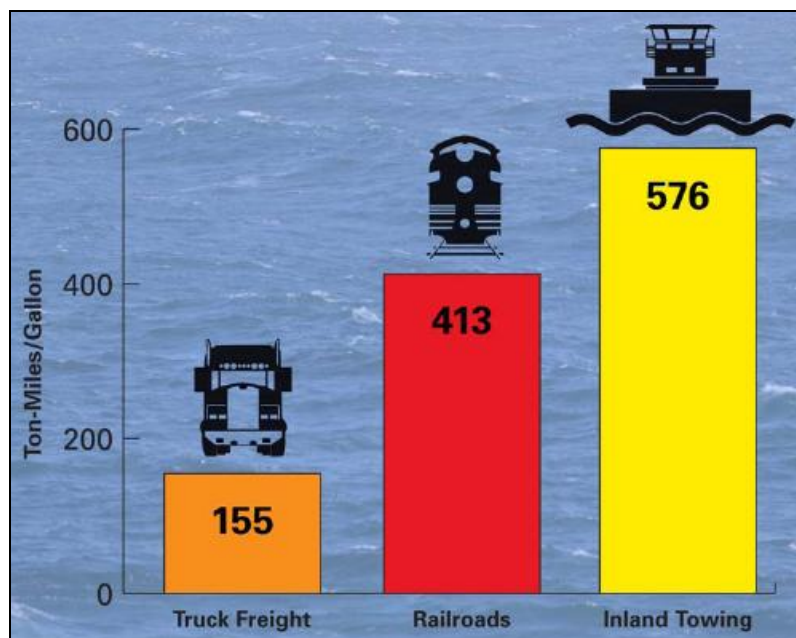
Source: IDOT, 2008.

Where barge transportation is available, rates of either truck or rail, particularly rail, tend to be lower. The corollary is that where barge transportation is not available, rail rates tend to be higher. Shippers are aware of this economic reality as they constantly compare transportation costs in an attempt to reduce operating expenses. Lower costs to the shipper translate into lower costs for the consumer (CARIA, 2007). Since many large industries consider proximity to a river port as a prime factor in their final location decision, intermodal facilities with a slackwater harbor would be an enhanced recruitment tool for the Authority.

Fuel Efficiency and Emissions

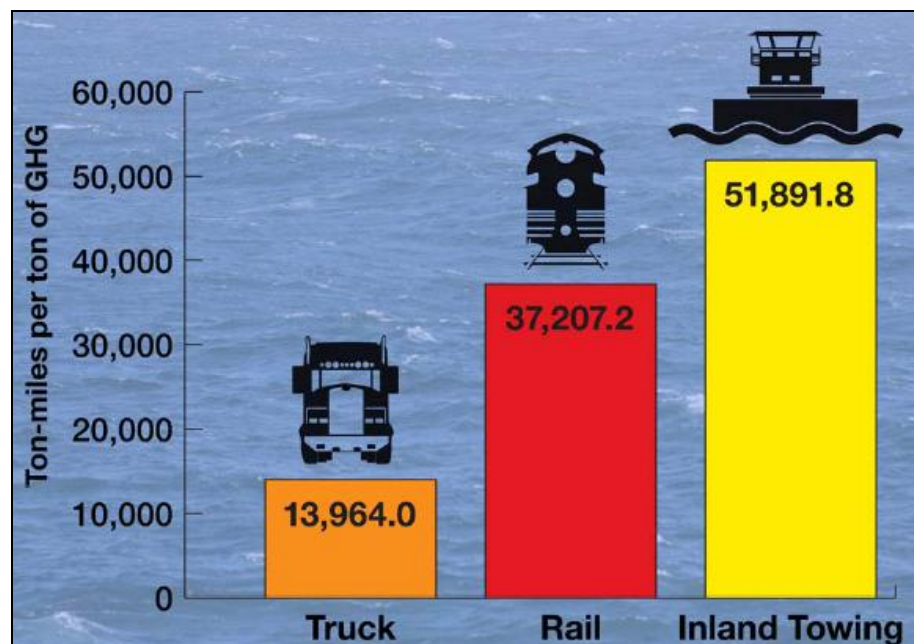
The fuel efficiency and emissions of rail, truck, and towing have different ranges as illustrated in Figure 2.4, Figure 2.5, and Table 2.4. The Arkansas Long Range Intermodal Transportation Plan documented that Air Quality Impacts is an emerging transportation issue that should be addressed as part of their long range transportation planning process. Intermodal facilities would help achieve this goal by minimizing the dependence on one mode of transportation. Manufacturer would be able to choose the form of transport that best helps them achieve their transport goals.

Figure 2.4. Comparison of Fuel Efficiency



Source: Center for Ports and Waterways Texas Transportation Institute, 2009.

Figure 2.5. Comparison of Emissions.



Source: Center for Ports and Waterways Texas Transportation Institute, 2009.

Table 2.4. Summary of Emissions – Grams per Ton-Mile

Mode	Emissions (grams/ton-mile)				
	HC	CO	NO _x	PM	CO ²
Truck	0.020	0.136	0.732	0.018	64.96
Eastern Rail	0.02419	0.06434	0.65312	0.01624	24.39
Western Rail	0.02423	0.06445	0.65423	0.01621	24.39
Inland Towing	0.01737	0.04621	0.46907	0.01164	17.48

Source: Center for Ports and Waterways Texas Transportation Institute, 2009.

Safety

Although the main goals of this project are to promote economic development and job creation in the ARV region, any improvements to the safety and efficiency of the overall regional transportation system would be welcome benefits. Because shallow draft barges operate primarily in areas away from the general population; thus, are less exposed to urban areas than truck or rail, barge transportation is considered to be safer in terms of deaths or injuries to humans when compared with rail and truck transportation.

However, truck and rail are still vital to local, regional, and national economies and will continue to be the dominant modes of transportation used to ship freight where waterways do not reach. The USDOT, FHWA, and the Federal Railroad Administration (FRA) continually strive to monitor and improve safety conditions on highways and railroads. The FRA Office of Safety promotes and regulates safety throughout the nation's railroad industry (FRA, 2007). Railroad safety information and statistics are

available on the FRA website at <http://www.fra.dot.gov/us/content/66>. Railroads used by intermodal facilities would be operated according to FRA guidelines to ensure any increased rail traffic generated by the intermodal facilities in the ARV region would move through the area in a safe and efficient manner. Highway safety information and statistics are available on the FHWA website at <http://safety.fhwa.dot.gov/>.

The comparison of fatality and injury rates is shown in Table 2.5.

Table 2.5. Fatality and Injury Statistics by Mode					
Mode	4-yr Avg Ton-Mile (millions)	4-yr Avg Fatalities (Operator)	4-yr Avg Fatalities (Other)	4-yr Avg Fatalities Total	4-yr Avg Injuries Total
Truck	1,259,535	722	4,758	5,480	124,750
Rail	1,554,130	28	884	1,008	9,036
Inland Towing	287,680	1	7	8	13
<i>Source: Center for Ports and Waterways Texas Transportation Institute, 2009.</i>					

Environmental Factors

Environmental safety may improve when materials are shipped via waterways, because truck and rail spills occur more often than barge spills (USDOT, 1994). Design features of barges, such as double hulls and navigational aids, help reduce the frequency of accidents. Furthermore, all new inland tank barges carrying liquid cargo now have an inner and outer hull.

Table 2.6. Comparison of Large Spills Across Modes						
Mode	Totals		4-yr Avg (2001-2004)			
	# of Spills	Amount of Spill (Gallons)	# of Spills	Amount of Spill (Gallons)	Percent Haz-Mat (%)	Haz-Mat Ton-Miles (millions)
Truck	643	2,698,490	161	674,622	8.84	111,404
Rail	115	1,147,105	29	286,776	4.18	74,341
Inland Towing	25	470,579	6	117,645	11.36	32,668
<i>Source: Center for Ports and Waterways Texas Transportation Institute, 2009.</i>						

The environmental risks associated with highway and rail transportation may be higher than water transportation, as these systems tend to require the transportation of hazardous materials closer to populated areas. Where comparable, water transportation has an environmental cost impact of one-fifth that of rail and one-tenth that of truck (MNDOT, 1997). Environmental costs used for those comparisons include costs associated with fuel consumption, emissions, tire disposal, and roadway wear. Based on this information, it is apparent that projects that promote the use of water transportation can provide several benefits both economically and environmentally.

2.3.3 Efficient Modal Transfers

The primary function of public ports is to act as a center for intermodal transportation and product distribution (AHTD, 2005). The ARV's economic prosperity and ability to compete domestically and globally depend on an efficient interconnected transportation system. Interconnecting all modes of transportation provides options to allow freight to be moved through a region in the safest, most efficient, and cost-effective (monetary and environmental) manner possible. Interconnectivity of the modes of transportation at the intermodal facilities would also provide overall safety and efficiency in the transportation system.

2.4 NEED FOR THE PROPOSED ACTION

2.4.1 Determining the Need

In determining the need for this project, several key trends and factors were taken into consideration, including those presented in a study for improving freight transportation in Arkansas (AHTD, 2002a), as well as those gathered from interviews in January 2010 with industry experts, port operators, and economic development professionals in the port industry (Personal Communications, 2010).

2.4.1.1 Study to Improve Freight Transportation in Arkansas

As mentioned above, the study to improve freight transportation in Arkansas was conducted by AHTD in conjunction with FHWA, and was a coordinated effort between other members of a Freight Transportation Working Group comprised of Federal, State, and local agencies, regional planning agencies and organizations, and academic institutions (AHTD, 2002a). The Freight Transportation Working Group determined that the trends and factors influencing the way products were handled and shipped in Arkansas included:

- International trade and increased domestic competition that forced various Arkansas manufacturers to change from the practice of distributing inventory to relying on freight carriers and freight forwarders for inventory management and control;
- Use of warehouses as product assembly points, including activities such as adding parts to semi-finished goods, sorting, wrapping and repackaging, and direct product mailing;
- Increases in e-commerce activities (wholesale and retail) and a resulting increased demand on the trucking industry to improve response times;
- Increased use of containers for both domestic and international shipments;
- Increased use of outsourcing to third parties for special product handling; and
- Increased tendency for industries to seek sites where infrastructure is in place rather than build and maintain their own rail yards, terminals, warehouses, and other support facilities.

2.4.1.2 Industry Experts, Port Operators, and Economic Development Professional Interviews

Eight individuals were contacted between January 4, 2010 and January 11, 2010 (Personal Communications, 2010). In an effort to broaden the spectrum of the RVIF project, individuals included those with a local, regional, and national perspective of ports and intermodal facilities. The individuals included representatives from the following agencies and businesses: Arkansas Economic Development Commission, Arkansas River Valley Alliance for Economic Development, Little Rock Port Authority, Arkansas Waterways Commission, AHTD, Logistics Services, Inc., Economic Alliance Houston Port Region, and UPRR. The trends and factors gathered from these conversations resulted in several general suggestions or comments about intermodal facilities and are presented throughout this document. However, according to these individuals, location and infrastructure of a port are the essential factors to a port's overall success.

2.4.2 Need for the RVIF

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. They include the need:

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

The following is a detailed discussion of each of these needs.

2.4.2.1 Need for More Slackwater Harbors in the State of Arkansas

A severely limiting factor in the economic development of Arkansas' water transportation facilities is the lack of slackwater harbors throughout the State, and not necessarily the lack of ports or water access.

In conversations with port operators and port industry experts, slackwater harbors present a definite advantage in the way cargo is managed. A slackwater harbor allows barges to load and unload away from the main channel of the river, eliminating the need for interference from river levels. Additionally, these experts indicated the benefits of the approved 12-foot channel of the MKARNS would provide to the users of a slackwater harbor. For instance, the experts agreed, commercial navigation on the river will be more efficient and industries now have the ability to transport products in larger quantities. The increased channel depth also makes the MKARNS the only waterway in the central U.S. inland waterway system that has greater than a 9-foot channel depth. The slackwater harbor proposed for the RVIF and the approved 12-foot channel are

complementary in their ability to fill a need for more slackwater harbors in the State of Arkansas.

Previous studies conducted in Arkansas indicated more slackwater harbors are needed to provide more barge shipping capabilities and promote better use of the MKARNS to ship goods to and from the state. These studies also identified various problems with the existing private and public ports in Arkansas, including several on the MKARNS. Problems consisted of a lack of slackwater harbors, inadequate intermodal capabilities, deteriorated conditions of infrastructure and equipment, and developmental issues, such as poor landside access for road and rail. Poor landside access to river ports results in freight delivery delays, higher costs to shippers, and impedes industrial recruiting efforts (AHTD, 2002). The RVIF, with its associated slackwater harbor, would address these problems by promoting better use of the MKARNS, offering optimal landside access, and providing new infrastructure and equipment with intermodal capabilities.

Concerns have been raised that construction of the RVIF could result in negative impacts in terms of competition with existing ports along the MKARNS; however, it can also be argued that increasing the capabilities and capacity of barge shipments on the MKARNS provided by the RVIF could also benefit other existing ports. Since it is more economical for barges to carry freight rather than being empty or partially loaded, it is anticipated that the RVIF would help promote more use of existing ports along the MKARNS. Barges traveling to and from the RVIF could readily stop at existing ports en route to deliver or pick up freight. The more barges that are traversing the river, the more potential there is for users to take advantage of their shipping services. There is also the potential that tenants of the RVIF could use the MKARNS as a convenient way to deliver products to other cities or regions within the state via existing ports. For instance, it is possible an industry based at the RVIF may require products from other areas along the MKARNS to be delivered to their local facilities. If such products could be both more easily and efficiently moved by barge, then provision of the RVIF could help integrate not only the ARV regional economy, but the state's economy as well. Thus, attracting more businesses or industries to the area would potentially foster business for adjacent ports.

Potential existing industry users of the RVIF in the region and in the state include producers of food products; fabricated metals; forest products; chemicals and fertilizers; agricultural products, including grain and animal feed; sand, gravel, and rock products; iron and steel; and petroleum. Many of these industries utilize the existing ports and would be expected to do so in the future. The RVIF would also support additional or expanded use of the MKARNS by those industries where the need for additional services may occur.

The Little Rock Port Authority is an example of a successful intermodal facilities complex with a slackwater harbor that is established along the MKARNS. It provides a 2,550-acre heavy industrial park connected to two full-service river terminals and a switching railroad. These full-service public terminals offer all industry in the Port and

adjacent sites the opportunity to ship by barge. The terminals are equipped to handle almost any product, therefore allowing a cost-effective, efficient mode of transportation.

The Little Rock Port Authority Fred I. Brown Slackwater Harbor is an important attribute of the port. This safe harbor allows barges to get off the main current of the river into the zero current of the harbor for loading and offloading. The harbor is surrounded by developed land ready for occupancy by heavy industrial users. The Port has received more than \$350 million in investment from new plant locations and expansions within the last three years.

2.4.2.2 Need for an Integrated Regional Economy

Regional advantages would be provided by the intermodal facilities by making available additional capacity to meet the infrastructure and location requirements of businesses seeking to relocate and maximize their transportation and shipping efficiencies.

The ARV region has a strong manufacturing orientation, high quality educational facilities, and a favorable geographic location; however, the ARV region does not have an integrated economy. The ARV is also not equipped to provide the range of transportation and shipping choices, infrastructure, and support facilities to attract businesses needing such services. Specifically, the region lacks the ability to offer business enterprises transportation and shipping choices and flexible transshipment facilities, combining various transportation modes while promoting cost efficiencies.

The RVIF would help integrate the regional economy by offering a large industrial site capable of supporting several large industries, along with providing flexible freight handling, storage, and shipping facilities with direct access to three modes of transportation. Providing the intermodal facilities and associated industrial land and infrastructure would attract new business enterprises to the area, and help support existing industries in the region by offering better shipping options and freight handling capability than is currently available. Furthermore, in conversations with port experts, the regional area of influence for a port averages 100 miles, suggesting an impact on the integrated regional economy far greater versus a single modal improvement (*i.e.* roadway interchanges, rail switching services, etc.).

In conversation with several port operators and industry experts associated with the MKARNS, existing business enterprises in the region that would benefit from the RVIF include food products, fabricated metals, and forest products. The new businesses would include these and other typical bulk commodities shipped via the inland river system and the national rail system including sand, gravel and rock; iron and steel; petroleum products; farm products/commodities, such as chemical fertilizers and feed; and agricultural crops, such as wheat, rice, and soybeans. New business enterprises provide jobs and help spur economic growth in the region through direct and secondary effects. Secondary benefits of attracting new businesses to the area include increased real estate sales, retail sales, personal services, and overall tax revenues.

Furthermore, the RVIF would specifically provide fleet services, stevedoring activities, a foreign trade zone, warehousing and storage capabilities, and distribution services with access to water, rail, and/or highways. Examples of commercial and financial activities directly involved in economic integration brought about by these activities include the following:

- Fleet Services:
 - Towboat Services;
 - Fleet Assembly/Disassembly;
 - Fleeting Supplies;
 - Wharfage and Fees; and
 - Wharfage Demurrage.
- Stevedoring Activities:
 - Loading/Unloading;
 - Shipping/Handling;
 - Packaging;
 - Inventory Control; and
 - Special Handling.
- Foreign Trade Zone
- Warehousing/Storage and Distribution Services:
 - Indoor (Refrigerated/Non-Refrigerated);
 - Outdoor; and
 - Combined indoor/outdoor.
- Single-Mode Transportation Services (waterway, rail, motor vehicle)
- Intermodal Transfers and Other Services:
 - Barge and rail;
 - Barge and truck;
 - Rail and truck; and
 - Crane Services.

2.4.2.3 Need to Promote Social and Economic Growth by Creating Higher Wage Jobs

Investments that improve access, reliability, and intermodal connectivity have a positive economic impact on a region. Such investments reduce the cost of production, promote output and productivity growth, increase an area's ability to compete, and enhance the standard of living (USDOT, 1996). According to AHTD multimodal officials, the Arkansas State Public Riverport Study and Needs Assessment (2005), indicates the direct economic value of Arkansas' public ports and harbors is approximately \$58 million dollars annually, and benefits employment and other activities, such as sales tax generated and the value of goods produced.

Data presented in Table 2.10 of the SDEIS suggest that the wages in the ARV are below statewide averages. One way to help improve this wage issue is to attract additional large industries and businesses to the region. By attracting larger businesses and industries to the region it is expected that additional higher wage jobs would become available. Higher wage jobs would spur additional spending in both local and regional economies benefiting the entire region economically. Additionally, in conversation with industry experts in other states, the economic growth created by higher wage jobs will also improve the overall quality of life for the region.

A comprehensive review of the demographic trends for the ARV region supports the need to create higher wage jobs that would promote social and economic growth. The following outlines the population, employment, average weekly earnings, and unemployment trends for the six-county region that comprises the RVIF project area.

RVIF Region – Demographic Trend Analysis

Population

From 1990 to 2010, total population in the six-county region increased by approximately 34,000, a population growth rate of nearly 26 percent for the period (USDOC 1990, 2000, and 2010). Population change in the ARV is addressed in Table 2.7. Johnson County recorded the largest percent increase (40.2%) from 1990. Clarksville, the county seat for Johnson, had a population increase of approximately 57 percent, as addressed in Table 2.8. The largest and most urbanized county in the ARV, Pope County, had the second largest increase of approximately 35 percent followed closely by the least populated county, Perry. Perry had an increase from 1990 to 2010 of approximately 31 percent with the county seat, Perryville, increasing at a rate of 28 percent.

The population of the ARV region grew at a faster rate (approximately 19%) from 1990 to 2000 than the State (approximately 14%), an indication of considerable economic potential. Four of the six counties in the ARV (Johnson, Perry, Pope, and Yell) ranked in the top 25 of 75 Arkansas counties in terms of population increase between 1990 and 2000. Of those four, Johnson and Perry Counties ranked in the top ten (IEA, 2009).

Table 2.7. Arkansas River Valley: Population and Percent Change for Six County Region and State, 1990-2008

Area	1990 Population	2000 Population	2010 Population	1990-2010 Percent Change
Six County Region	129,540	153,571	163,550	26.3
Conway County	19,151	20,336	21,273	11.1
Johnson County	18,221	22,781	25,540	40.2
Logan County	20,557	22,486	22,353	8.7
Perry County	7,969	10,209	10,445	31.1
Pope County	45,883	54,469	61,754	34.6
Yell County	17,759	21,139	22,185	24.9
State of Arkansas	2,350,725	2,673,400	2,915,918	24.0

Source: U.S. Census Bureau, Census of Population and Housing, 1990, 2000, and 2010.

Table 2.8. Arkansas River Valley: Population and Percent Change for Most Populated Place in Each County, 1990-2008

Most Populated Place	1990 Population	2000 Population	2010 Population	1990-2010 Percent Change
Morrilton (Conway County)	6,551	6,550	6,767	3.3
Clarksville (Johnson County)	5,833	7,719	9,178	57.3
Booneville (Logan County)	3,804	4,117	3,990	4.9
Perryville (Perry County)	1,141	1,458	1,460	28.0
Russellville (Pope County)	21,260	23,682	27,920	31.3
Dardanelle (Yell County)	3,722	4,228	4,745	27.5

Source: U.S. Census Bureau, Census of Population and Housing, 1990, 2000; and 2010.

Employment

The total labor force in the ARV in 2010 was 74,565, which equates to approximately 7 percent growth from the year 2000. Labor force and employment issues in the ARV are addressed in Table 2.9. Pope County accounted for nearly 40 percent of the regional labor force total. Perry County recorded the smallest labor force population, which would be expected considering that it is also the smallest in terms of total population.

Total employment in the six-county region in 2010 was 69,314, of which 14,653 were in the manufacturing sector, accounting for approximately 21 percent of the total labor force. Yell and Johnson Counties reported approximately 27 percent and 31 percent respectively of their labor force to be employed in manufacturing, which is likely a reflection of a concentration of poultry processing facilities in those areas.

Providing facilities capable of attracting large industries to the area could play a key role in ensuring enough jobs are created to keep up with growth. In 2010, the manufacturing

sector represented 21 percent of the total employment in the six-county region. That ratio can be compared to about almost eleven percent for the U.S. (USBLS, 2008) and 15 percent for the State (USCB 2006-2010).

Table 2.9. Arkansas River Valley: Employment Measures, 2010

County	Civilian Labor Force	Total Employment	Manufacturing Sector (Number Employed)	Manufacturing Sector (Percent Employed)
Six County Region	74,565	69,314	14,653	21.1
Conway County	9,042	8,453	1,582	18.7
Johnson County	11,256	10,385	3,197	30.8
Logan County	9,865	9,044	1,816	20.1
Perry County	4,484	4,217	814	19.3
Pope County	29,856	27,880	4,732	17.0
Yell County	10,062	9,335	2,512	26.9
State of Arkansas	1,360,938	1,254,140	187,690	15.0
<i>Source: U.S. Census Bureau, Census of Population and Housing, 1990 and 2000; American Community Survey, 2006-2010.</i>				

Average Weekly Earnings

A comparison of the ARV counties to the State, in terms of average weekly earnings and as a percent of the State average, is provided in Table 2.10. None of the average weekly earnings in any of the counties equals or exceeds the State average of \$804. Pope County, with 79 percent of the State average is the closest. Yell County reports the lowest average with respect to the State at 63 percent. The ARV six-county average weekly earnings of \$558 are only 69 percent of the State average. This indicates a wage depression that constitutes a regional, rather than individual county economic weakness, and that wage depression needs to be addressed systematically as a region.

Table 2.10. Arkansas River Valley: Average Weekly Earnings, 2010

County	Average Earnings	Percent of State Earnings
Six County Region	\$558.47	69.4
Conway County	\$566.67	70.4
Johnson County	\$573.67	71.3
Logan County	\$545.50	67.8
Perry County	\$520.67	64.7
Pope County	\$637.00	79.2
Yell County	\$507.33	63.1
State of Arkansas	\$804.25	100.0
<i>Source: ADWS, 2010 Civilian Labor Force Data</i>		

Unemployment

As of 2011, unemployment rates in all counties of the ARV (see Table 2.11) were close to, or below, the State average of approximately eight percent. As a region, the ARV average is just below eight percent (7.8%), as reported in 2011 by the Arkansas Department Workforce Services (ADWS). Although Table 2.5 shows that the ARV region is similar in unemployment to the State, on average those jobs are paying approximately 31 percent less than the State weekly average. Consequently, even though the area's employment outlook is relatively positive, the low wages earned in those jobs do not promote economic growth or improve average incomes for families in the ARV. Development of the intermodal facilities would directly improve this situation through promoting access to higher wage jobs and increasing the region's competitiveness and transportation connectivity.

Table 2.11. Arkansas River Valley: Annual Unemployment, 2011 (Not Seasonally Adjusted)

County	Number Unemployed	Unemployment Rate
Six County Region	5,950	7.8
Conway County	850	8.4
Johnson County	850	7.2
Logan County	825	8.4
Perry County	425	8.6
Pope County	2,325	7.6
Yell County	675	6.5
State of Arkansas	109,975	8.0
<i>Source: ADWS: Local Area Profile, 2011</i>		

2.4.2.4 Need for Large Industrial Sites with Access to Multimodal Transportation

Currently, there are few industrial sites in the region capable of supporting large industries that may wish to do business in the area (i.e., industrial sites with 100 acres or more). According to economic development professionals familiar with the RVIF project, several large businesses have already chosen not to develop new facilities in the area due to a lack of appropriately sized industrial sites and existing infrastructure, especially those with ready access to two or more modes of transportation (Personal Communications, 2010). Appropriate access to the various modes of transportation is known to be a catalyst for defining a large industrial site. For example, Little Rock Port officials predict that a new access road constructed approximately three years ago at the Little Rock Port is projected to serve as a means for future expansion at this port.

Future industrial growth in the ARV is limited by the lack of suitable industrial sites, according to a conversation with the Arkansas Valley Alliance for Economic Development. The Alliance owns three industrial sites in the East End Industrial Park in Russellville; however, these sites have less than 45 acres of developable land. In 2006-2007, the ARV was omitted from consideration for several industrial prospects, because each prospect required greater than 100 acres. Each of these industrial prospects would have required rail and truck access and one would have required rail, truck, and port access. This demonstrates a clear need for suitable industrial sites with intermodal connectivity in the ARV.

Previous studies indicate that some large industries consider proximity to river ports a prime factor in location decisions. Per the Arkansas Valley Alliance for Economic Development, one potential business that looked into locating in the ARV required a site with adequate on-site highway, rail, and water access and was therefore forced to look somewhere other than the ARV. This is because there are no existing ports in the region that provide direct access to water, rail, and highways and that have adequate land adjacent to them for industrial development.

In some rural sections of the country, taking advantage of water transportation opportunities has played a major role in generating economic activity, employment, and income (USDOT, 1994). Other regions of the country have shown economic benefits through freight-related intermodal investments that increased that region's competitive position by lowering the costs of doing business in that area (ARC, 2004). Overall, intermodal transportation investments can increase the volume of transportation in an existing transportation network, reduce logistics costs of current operations, influence the economies of scale associated with transportation network expansion, and provide better accessibility to input and output markets (Yevdokimov, 2000).

2.4.2.5 Need for Additional Freight Capacity

Motivations for large-scale freight projects include reduced congestions on roadways and subsequent enhanced safety; expanded system capacity; improved system

performance; enhanced market access; realized logistics efficiencies; and environmental improvements (USDOT, 2006).

According to the USDOT (USDOT, 2006), international trade has grown rapidly over the past 20 years and is projected to increase dramatically by 2020, challenging the capacity of our nation's transportation system to accommodate growing freight volumes. This is partly due to the North American Free Trade Agreement (NAFTA) and the resulting continuation of growth in foreign trade, which has resulted in record freight volumes each year. This trend continues to contribute to congestion on our transportation system through increased truck traffic on our interstates. The increased freight load has also taxed U.S. rail systems, as well as led to insufficient returns on rail capital investments, limiting the ability of the industry to increase rail capacity. When combined, these trends show a negative forecast for the state of the U.S. freight system, especially when combined with the USDOT estimate of a projected 57 percent increase in U.S. domestic freight tonnage between the years 2000 and 2020. Thus, the need for additional freight capacity is evident at the national level, which translates to the need to the local level – the RVIF – as well.

The freight goods data collected in 1999 by the AHTD established that total inbound freight to the ARV region amounted to 2.07 million tons, and the total outbound movement was 3.29 million tons. Truck shipments accounted for approximately 56 percent of the inbound freight; rail shipments made up 39 percent of that total; and about four percent were shipped by water. The outbound freight movements were divided as follows: 78 percent via truck, 13 percent by rail, and the remaining 9 percent was shipped by water (AHTD, 2005). The proposed intermodal facilities would provide improved and expanded transportation opportunities, capacity, and competitiveness in the region that would allow multiple transportation modes increased opportunities for increased integration into the national and international transportation networks.

Although the RVIF is a regional transportation project aimed at promoting economic growth in the ARV, by providing facilities to help better utilize the inland water and rail shipping options and therefore potentially reducing the number of trucks coming to and from the ARV, there would be at least some impact to the overall national freight capacity. The impact may not be measurable when viewed at the project level, but when viewed cumulatively with other transportation improvement projects the RVIF could help play a role in helping to increase the overall national freight capacity. Any project that improves access, reliability, and intermodal connectivity has potential for positive economic impacts extending from the local to the national economies.

It is critical the USDOT ensures sound investments are made in large-scale freight projects (USDOT, 2006). During a period from 1950 to 1989, the USDOT estimated that industries realized production cost savings averaging 18 cents annually for every dollar invested in the road system (USDOT, 1996). In addition, it is estimated that for every dollar spent on improving the navigation infrastructure, the U.S. Gross Domestic Product increases by more than three dollars (CARIA, 2007). This highlights the

positive role investments in the overall transportation system can have in fostering economic growth and business location and expansion decisions.

Advantages of projects that increase freight capacity include: reduced cost of production due to transportation savings resulting in increased productivity and sales; increased ability for local and regional economies to compete with surrounding areas; and increased standard of living in areas where such improvements are made.

2.4.3 Summary of Needs for RVIF

The national need for additional freight capacity developed through large-scale freight projects, the lack of intermodal facilities and shipping choices in the ARV, the need for slackwater harbors in Arkansas, especially in the ARV, and the need for additional industrial sites in the ARV coupled with the depressed wages in the ARV demonstrate a definitive need for the RVIF. Furthermore, the intermodal facilities will enhance business productivity, economic development, and business location and expansion decisions in the ARV.

2.5 BENEFITS OF THE PROPOSED ACTION

Through minimizing the costs of doing business, the combined direct and indirect benefits of implementing the intermodal facilities would make the region much more competitive in the national and global economies. The regional (six-county) economy would be improved through industrial capacity building, providing wider employment opportunities for the regional labor force, increased wages, and increased supplier effects and individual consumption activities.

Direct benefits would include additional employment and associated wages, as well as corporate profitability associated with increased commercial activities, specialization shipping services, more competitive warehousing, cold storage facilities, packaging, cross-matched products and by-products, and transportation cost efficiencies. These direct benefits of the RVIF not only impact the existing regional industry, but would attract new businesses into the area as well.

Indirect, spillover effects include the establishment of new markets, attraction of new business establishments, diversification of the work force, and various economic multiplier effects that would spread through the entire regional economy. Sectors of the economy that would be affected by these indirect benefits include real estate, personal services, and regional retail activities.

3.0 ALTERNATIVES

3.1 DEVELOPMENT OF ALTERNATIVES – INTRODUCTION

The Alternatives Chapter in the DEIS was accompanied by an Alternatives Analysis Technical Appendix that provided additional information. The Alternatives Chapter in the subsequent SDEIS was expanded to provide more details regarding the alternatives considered for project implementation. This FEIS provides a summary of the alternatives data. The SDEIS should be referenced for the more detailed information regarding the alternatives considered to date. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

The ARV project area consists of six counties in central Arkansas: Conway, Johnson, Logan, Perry, Pope, and Yell. There are currently three public ports/terminals along the Arkansas portion of the MKARNS located in Pine Bluff, Little Rock, and Fort Smith. There are no public use facilities within 30 miles of the project area, however there are three private docks within 30 miles of the project area including the following: Pine Bluff Sand & Gravel, the Port of Dardanelle; and Oakley Port. None of the ports within 30 miles contain a slackwater harbor.

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

- **Slackwater Harbor.** Access to the MKARNS via a slackwater harbor on the Arkansas River with dockside loading and unloading capabilities is an important element of the proposed facilities. This would provide a connection to the Tulsa Port of Catoosa in eastern Oklahoma via the Arkansas and Verdigris Rivers and would provide a connection to the Mississippi River system, thus allowing ready access to the U.S. inland waterway system.
- **Railroad.** Access to the national railway grid would be provided through the Class I UPRR and/or through other existing connector lines such as the Class III short line DRRR.
- **Highways.** The Intermodal Facilities project would also include local access to I-40 via connections through existing local highways.

Additional services at the intermodal facilities would include on-site railcar/truck transfers, truck/barge transfers, railcar/barge transfers, freight tracking, a foreign trade sub-zone, warehousing, distribution, consolidation, just-in-time inventory services, and material storage capabilities.

The identification, consideration, and analysis of alternatives are key to the NEPA process and goal of objective decision-making (FHWA, 2006). Consideration of alternatives leads to a solution that satisfies the transportation needs and protects

environmental and community resources. As stated in 40 CFR 1502.14, the CEQ requires agencies to:

- a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- b) Devote substantial treatment to each alternative considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits.
- c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- d) Include the alternative of no action.
- e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
- f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

Beyond the CEQ requirement of evaluating all or a reasonable number representative of the full spectrum of reasonable alternatives, there are other requirements for analyzing alternatives. These requirements fall under Section 4(f), the Executive Orders (EO) on Wetlands and Floodplains, and the Section 404(b)(1) guidelines (FHWA, 2006).

The use of land from a Section 4(f) protected property (such as a significant, publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site) may not be approved unless a determination is made that there is no feasible and prudent alternative for such use. Many factors exist that could render an alternative "not prudent," including cost and environmental impacts. If an alternative does not meet the action's purpose or need, then the alternative is typically not prudent, and it should not be included in the analysis as an apparent and reasonable alternative (FHWA, 2006).

Due to the nature of this project, there were no reasonable alternatives identified that would be considered outside of the jurisdiction of the FHWA. No matter who builds intermodal facilities like those proposed, the FHWA would have some jurisdiction due to the eventual connection of the facilities with highways under at least partial FHWA jurisdiction.

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.

3.2 ALTERNATIVES ANALYSIS STUDY

3.2.1 Alternative Screening Criteria

A full range of potential project alternatives was considered during the development of the RVIF DEIS and SDEIS. Objective screening criteria were developed cooperatively with input from FHWA, USACE, the Authority, AHTD, and the public to help identify potential reasonable alternative locations for the project. The screening criteria were reviewed by various agencies during a January 26, 2005 agency coordination meeting in Little Rock, Arkansas, at an agency alternatives analysis review meeting on March 15, 2005, and by the public at a March 15, 2005 Public Informational Meeting. The screening criteria were further refined in the SDEIS 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. The basic purpose and need is to promote economic development and create additional jobs in the ARV region. This is proposed to be accomplished by developing intermodal facilities that interconnect three modes of transportation (truck, train, and barge) at one continuous site that is large enough to allow the necessary infrastructure for all three modes of transportation to be juxtaposed with ancillary facilities. The desired site would contain land suitable for development, be proximate to existing communities and infrastructure, and provide enough space to attract a combination of large and small industrial developments within the site. Table 3.1 lists the screening criteria and rationale that were utilized to evaluate the various alternatives developed for the project and to determine which of the alternatives should be evaluated in detail in the SDEIS.

Table 3.1. Screening Criteria Utilized to Identify Reasonable Alternatives to be Considered in the Arkansas River Valley Environmental Impact Statement.

1	The alternative must provide reasonable intermodal facilities access (i.e., proximate to highway, rail, and river access).
2	The alternative layout should be contiguous to allow the various modes of transportation to be juxtaposed (i.e., all of the modes must fit on one site along with the ancillary facilities).
3	Site should be positioned near the navigable channel of the Arkansas River
4	The minimum size for the alternative should be at least 700 acres and the optimum size would be >800 acres. This is based upon the an estimate of 200 acres for the slackwater harbor, 200 acres for the truck transfer/off-loading area, 200 acres for the railroad facilities, and 200 acres for the ancillary facilities and industrial development.
5	The alternative should minimize impacts to the human environment by minimizing the number of relocations required and minimizing exposure of facilities' operations to adjacent residences.
6	The alternative should be close to existing industry to facilitate and maximize the use (and associated benefits) of the facilities.
7	The alternative should minimize impacts to natural resources by minimizing impacts to wetlands and perennial and intermittent streams.
8	The alternative should minimize impacts to flood levels for properties located adjacent or downstream of the site.
9	The alternative should minimize impacts to cultural resources.
10	The alternative should be proximate to existing communities in order to supply a suitable workforce and proximate to existing utilities and infrastructure to reduce initial site development costs.
11	The alternative should have land and topography suitable for the development of the required facilities infrastructure
12	Planning level development costs should reasonable compared to currently available funds of approximately \$7,000,000.
13	The alternative site should be conducive to reasonable site operations and maintenance costs

In general, an alternative site was considered more likely to promote economic development and job creation, and therefore meet the purpose and need, if it:

- was located adjacent to existing transportation infrastructure (highway, rail, and river access) to allow for reasonable multi-modal access (screening criterion #1);
- provided a contiguous site that allowed for all three modes of transportation to be juxtaposed with the ancillary facilities, such as on-site transfer areas, temporary storage areas, warehousing, and industrial development (screening criterion #2);

-
- was at least 700 acres in size to allow adequate space for the required infrastructure and ancillary facilities while allowing adequate space to facilitate the development of potential industries, some of which may require large areas for production, storage, and shipping of their products (screening criteria #4); and
 - consisted of land suitable for development of required facilities and infrastructure [i.e., majority of site with less than 5% slope gradient (screening criterion #11)].

In summary, alternative sites were evaluated using the 13 screening criteria. Based upon the screening level analysis, alternatives that best fit the screening criteria were selected for detailed analysis in the EIS.

3.2.2 Other Alternative Analysis Considerations

The project area lies in the ARV (Quaternary Alluvium) between the Ozark Mountains physiographic region (Atoka Formation, Cane Hill Member of the Hale Formation, and Hartshorne Sandstone) to the north and the Ouachita Mountains physiographic region to the south (Atoka Formation). The geologic features, formations, and steep topography of the surrounding area limit the development potential of much of the ARV region. As such, many undeveloped tracts in the project area would not be suitable for development of the large intermodal facilities complex. According to the Arkansas Valley Alliance for Economic Development, there is a lack of developable land in the ARV capable of supporting future industry (AVAED, 2007 and Pipkin pers. comm., 2010).

The Holla Bend National Wildlife Refuge (NWR), which is managed by the U.S. Fish and Wildlife Service (USFWS), is located in Yell and Pope Counties south of the Arkansas River between ARM 196.5 and 193.9. During the agency and public involvement phase of the DEIS and SDEIS, the USFWS, conservation organizations, and citizens expressed concerns over the juxtaposition of the intermodal facilities and the NWR. The USFWS would oppose alternatives that could adversely impact the mission of the NWR (Wine pers. comm.), which is primarily to provide habitat for migratory birds (<http://www.fws.gov/southeast/HollaBend/>). When selecting a site for the intermodal facilities, the approach of “the farther away, the better” was suggested by the USFWS and concerned citizens. Although an exact minimum distance from the NWR was not specified by the USFWS, they have concurred that the sites proposed in the DEIS and further defined in the SDEIS would not adversely impact Holla Bend NWR. The USFWS would oppose alternatives similar to the Holly Bend or Dike Field alternatives presented in the Russellville Slackwater Harbor EA that was prepared by the USACE. These alternatives were dismissed in the EA, because they were situated in ecologically important wetlands, they were located near the Galla Creek State Wildlife Management Area, and they would not be cost effective due to the extensive infrastructure development costs (USACE, 2000).

Railroads are typically constructed on land with less than two percent slope and preferably on land with one percent or less slope gradient (USACE, 2000a). The additional force required to move a train, due to the presence of a grade, is known as grade resistance. Grade resistance equals 20 pounds for each ton of train weight and

percent of grade. Thus, it takes twice the force to pull a train up a 2-percent grade as it does a 1-percent grade. For this reason, the choice of maximum gradient (the rate of elevation change on a particular grade) can have a great effect on operations over a route (USACE, 2000a). Therefore, sites with greater than 5 percent slope would not support reasonable rail access.

3.2.3 Analysis of Potential Alternatives

A total of nine potential 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.

At its nearest point the distance to existing railroad lines on the south side of the Arkansas River was greater than 8 miles, and buying railroad right-of-way and constructing a new railroad line was not considered financially reasonable. There would also be a great deal of environmental, land use, and social impacts associated with the construction of a new railroad line. It was also not considered reasonable to construct a railroad bridge across the Arkansas River to provide railroad access. A bridge would not be reasonable or feasible based upon anticipated environmental impacts and extreme costs. Therefore, no sites south of the Arkansas River were considered reasonable for the proposed facilities.

Sites that contained extremely steep terrain near the river that would inhibit access to the Arkansas River were not considered reasonable. Other sites that were considered during the initial identification of potential alternative sites, such as the existing Port of Dardanelle, were not carried through the entire alternative screening process due to known limitations of the site to provide all the necessary features required of the proposed intermodal facilities. Such sites would not be practicable for the development of rail facilities or other ancillary facilities due to terrain, available vacant land, or other constraints. For instance, expanding the existing Port of Dardanelle was not considered a reasonable option due to constraints (e.g. lack of vacant land) at that site that would limit development of ancillary facilities necessary for fully functional intermodal facilities (e.g. industrial development area). Substantial impacts to Whig Creek would be required, if the Port of Dardanelle were to be expanded to allow construction of the large intermodal facilities complex that is proposed to be developed on a contiguous tract of property. In addition, one of the important aspects of the proposed intermodal facilities is to provide a slackwater harbor to allow barges to pull out of the main channel of the river for safer transfer of freight. The area required for the slackwater harbor along with ancillary facilities would exceed that available at the existing Port of Dardanelle location.

Sites that would require dredging an extensive canal (>0.25 miles in length) over land from the navigable channel of the river were not considered reasonable. Although it would be possible to dredge a canal to connect such sites to the river, the potential for increased environmental impacts, additional construction and maintenance costs, and safety and operational problems of a long narrow canal make it undesirable and unreasonable. Increased environmental impacts of constructing a long canal may

include impacts to wetlands by disrupting hydrology, increased soil disturbance and erosion potential, and loss of wildlife habitat mainly associated with the loss of wetlands.

In addition, no plans for an airport facility are considered as part of this project.

The following nine alternatives for the proposed action, listed from upstream to downstream, were considered in the DEIS and SDEIS:

- Pittsburgh Road (Yellow);
- Bend (Purple);
- Keener Cove (Blue) (identified during the public involvement process);
- New Hope (Pink);
- North Dardanelle (Red);
- Russellville Bottoms (Green);
- Atkins Bottoms (Orange);
- Blackwell Bottoms (Black); and
- Morrilton Bottoms (Brown).

Figure 3.2 shows the general location of each of the potential alternatives that were considered for inclusion in the DEIS. The alternative sites were investigated in January through April 2005, with some additional analysis in June 2007 for the SDEIS. No additional alternative sites were identified or suggested by the public or other agencies that would be considered reasonable. One DEIS commenter provided additional information including a site layout to support his proposal to consider the Keener Cove site as a reasonable alternative. However, after evaluating the proposal, this site would not be considered reasonable. In addition, several DEIS commenters suggested that there were other sites to consider and either used the “anywhere but here” approach, or an approach that did not correlate with the accepted screening criteria. In all cases the commenters were unable to identify a reasonable site that met the screening criteria and could be investigated.

3.3 SUPPLEMENTAL DATA USED IN THE ALTERNATIVE ANALYSIS DECISION-MAKING PROCESS

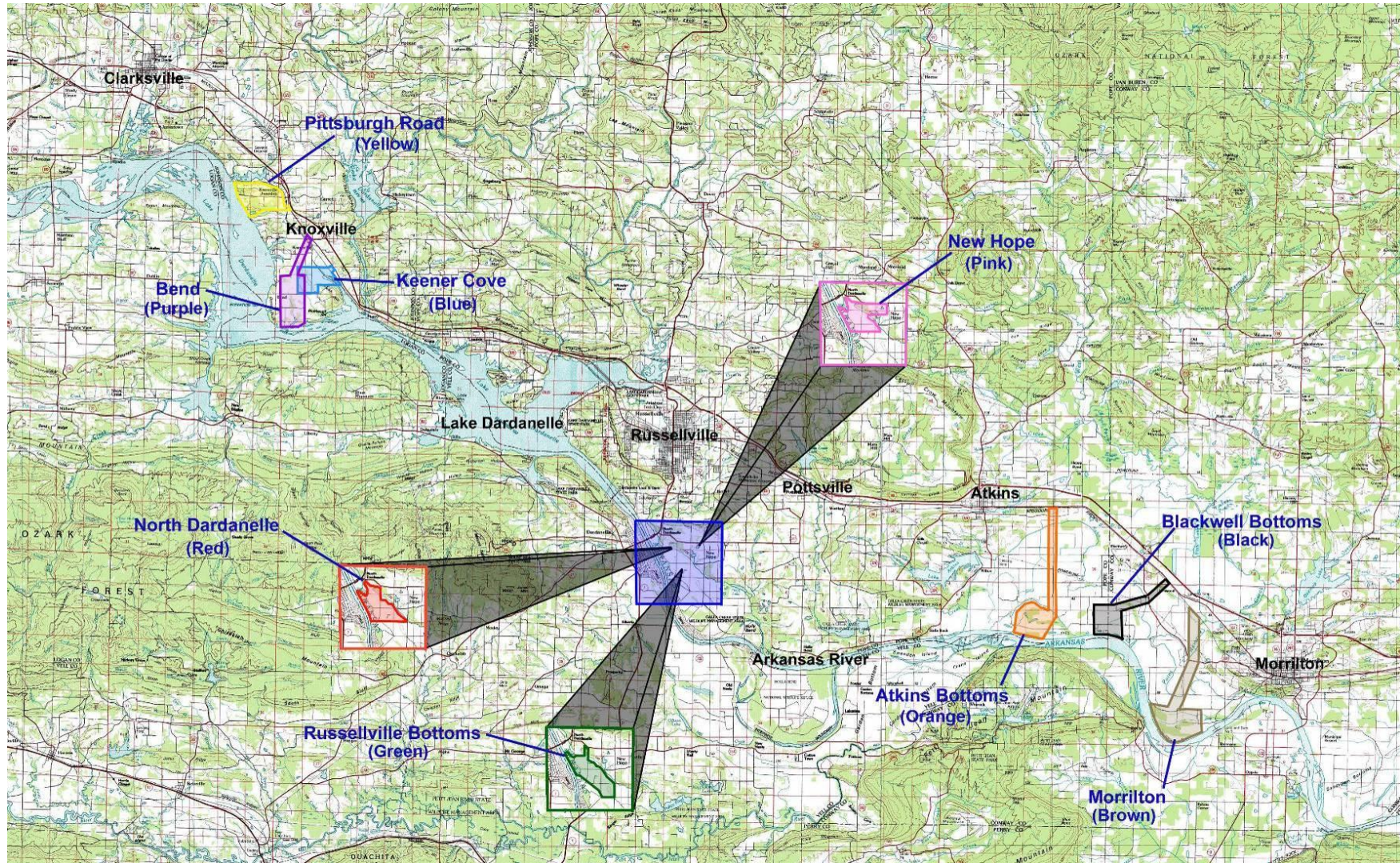
Planning level cost estimates for new primary intermodal facilities access roads and rails were developed for each of the nine potential alternative sites listed above. These estimates included costs for new primary access roadways and rails that would connect existing state highways and railroads to the potential slackwater harbor site of each alternative location. These estimates do not include all roadways and rails that would need to be established to create a completely functional intermodal facilities complex. The main roadway and rail cost difference between the alternative locations would be primarily due to construction of the mainline access road and rail alignment, because the access lengths vary for each alternative.

To estimate the costs of the slackwater harbor construction several general assumptions were made. It was assumed that the depth for harbor and access channels would be 14 feet (USACE, 2001) to be compatible with the approved Arkansas River 12-foot navigation channel. The entrance channel into the harbor would be 450 feet wide to allow for passing, and the harbor would be 15-20 acres (excluding the entrance channel). Therefore, the overall footprint of the harbor would be approximately 30 acres.

Providing each of the alternative sites with utilities such as water, electricity, communications, sewer, and gas were analyzed qualitatively based on the location of each site in relation to existing utility infrastructure. Assumptions were made that sites that are located further from existing utilities would cost more than proximate sites, and utilities would be more difficult to provide for distal sites.

Proximity and number of existing industries in relation to each potential Build Alternative were considered in the SDEIS. There are approximately 123 industries in Conway, Johnson, Logan, Perry, Pope, and Yell Counties that could potentially use a new intermodal facilities complex (Harris Infosource, 2008). Many of these industries ship bulk commodities, such as grain, rock, steel, fertilizers, or wire that can be transported by barge at a less expensive rate, or they would ship their finished products to foreign markets via water transportation. Establishing the new intermodal facilities proximate to existing industries would be a considerable attraction for these industries to stay and/or expand their business in the region.

Figure 3.1. Overview Map of Alternative Locations Considered for Inclusion in the River Valley Intermodal Facilities EIS.



3.4 SUMMARY OF FINDINGS OF THE ALTERNATIVES ANALYSIS STUDY

An alternatives analysis matrix is provided on Table 3.2. This table contains a comparison summary of how well each of the potential Build Alternatives considered in the Alternatives Analysis Study conformed to the alternative screening criteria.

The three alternatives that were evaluated in the SDEIS included the Green Alternative (Preferred Alternative), Red Alternative, and Purple Alternative. These alternatives met the screening criteria and were considered reasonable alternatives for project implementation. These alternatives were carried forward and fully evaluated in the SDEIS, based upon the following factors:

- The Green and Red Alternative sites would provide reasonable multi-modal access, because they are proximate to existing highways, railroads, and the navigation channel of the Arkansas River. The Purple Alternative site is moderately close to existing railroad and highway alignments and to the navigation channel of the Arkansas River.
- Relative to some of the other potential alternatives, there would not be severe impacts to the human environment (i.e. residential relocations) from the Green, Red, or Purple Alternatives.
- The Green and Red Alternative sites are located proximate to existing communities, utilities, infrastructure, and industry. The Purple Alternative is moderately close to existing industries, but distant (6.6 miles) to communities with existing public utilities/infrastructure.
- Impacts to natural resources under the Green and Red Alternatives would be reduced compared to other similar alternatives. The Purple Alternative site has anticipated minimal adverse impacts to wetlands and floodplains, and moderate impacts to streams.
- There would be less potential for impacts to cultural/historical resources under the Purple Alternative than under most of the other alternatives.
- Over 90 percent of the Green and Red Alternative sites are suitable for development of ancillary facilities or rail access. Although approximately 63 percent of the Purple Alternative site is poorly suited for development of ancillary facilities and rail access due to the steep terrain and physical limitations, it is anticipated that through appropriate engineering design these limitations could be overcome.
- For the Green and Red Alternatives, the cost of the initial site development would be reasonable when compared to the currently available funds of approximately \$7 million. The Purple Alternative's initial site development costs are moderate to high.
- The Green Alternative has low anticipated operations and maintenance costs and the Red, and Purple Alternatives have moderate anticipated operations and maintenance costs.

The Pink Alternative also met the screening criteria. However, while this alternative is quite similar in location and configuration to the Green and Red Alternatives, it has

substantially more residential relocations with severe local community impacts likely and more stream and wetland impacts than these other alternatives. Therefore, the Green and Red Alternatives were chosen for further evaluation over the Pink Alternative.

Direct impacts to the social environment, recreation, natural resources, cultural resources, and floodplains would be associated with those alternatives that were not selected for further evaluation (the Yellow, Blue, Pink, Orange, Black, and Brown Alternatives). There would be significant adverse impacts to the social environment under the Blue and Pink Alternatives due to 62 residential relocations. Over 7,500 feet of stream channel would be adversely affected under the Yellow, Blue, and Brown Alternatives, and adverse impacts to more than 40 acres of wetlands would occur under both the Orange and Brown Alternatives. Negative impacts to floodplains and to cultural resources would be severe under the Pink, Orange, Black, and Brown Alternatives. Sites located proximate to Galley (Galla) Rock and Point Remove Mounds, both areas known to contain potential important cultural resources, include the Orange and Brown Alternatives. Adverse impacts to recreation under the Blue Alternative would be associated with the planned Highway 64 Cove Park. The proposed intermodal facilities at the Blue Alternative would likely pose a constructive use to the proposed park due to the proximity of impacts of the project and their ability to severely diminish the activities, features, or attributes of this potential Section 4(f) property.

Beneficial direct social impacts at each of the alternatives that were not selected for further analysis would include enhanced economic functionality and viability of the project areas. New transportation and employment opportunities would be attained in the project areas. Other beneficial direct impacts would be similar to those of the Purple, Green, and Red Alternatives.

Indirect impacts would also be associated with the alternatives not selected for further evaluation. Loss of wetlands, stream channel alignments, and riparian buffers could result in reduced water quality for downstream areas of these alternatives. Long-term adverse indirect impacts to aquatic resources would occur from increased impervious surface area and conversion from rural to industrial use. Long-term beneficial indirect impacts would occur by eliminating the use of the project area for agriculture, especially cattle pastures and poultry operations. Runoff of fecal coliforms and chemicals from pastures and poultry operations into aquatic resources can adversely affect water quality. In addition, the intermodal facilities would provide a catalyst for the expansion of existing industry and attraction of new industry into the regions of these alternatives. Indirect impacts from the alternatives not selected for further analysis would be similar to those of the Purple, Red, and Green Action Alternatives.

Past actions have resulted in the current demographic, land use, and development trends in the region of the Intermodal Facilities. The baseline environmental condition is, in part, the result of these past actions.

Past, present, and future actions in the region include:

- Construction projects to provide typical urban improvement needs, such as roadway infrastructure, commercial development, and residential housing.
- Logistical and organizational activities (e.g. local travel) required for people to carry out everyday government, private sector, and personal functions.
- Alteration, repair, rehabilitation and maintenance of buildings, structures, site improvements, and utility systems, as required.

Cumulative impacts resulting from alternatives carried forward for further analysis would be associated with the Arkansas River Navigation Project, Highway 247 improvements, industrial development in the Arkansas River bottoms near Russellville, expansion of soil and gravel excavation and removal, continuation of agricultural land use, and the increase of existing Arkansas River commerce. Cumulative impacts from the alternatives not selected for further analysis could include soil erosion, air emissions, effects on traffic flow, changes in the noise environment, and socioeconomic changes and would be similar to those of the Purple, Red, and Green Action Alternatives.

Table 3.2. Summary of Alternatives Analysis for Potential Build Alternatives of the River Valley Intermodal Facilities															
	Alternative Screening Criteria														
Alternative (RM = River Mile)	Provides reasonable multi-modal access [distance to nearest State highway/ railroad (miles)]	Layout of site and intermodal nodes are contiguous	Site positioned near navigable channel of Arkansas River [distance to channel in (feet)]	Site is at least 700 acres in size (acres)	Number of Relocations (# of Residences)	Existing Industry Close to Site (# of Industries with 15 miles see Table 3.4)	Potential for impacts to natural resources (acres of wetlands)	Potential for impacts to natural resources [feet of stream channel, (perennial + intermittent)	Potential for impacts to flood-plains (% of site in floodplain)	Potential impacts to cultural/ historical resources (ratings described in section 3.2.1)	Distance of site to communities with existing public utilities/ infrastructure (distance to nearest public water/electric/ gas in miles)	Suitable land for development of required facilities/ infrastructure (% of land with 5% or greater slope gradient)	Estimated Planning level development costs (Costs further described in Table 3.2)	Anticipated Operations and Maintenance Costs (costs described in section 3.2.1)	Comments/ Issues
Pittsburgh Road (Yellow) Alternative (RM 226)	1.7/1.6 Miles	Yes	5,737 feet	806	31	24	< 5 acres	8,038 feet	3%	Moderate	2.6 miles	87%	\$25,759,400	High	Positive aspects include proximity to state highway/railroad, contiguous layout >700 acres, low number of relocations, minor impacts to wetlands and floodplains. Negative aspects include distance from navigable channel of Arkansas River, terrain too steep/rolling for rail development, clearing of large amount of forests, moderate planning level costs, and high operations and maintenance costs. Substantial stream impacts likely.
Bend (Purple) Alternative (RM 220)	3.5/3.0 Miles	Yes	1,688 feet	742	15	28	< 5 acres	6,748 feet	5%	Moderate	6.6 miles	63%	\$27,399,900	Moderate	Positive aspects include proximity to state highway/railroad, contiguous layout >700 acres, moderately close to navigable channel, low number of relocations, minor impacts to wetlands and floodplains. Negative aspects include distance to existing utilities and infrastructure, steep terrain, and moderate planning level costs. Lake Dardanelle State Fish Hatchery in proximity.
Keener Cove (Blue) Alternative (RM 217.5)	1.0/0.5 Miles	Yes	7,248 feet	703	62	30	14 acres	7,709 feet	5%	Moderate	5.1 miles	35%	\$30,461,600	High	Positive aspects include proximity to state highway/railroad, contiguous layout >700 acres, and minor impacts to floodplains. Negative aspects include distance to navigable channel of Arkansas River and existing utilities, high number of residential relocations, adverse stream channel impacts, moderate planning level costs, and high operations and maintenance costs. Planned Highway 64 Cove Park would be a potential Section 4(f) issue.
New Hope (Pink) Alternative (Old Alt. 2; RM 203)	1.0/1.1 Miles	Yes	0 feet	836	62	69	26 acres	5,100 feet	65%	High	0.8 miles	27%	\$15,404,000	Moderate	Positive aspects include proximity to state highway/railroad, the navigable channel, to existing industry, and to existing utilities, contiguous layout >700 acres, low planning level costs. Negative aspects include high number of relocations that would require relocation of multiple businesses and residences. Stream and wetland impacts higher than similar Green Alternative. High potential for cultural/historical impacts.
North Dardanelle (Red) Alternative (Old Alt. 3; RM 203)	1.0/1.1 Miles	Yes	0 feet	832	8	69	21 acres	5,100 feet	96%	High	0.8 miles	6%	\$15,330,000	Moderate	Positive aspects include proximity to state highway/railroad, to the navigable channel, to existing industry, and to existing utilities, contiguous layout >700 acres, low number of relocations, low planning level costs, wetland and stream channel impacts less than similar Pink Alternative, level terrain. Negative aspects include site is in floodplain and potential for cultural/historical resources issues.

Table 3.2 (Continued). Summary of Alternatives Analysis for Potential Build Alternatives of the River Valley Intermodal Facilities															
	Alternative Screening Criteria														
Alternative (RM = River Mile)	Provides reasonable multi-modal access [distance to nearest State highway/ railroad (miles)]	Layout of site and intermodal nodes are contiguous	Site positioned near navigable channel of Arkansas River [distance to channel in (feet)]	Site is at least 700 acres in size (acres)	Number of Re-locations (# of Residences)	Existing Industry Close to Site (# of Industries with 15 miles see Table 3.4)	Potential for impacts to natural resources (acres of wetlands)	Potential for impacts to natural resources [feet of stream channel, (perennial + intermittent)	Potential for impacts to flood-plains (% of site in floodplain)	Potential impacts to cultural/ historical resources (ratings described in section 3.2.1)	Distance of site to communities with existing public utilities/ infrastructure (distance to nearest public water/electric/ gas in miles)	Suitable land for development of required facilities/ infra-structure (% of land with 5% or greater slope gradient)	Estimated Planning level development costs (Costs further described in Table 3.2)	Anticipated Operations and Maintenance Costs (costs described in section 3.2.1)	Comments/ Issues
Russellville Bottoms (Green) Preferred Alternative (RM 203)	1.0/1.1 Miles	Yes	0 feet	882	6	69	18 acres	414 feet	100%	High	0.8 miles	1%	\$9,276,000	Low	Positive aspects include proximity to state highway/railroad, to the navigable channel, to existing industry, and to existing utilities, contiguous layout >700 acres, low number of relocations, low planning level costs, minor impact to stream channels, level terrain. Negative aspects include site is in floodplain and high potential for cultural/historical resource issues.
Atkins Bottoms (Orange) Alternative (RM 188)	5.9/6.7 Miles	Yes	0 feet	820	2	31	82 acres	6,419 feet	100%	High	4.5 miles	3%	\$29,418,500	Moderate	Positive aspects include contiguous layout >700 acres, proximity to the navigable channel, low number of relocations, level terrain. Negative aspects include distance to state highway/railroad, moderate planning level costs, high potential for wetland and floodplain impacts. High potential for cultural resources issues due to proximity to Galley Rock site.
Blackwell Bottoms (Black) Alternative (RM 183)	4.0/4.3 Miles	Yes	0 feet	824	3	23	17 acres	4,431 feet	100%	High	5.3 miles	0%	\$26,624,600	Moderate	Positive aspects include contiguous layout >700 acres, proximity to the navigable channel, low number of relocations, level terrain. Negative aspects include moderate distance to state highway/railroad, moderate planning level costs, high potential for floodplain and cultural/historical resource impacts, distance to existing industry and utilities/infrastructure.
Morrilton (Brown) Alternative (RM 180)	5.3/4.8 Miles	Yes	632 feet	842	5	21	42 acres	9,721 feet	100%	High	4.1 miles	1%	\$26,968,000	Moderate	Positive aspects include contiguous layout >700 acres, low number of relocations, level terrain. Negative aspects include distance to state highway/railroad, distance to existing industry, moderate planning level costs, high potential for wetland, stream channel, floodplain and cultural/historical resource impacts. Point Remove Mounds in vicinity. Located near Lock and Dam No. 9.
Note: No reasonable alternatives on south side of Arkansas River due to lack of railroad access. Bridging over Arkansas River is not considered a reasonable option due to the excess cost and additional environmental impacts.															
Green Shading = Meets Screening Criteria well compared to the other sites						Yellow Shading = Meets Screening Criteria moderately well compared to the other sites						Tan Shading = Does not meet Screening Criteria as well as green and yellow shaded sites			

3.5 PREFERRED ALTERNATIVE - GREEN ALTERNATIVE

The Russellville Bottoms (Green) Alternative has been selected as the preferred alternative for the project. The Green Alternative would consist of an 882-acre tract located near ARM 203 along the left descending bank of the river. A narrow access corridor extends northward to Highway 247. This site generally consists of relatively flat bottomland throughout. Most of this site would be within the floodplain of the Arkansas River. A flood protection levee would be required to protect the Intermodal Facilities from backwater flooding from the Arkansas River and headwater flooding or flash flooding from Whig Creek and its tributaries. Figure 3.2 shows the potential boundary and site layout for the Green Alternative, including the proposed levee.

Positive features of the site include multi-modal access, site layout, site positioned near navigable channel of the Arkansas River, site size, low number of relocations, existing industry close to site, low anticipated impacts to stream channels, existing public utilities/infrastructure close to site, level terrain suitable for development, relatively low planning development costs (~\$9,276,000), and low anticipated operations and maintenance costs.

Based upon the 2011-12 Phase II surveys, there are 7 NRHP-eligible archaeological sites located within the Green Alternative. Additional cultural resources Phase II investigations would be required for the 20 archeological sites that have not been evaluated to date. The 20 unevaluated sites would be tested to determine NRHP eligibility in accordance with the approved Programmatic Agreement (PA) that was developed for the FEIS. A copy of the approved PA and associated Work Plan are contained in Appendix C. The unevaluated sites are considered potentially eligible for the NRHP, pending further Phase II testing. The NRHP sites would be protected or mitigated in accordance with the procedures outlined in the approved PA. Such steps would include, but not be limited to, avoiding NRHP-eligible resources through project redesign, minimizing impacts if avoidance is not possible, and mitigating impacts to all NRHP-eligible sites that would be partially or entirely affected by the project, through the implementation of Phase III data recovery efforts.

It is assumed that most of the land within the flood protection levee would be altered as the intermodal facilities are developed. Under the Green Alternative, Whig Creek and one other stream located near the northern boundary of the site would be slightly impacted. However, the high quality wetlands and another small tributary, which would be impacted under the Red Alternative, would be avoided. The lower quality wetlands in the southern portion of the site would be impacted under the Green Alternative. The Green Alternative would have fewer wetland impacts especially in regards to the functional value of wetlands impacted.

Under the Green Alternative, the levee along the Arkansas River boundary of the site would be set back to protect the forested riparian corridor and to provide a buffer between the site and the Arkansas River. These trees would also provide a visual buffer to conceal much of the development on the site from the City of Dardanelle located directly across the river.

As part of the intermodal facilities development, a slackwater harbor would be constructed to provide access from the site to the Arkansas River via barge. The location of the proposed harbor is shown on Figure 3.2. The navigable channel is located close to the left descending riverbank at this location providing easy barge access to the site. A portion of this harbor has already been excavated by a sand and gravel company located near the proposed harbor. Additional excavation and dredging would be required as part of this project to complete the harbor and bring it to appropriate depth and size to support usage for barges.

A railroad connector line would be constructed to provide rail access to the site. The proposed connector line would enter the site from the northwest corner of the site via an extension of the existing short-line Dardanelle-Russellville Railroad. The railroad extension would require construction of a bridge over the lower reaches of Whig Creek.

An access road connecting the intermodal facilities to Highway 247 would be constructed in the northeast corner of the site. This roadway would be a hardened surface to provide a low maintenance facility and to eliminate fugitive dust impacts typically caused by gravel or dirt roads. Highway 247 would provide the main access to and from I-40 and would also provide access to Highway 7.

A network of roadways and railroad spurs would be constructed throughout the intermodal facilities property to provide connections to potential warehouses, industries, and other future users of the facilities as the site is developed. Figure 3.2 shows a general depiction of how these facilities could be placed on the site. The final design of these features will be determined as the intermodal facilities develop.

The Green Alternative was originally developed to avoid some of the potential environmental and social impacts associated with the Red Alternative and to address concerns from resource agencies during the initial public involvement phase of the EIS. The highest quality wetlands located in the Red Alternative project area occur along the Tributary to Whig Creek. These wetlands play an important role in protecting the water quality of Whig Creek, which is listed on the 303d List of Water Quality Limited Waterbodies in Arkansas. The Arkansas Game and Fish Commission expressed concerns over the wetlands that would be impacted by the Red Alternative and desired that they be protected (Leonard pers. comm.). The Green Alternative would avoid these wetlands. In addition, the Green Alternative would have two less residential relocations than the Red Alternative. The Green Alternative would preserve more of the trees along the Arkansas River helping to obstruct the potential visual impacts to the City of Dardanelle.

This site would meet the purpose and need of this project and provide reasonable multi-modal access and suitable development areas. The Green Alternative site is located proximate to existing infrastructure and to existing communities and industries. This site would have minimal impacts to the human environment with six residential relocations.

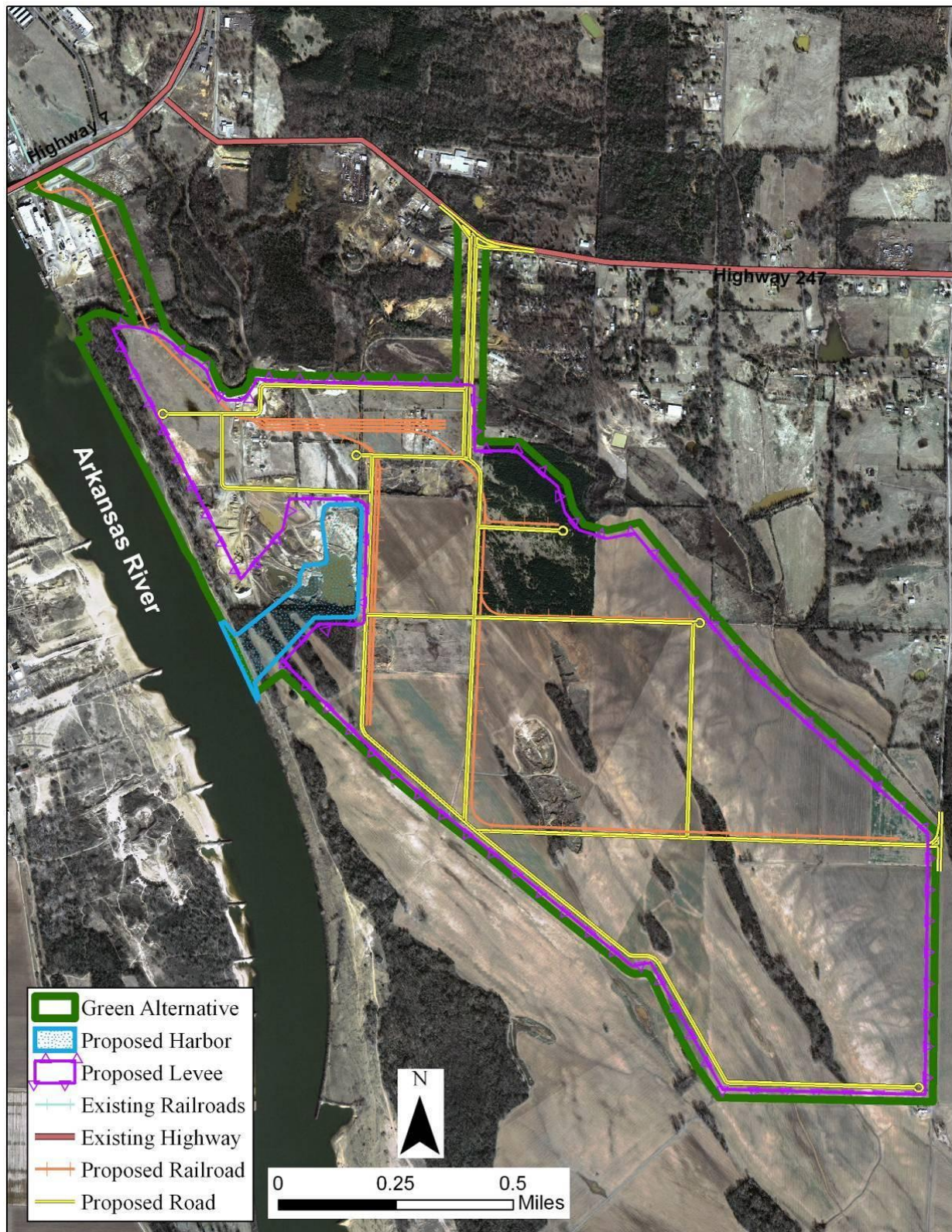
Limiting factors for this site include potential for adverse impacts to wetlands, floodplains, and cultural/historical resources. This site would reduce impacts to most of the streams and wetlands compared to other alternatives in the same general vicinity and using the same river access point. However, at least one stream and some wetlands (17.8 acres) would still be impacted by this alternative. A minor amount of forested land would need to be cleared on this site, however only minor grading and land leveling would be required. A flood protection levee would be required, and this levee would be set back from the left descending bank of the Arkansas River and Whig Creek, which would protect the existing riparian corridor along the river and creek.

Summary of Findings for the Green (Preferred) Alternative

The Green (Preferred) Alternative meets the screening criteria well and is considered a reasonable alternative for project implementation. This alternative was selected as the preferred alternative because:

- The cost of the initial site development would be reasonable when compared to the currently available funds of approximately \$7 million;
- The site would provide reasonable multi-modal access, because it is proximal to existing highways, railroads, and the navigation channel of the Arkansas River;
- Approximately 99 percent of the site is suitable for development of ancillary facilities or rail access;
- Relative to some of the other potential alternatives, there would not be severe impacts to the human environment;
- Impacts to the natural resources would be reduced compared to other similar alternatives (i.e., 414 feet of stream channel and 18 acres of wetlands versus up to 9,721 feet of stream channel and 82 acres of wetlands under other alternatives);
- The site is located proximate to existing communities, utilities, infrastructure, and industry;
- The Green Alternative was favored by the resource agencies commenting on the SDEIS; and
- The Green Alternative was favored by the public based upon comments received during the SDEIS public comment period.

Figure 3.2. Conceptual Site Layout of the Preferred Alternative (Green Alternative).



3.6 NO ACTION ALTERNATIVE

The No Action Alternative will result in not pursuing development of intermodal facilities in the six-county ARV region as proposed. The No Action Alternative has no location and no cost. However, there would not be any major improvement in transportation efficiency or enhancement of the region's ability to attract new businesses that prefer or require multi-modal transportation options that would be afforded by the proposed intermodal facilities, including a slackwater harbor for barges, railroad service, and access to intrastate and interstate roadways. 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. Existing environmental impacts from ongoing sand and gravel operations, top-soil removal, and farming would continue. The No Action Alternative has not been selected, because it fails to provide economic development opportunities for the ARV region.

3.7 OTHER ALTERNATIVES EVALUATED IN DETAIL IN THE SDEIS

3.7.1 North Dardanelle (Red) Alternative

The North Dardanelle (Red) Alternative is located near ARM 203 along the left descending bank of the river and extends northward to State Highway 247 and south into the Arkansas River floodplain. This alternative was known as Alternative 3 in the previous November 2002 Intermodal Facilities EA prepared by FHWA. This site generally consists of relatively flat bottomland throughout. Most of this site would be within the floodplain of the Arkansas River. A flood protection levee would be required to protect the Intermodal Facilities from backwater flooding from the Arkansas River and headwater flooding or flash flooding from Whig Creek and its tributaries.

Positive features of the site include multi-modal access, site layout, site positioned near navigable channel of the Arkansas River, site size, low number of anticipated relocations, existing industry close to site, existing public utilities/infrastructure close to site, small percentage of site with steep slopes, and relatively low planning development costs.

This site would meet the purpose and need of this project and provide reasonable multi-modal access and suitable development areas. The rolling terrain in the northeastern portion of the site would not lend itself to noteworthy development, but the remainder of the site is relatively flat and developable. Existing infrastructure, such as primary highways, railroads, and utilities are located proximate to this location. This site is located proximate to several existing communities with diverse populations that could provide an adequate starting workforce for most new industries. This would allow industries to begin production relatively quickly and help to provide immediate benefits to the ARV regional economy.

The Red Alternative met the screening criteria and was considered a reasonable alternative for project implementation addressed in the DEIS and SDEIS. This

alternative was carried forward and fully evaluated in the DEIS and SDEIS, based upon the following factors:

- The cost of the initial site development would be reasonable when compared to the currently available funds of approximately \$7 million;
- The site would provide reasonable multi-modal access because it is proximal to existing highways, railroads, and the navigation channel of the Arkansas River;
- Approximately 94 percent of the site is suitable for development of ancillary facilities or rail access;
- Relative to some of the other potential alternatives, there would not be severe impacts to the human environment; and
- The site is located proximate to existing communities, utilities, infrastructure, and industry.

3.7.2 Bend (Purple) Alternative

The Bend (Purple) Alternative site is located near ARM 220 along the north shore of the Arkansas River (Lake Dardanelle) south of Bend and Knoxville, Arkansas. This site consists of an area of rolling terrain, much of which is currently pasture.

The Purple Alternative met most of the screening criteria and was considered a reasonable alternative for project implementation in the SDEIS. This alternative was carried forward and fully evaluated in the SDEIS, based upon the following factors:

- The site provides reasonable multi-modal access for railroad and highway access due to its proximity to existing alignments;
- The site has anticipated minimal adverse impacts to wetlands;
- The site has anticipated minimal adverse impacts to floodplains; and
- There would be low to moderate impacts to the human environment.

Although approximately 63 percent of the site is poorly suited for development of ancillary facilities and rail access due to the steep terrain and physical limitations, it is anticipated that through appropriate engineering design these limitations could be overcome.

3.8 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS IN THE DEIS AND SDEIS.

3.8.1 Pittsburgh Road (Yellow) Alternative

The Pittsburgh Road (Yellow) Alternative site is located near ARM 226 along the left descending bank of the river just south of Cabin Creek and west of Knoxville Junction, Arkansas.

The Yellow Alternative was not reasonable and was not carried forward in the DEIS or SDEIS, based upon the following factors:

- The site would require dredging approximately 5,737 feet of channel to allow access to the Arkansas River Navigation Channel;
- The cost of the initial site development would be approximately 3.8 times more than the currently available funds of approximately \$7 million;
- Approximately 87 percent of the site is poorly suitable for development of ancillary facilities or rail access due to the steep terrain and physical limitations;
- There would be severe adverse impacts to wildlife habitat (i.e. the loss of approximately 628 acres of upland forest);
- There would be adverse impacts to perennial and intermittent streams on the site;
- Immediate economic benefits would be moderate to low as approximately 24 industries are located within 15 miles of the site;
- There would be notable impacts to the human environment (i.e. 31 residential relocations); and
- Operations and maintenance costs are expected to be high.

3.8.2 Keener Cove (Blue) Alternative

The Keener Cove (Blue) Alternative site is located near ARM 217.5 along the north shore of the river south of Knoxville, Arkansas. This site consists of an embayment bordered by the UPRR to the east and a Clubb Hill to the west. Clubb Hill rises to approximately 200 feet above the normal elevation of Lake Dardanelle, and the steep terrain would prohibit development. The area north and northwest of the embayment consists of slightly rolling terrain, much of which is currently pasture or part of the City of Knoxville. The area east of the embayment and the railroad is bisected by Highway 64 and slopes upward approximately 60-80 feet for approximately 0.3 miles to I-40. The area between Highway 64 and I-40 would not be conducive to development due to the sloping terrain and the area would not be of sufficient size to accommodate the ancillary facilities. The toe of the railroad bed is often bordering the Keener Cove embayment, and there are several wetlands along the shoreline and between the railroad and Highway 64. Through traffic on Highway 64 [estimated average daily traffic (ADT) of 2,000 vehicles (AHTD, 2006)] and the UP rail line would also have to be maintained. The mainline railroad traffic and the Highway 64 traffic would create a barrier between the potential harbor and the ancillary facilities. This would also be considered a severe safety issue with intermodal vehicle traffic intermingled with Highway 64 traffic and multiple UP railroad crossings.

The Blue Alternative was not reasonable and was not carried forward in the DEIS or SDEIS, based upon the following findings:

- The site would require dredging approximately 7,248 feet of channel to allow access to the Arkansas River Navigation Channel;

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- The cost of the initial site development would be approximately 4.5 times more than the currently available funds of approximately \$7 million;
 - Approximately 35.1 percent of the site is poorly suitable for development of ancillary facilities and rail access due to the steep terrain and physical limitations;
 - Recreation activities would be disrupted in the Keener Cove area, both current uses and future uses associated with the potential Highway 64 Cove Park. Since the Blue Alternative will not be carried forward, a Section 4(f) evaluation is not required;
 - Opposition to this alternative by the Operations Division of the Little Rock District, USACE;
 - There would be substantial adverse impacts to wildlife habitat (i.e. the loss of approximately 105 acres of upland forest and 13.8 acres of wetlands);
 - There would be substantial adverse impacts to perennial and intermittent streams on the site (i.e. 7,709 feet);
 - Immediate economic benefits would be moderate to low as only approximately 30 industries are located within 15 miles of the site;
 - There would be notable impacts to the human environment (i.e. 62 residential relocations); and
 - Operations and maintenance costs are expected to be high.

3.8.3 New Hope (Pink) Alternative

The New Hope (Pink) Alternative is located near ARM 203 along the left descending bank of the river and extends along State Highway 247 to New Hope Road in the New Hope community. This alternative was known as Alternative 2 in the previous November 2002 EA for the Intermodal Facilities prepared by FHWA. This site consists of a combination of relatively flat bottomland in the floodplain of the Arkansas River and extends into relatively steep to rolling terrain at the site's northeastern end. A portion of the site would need to be protected by a new levee system.

The Pink Alternative would not be a reasonable alternative and was not carried forward in the DEIS or SDEIS, based upon the following findings:

- Rail access is limited in the northeastern portion of the site;
- There would be significant impacts to the human environment (i.e. 62 residential relocations);
- Based upon previous public comments, residents of the New Hope community are overwhelmingly opposed to this alternative;
- Approximately 27 percent of the site is poorly suitable for development of ancillary facilities due to the rolling terrain and physical limitations;
- There would be substantial adverse impacts to wetland habitat (25.5 acres);

-
- There would be moderate adverse impacts to perennial and intermittent streams and floodplains on the site;
 - There would be high potential for adverse impacts to cultural/historical resources on the site; and
 - There are reasonable alternatives in the direct vicinity of the Pink Alternative that do not have significant impacts and are more cost efficient (i.e., Red and Green Alternatives).

3.8.4 Atkins Bottoms (Orange) Alternative

The 820-acre Atkins Bottoms (Orange) Alternative site is located near ARM 188 along the left descending bank of the river south of Atkins, Arkansas. In order to avoid potential impacts to the Galley (Galla) Rock Historical Site, this site was positioned well to the east of Galla Rock. This site consists of primarily flat bottomland, and much of the site is in the floodplain, which would require levee systems to be built to protect the Intermodal Facilities.

The Orange Alternative would not be a reasonable alternative and was not carried forward in the DEIS and SDEIS, based upon the following findings:

- The site would not provide reasonable multi-modal access primarily due to its distance from existing highways and railroads;
- The cost of the initial site development from dredging, delivery of utilities, and construction of access railway and access roadway would be approximately 4.4 times more than the currently available funds of approximately \$7 million;
- There would be approximately 98 acres of bottomland hardwood forest cleared;
- There would be substantial adverse impacts to wetland habitat (82 acres);
- There would be adverse impacts to perennial and intermittent streams and floodplain on the site; and
- There would be a high potential for adverse impacts to cultural resources.

3.8.5 Blackwell Bottoms (Black) Alternative

The 824-acre Blackwell Bottoms (Black) Alternative site is located near ARM 183 along the left descending bank of the river south of Blackwell and Kenwood, Arkansas. The entire site would be located in the floodplain, which would require additional levee systems to be built to protect the Intermodal Facilities.

The Black Alternative was not a reasonable alternative and was not carried forward in the DEIS and SDEIS, based upon the following findings:

- The site would not provide reasonable multi-modal access primarily due its distance from existing highways and railroads;

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- The cost of the initial site development from dredging, delivery of utilities, and construction of access railway and access roadway would be approximately 4.0 times more than the currently available funds of approximately \$7 million;
 - Immediate economic benefits would be low as only approximately 23 industries are located within 15 miles of the site;
 - There would be adverse impacts to floodplain on the site; and
 - There would be a high potential for adverse impacts to cultural resources.

3.8.6 Morrilton (Brown) Alternative

The 842-acre Morrilton (Brown) Alternative site is located near ARM 180 along the left descending bank of the river southwest of Morrilton, Arkansas. The position of Lock and Dam No. 9 prohibits positioning the site farther north or closer to the City of Morrilton. The entire site would be located in the floodplain, which would require additional levee systems to be built to protect the Intermodal Facilities from backwater flooding from the Arkansas River and headwater flooding from Point Remove Creek.

The Brown Alternative would not be a reasonable alternative and was not carried forward in the DEIS and SDEIS, based upon the following findings:

- The site would not provide reasonable multi-modal access primarily due to its distance from existing highways and railroads;
- The cost of the initial site development from dredging, delivery of utilities, and construction of access railway and access roadway would be approximately 4.0 times more than the currently available funds of approximately \$7 million;
- The site would impact 380 acres of bottomland forest;
- There would be adverse impacts to floodplains on the site;
- The site access improvement and site development would adversely impact 42 acres of wetlands and Point Remove Creek;
- The site would have long-term operational and maintenance deficiencies, because it is positioned on an inside bend of the Arkansas River;
- Immediate economic benefits would be low as only approximately 21 industries are located within 15 miles of the site; and
- There would be a high potential for adverse impacts to cultural resources due to the juxtaposition with Point Remove Mounds.

4.0 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This FEIS is a comprehensive document that contains and/or references all the original information in the DEIS and/or the revised or updated information contained in the subsequent SDEIS.

The SDEIS provided a description of the proposed action, affected environment descriptions, and the NEPA analysis for the full range of reasonable alternatives. The SDEIS can be found online at the following location:

<http://www.rivervalleyintermodal.org/deis.htm>.

The SDEIS evaluated the direct, indirect, and cumulative effects of implementing each of the reasonable study alternatives. Those impacts were presented in detail by resource category in Sections 4, 5, and 6 of the SDEIS. Impacts associated with implementing any of the four reasonable alternatives (no action and three build alternatives) were 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 this Section of the FEIS, a table summarizing the direct impacts of the No Action, Green (Preferred), Red, and Purple Alternatives has been provided (see Table 4.2).

The following development elements are required to support a general purpose intermodal facilities complex: 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 impacts discussed below under each resource category for each alternative.

4.1.1 Affected Environment

The affected environment was described for the following natural, cultural, manmade, and socioeconomic resources in the March 2006 DEIS and in the August 2010 SDEIS:

- Land Use and Infrastructure;
- Farmland, Soils, and Physical Environment;
- Social Environment;
- Relocation;
- Economics;
- Pedestrians and Bicyclists Considerations;

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- Air Quality;
 - Noise;
 - Water Quality;
 - Wetlands;
 - Water Body Modifications and Wildlife;
 - Floodplains;
 - Commercial Navigation;
 - Threatened and Endangered (T&E) Species;
 - Cultural Resources;
 - Hazardous Waste Sites; and,
 - Visual Impacts.

As necessary, updates were made to the affected environment section of this FEIS for each of the resources listed above. New and updated information was used in the FEIS, where appropriate.

4.1.2 Environmental Consequences

The terms “effect”, “consequence”, and “impact” are synonymous as used in this FEIS. Impacts may be beneficial or adverse and may apply to the full range of natural, aesthetic, historic, cultural, and economic resources within the project area and also within the surrounding area. The discussion concentrates on aspects of the environment that could potentially be affected by implementation of new activities and facilities associated with the intermodal facilities.

The analysis of impacts associated with each course of action was divided into direct, indirect, and cumulative impacts in the original DEIS and SDEIS. Definitions of the various types of impacts and how the term “significance” implies to such impacts are defined below.

Although it is assumed that the proposed project will result in changes to current land uses within the project study area to mixed industrial use, several unknowns are created due to the change in land use. It is not presently known exactly which types of industries would use the transportation services provided at the facilities, which modes of transportation they would rely on most heavily, or which of those industries may choose to locate warehouses, factories, or other structures within the proposed intermodal facilities. Likewise, it is not known which types of materials may be transported, stored, or produced at the proposed intermodal facilities.

The type of industries that choose to locate or utilize the intermodal facilities could alter the potential long-term impacts of the project. To compensate for the unknowns of the project and to attempt to fully disclose the potential impacts of the project, the impacts analyses were conducted using a “worst-case-scenario” for most of the resources

categories reviewed. For instance, it was assumed that all wetlands within the proposed boundaries of any of the Build Alternatives would be completely lost (drained and/or filled) as part of the proposed project. Therefore, regardless of what industry or development occurred within the site, the worst possible impacts would have been identified and disclosed. However, for some resource categories there are too many potential scenarios to consider in the scope of a NEPA study to make a worst-case scenario methodology feasible. For instance, impacts to air quality attributed to the intermodal facilities could be dramatically different depending on the types of industry choosing to use the area or the types of materials transported, stored, used, or produced within the site. In those situations, impacts analyses conducted for this study relied on the best available information to offer insight as to what types of industries may want to use the area. This information was based on the types of transportation services that would be available at the facilities, existing industries in the region, industries that use other ports within Arkansas, and information from local economic planners that may have the best insight as to the types of industries that have indicated an interest in services provided by intermodal facilities, such as the RVIF.

This document utilizes CEQ guidelines and is based on the best information available at the time of the study. If in the future an industry potentially has impacts that would be more substantial than those described in this document and decides to locate at the intermodal facilities, it is likely other environmental laws and regulations would apply in keeping the impacts to the human and natural environments to the minimum possible. Private industries would also be required to disclose information regarding the types of activities they propose to conduct at the site in an appropriate, legal manner, as part of the environmental and/or other regulatory permit application processes typically required of them.

Most industries that would have substantial environmental impacts are regulated by environmental laws outside the realm of NEPA studies, such as this FEIS. Therefore, any private industry wanting to locate at the intermodal facilities that is anticipated to have substantial impacts would have to conform to environmental laws set forth by Federal, state, and local regulatory agencies such as the U.S. Environmental Protection Agency (USEPA), USACE, Occupational Safety and Health Administration (OSHA), USFWS, Arkansas Department of Environmental Quality (ADEQ), and others. The ADEQ website contains information regarding the primary environmental laws that apply to the various types of industries that may utilize the proposed intermodal facilities (http://www.adeq.state.ar.us/regs/fed_regs.htm and http://www.adeq.state.ar.us/regs/ar_env_laws.htm).

Such private industries are typically aware of their responsibilities under such laws and regulations, and they would have their own resources (staff or consultants) available to ensure they comply with all legal requirements. It would not be beneficial for such businesses to violate environmental regulations due to the serious penalties and financial implications that could occur if they fail to comply. Therefore, even though it is not possible to fully assess all potential environmental impacts that could occur under the various scenarios of potential development at the intermodal facilities, it is expected any substantial impacts would be identified and regulated by appropriate regulatory

agencies, which would help protect the local and regional environment. Reasonable options to avoid, minimize, and/or mitigate for any adverse impacts would be identified and enforced by the responsible regulatory agency or agencies during the permit application phase of those developments. Permits required for development of the initial intermodal facilities infrastructure, such as levees, roads, rail access, the slackwater harbor, and any utilities would be the responsibility of the Authority and would be obtained prior to construction of the project.

Although the initial site development of the intermodal facilities would result in differing impacts depending on which Build Alternative location were chosen, the overall impacts associated with the long-term use of the intermodal facilities would not be expected to differ greatly. It is assumed that the same types of industries would utilize the intermodal facilities no matter which Build Alternative site were chosen. Therefore, the long-term impacts caused by the various industries or activities that occur on the site under full operation would not be expected to differ between alternatives, with few exceptions. For instance, if the Green (Preferred) Alternative were chosen there could be more noise impacts for residences located near Highway 247. However, in terms of air quality, economics, traffic generation, and other potential impacts, there would be no major differences between the Build Alternatives

Through coordination and consultation with federal, state, and local agencies, it was determined that the No Action and the selected Build Alternatives would have no impact on any Department of Transportation Act of 1966 Section 4(f) protected properties (such as a significant, publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site). As discussed in the cultural resources section below (Section 4.16.2), the cultural resources sites eligible for the National Register of Historic Places (NHPA) will be addressed through a PA and recovery plans that describe in detail how each site will be addressed. If any Section 4(f) properties and/or any additional cultural resources protected under Section 106 of the NHPA are discovered on proposed project sites, appropriate agencies would be contacted immediately for further consultation and appropriate actions would be taken to avoid, minimize, and/or mitigate the impacts.

4.1.2.1 Direct vs. Indirect Impacts

Direct Impacts. A direct impact is caused by the proposed action and occurs at the same time and place.

Indirect Impacts. An indirect impact is caused by the proposed action and occurs later in time, or is farther removed in distance but is still reasonably foreseeable.

Application of Direct versus Indirect Impacts. For direct impacts to occur, a resource must be present in a particular area. For example, if highly erodible soils were disturbed due to construction, there would be a direct impact to soils from erosion at the development site. Sediment laden runoff might indirectly affect water quality in adjacent areas downstream from the development site.

4.1.2.2 Significance

The term “significant”, as defined in Paragraph 1508.27 of the Regulations for Implementing NEPA (40 CEQ 1500), requires consideration of both the context and intensity of the impact evaluated. Significance can vary in relation to the context of the proposed action; thus, the significance of an action must be evaluated in several contexts and varies with the setting of the proposed action. For example, context may include consideration of effects on a national, regional, or local basis. Both short-term and long-term effects may be relevant.

In accordance with the President’s CEQ implementing guidance, impacts are also evaluated in terms of their intensity or severity. Factors contributing to the evaluation of the intensity of an impact include, but are not limited to:

- A significant impact may exist even if, on balance, the impact is considered beneficial because an impact may be both beneficial and adverse;
- The degree to which the action affects public health or safety;
- Unique characteristics of the geographic area where the action is proposed such as proximity to parklands, historic or cultural resources, wetlands, prime farmlands, wild and scenic rivers or ecologically critical areas;
- The degree to which the effects on the quality of the human environment are likely to be controversial;
- The degree to which the effects of the action on the quality of the human environment are likely to be highly uncertain or involve unique or unknown risks;
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration;
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts;
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP or may cause loss or destruction of significant scientific, cultural, or historical resources;
- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973 (ESA); and
- Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

4.1.3 Cumulative Impacts

Cumulative impact analyses evaluate the incremental impacts of implementing any of the study alternatives in association with past, present, and reasonably foreseeable future actions of other parties in the surrounding area (where applicable).

The cumulative impact analyses in the DEIS and SDEIS were prepared at a level of detail that was reasonable and appropriate to support an informed decision in selecting the Green (Preferred) Alternative as the Preferred Alternative. Summaries of the cumulative impact analyses are presented under each of the individual resource categories in Sections 4.2 through 4.18 of this FEIS.

The following information provides introductory or background information used to determine cumulative impacts.

4.1.3.1 Definitions Used in Cumulative Analysis

This Section defines several key terms used in the cumulative impact analysis:

Cumulative Impact Geographic Area of Analysis. The cumulative impact geographic area of analysis includes the geographic area that has the potential to be affected by implementation of any of the alternatives in the reasonably foreseeable future.

Past Actions. Past actions are defined as actions within the cumulative impact geographic areas of analysis that occurred before the EIS was initiated. These include past actions in the project areas, and past demographic, land use, and development trends in the areas that surround the project areas.

Present Actions. Present actions include: 1) current activities within the cumulative impact geographic areas of analysis; and 2) current resource management programs, land use activities, and development projects that are being implemented by other governmental agencies and the private sector (where they can be identified) within the cumulative impact geographic areas of analysis.

Reasonably Foreseeable Future Actions. Reasonably foreseeable future actions may include those actions in the planning, budgeting, or execution phases. Actions may be those of the Federal government, state or local government, or private organizations or individuals.

4.1.3.2 Cumulative Impact Geographic Area of Analysis

The boundary of the cumulative impact geographic area of analysis varies according to the resource evaluation category considered. For many of the resource categories considered, the impacts of the Alternatives are not expected to extend beyond the project area boundaries, or the impact to the resource is expected to be minimal beyond this area during the reasonably foreseeable future. For those categories, the cumulative impact geographic area of analysis is appropriately limited to lands within the project area boundaries. The boundaries of the cumulative impact geographic area of analysis for each resource category are identified in Table 4.1 of the SDEIS. The

SDEIS can be found online at the following location:
(<http://www.rivervalleyintermodal.org/deis.htm>).

4.1.3.3 Past and Present, and Reasonably Foreseeable Future Actions

The primary past, present, and reasonably foreseeable future actions that have occurred both within and adjacent to the project areas that have been considered in the analysis of cumulative impacts were identified in Section 4.1.3.3 of the SDEIS. The SDEIS can be found online at the following location:
(<http://www.rivervalleyintermodal.org/deis.htm>). The SDEIS considered the Highway 247 improvement project as a reasonably foreseeable future project that could have cumulative impacts when combined with the intermodal project. Since the SDEIS was written, the Highway 247 project was completed and is now considered as part of the present condition. It has been removed from the reasonably foreseeable future projects in the cumulative impact analysis but is still considered in the overall analysis of the cumulative project impacts.

4.2 LAND USE AND INFRASTRUCTURE

4.2.1 Affected Environment

Land use planning and zoning information, descriptions of highway and roadway networks, railroads, and utilities for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.2.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.2.2 Consequences

4.2.2.1 Potential Land Use and Infrastructure Consequences of the 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 under the No Action Alternative. The Purple Alternative project area would continue its current land use conditions, with the potential for additional poultry operations likely. Direct, indirect, and cumulative impacts to land use and infrastructure and mitigation measures under the No Action Alternative are presented in detail in Section 4.2 of the SDEIS. The SDEIS can be found online at the following location:
(<http://www.rivervalleyintermodal.org/deis.htm>).

4.2.2.2 Potential Land Use and Infrastructure Consequences of the Green (Preferred) Alternative

4.2.2.2.1 Direct Impacts

Direct land use impacts under the Green (Preferred) Alternative would consist of the conversion of primarily low-density residential and agricultural land to industrial and commercial uses. Approximately 615 acres of land would be removed from agricultural production, primarily soybeans and hay. In addition, six residences would be displaced.

Direct beneficial impacts to infrastructure would result as utilities, roadways, and railroads would be extended into the Green (Preferred) Alternative project area to support the intermodal facilities. This infrastructure expansion would improve the area's ability to support development within the intermodal facilities area and in adjacent areas. In addition, a levee would be constructed to protect the land within the intermodal facilities project area and would further promote development by providing a flood-protected area.

Improvements to roadways and railroads would occur due to extension and improvements of facilities within the Green (Preferred) Alternative proposed intermodal facilities project area.

Roadway improvements would occur as existing gravel and dirt roads are converted to hardened roads of either concrete or pavement. An additional road network would be developed within the intermodal facilities boundaries providing improved access to land within the project area and supporting future development. Extension of the Dardanelle Russellville Railroad (DRRR) into the project area would provide additional transportation options for new industries or other facilities within the Green (Preferred) Alternative proposed intermodal facilities area. It would be possible for infrastructure to be further extended in the future if the intermodal facilities reaches a point of full capacity and additional adjacent land is required to meet demand.

4.2.2.2.2 Indirect Impacts

Indirect impacts could occur in the form of secondary land use changes resulting from expansion of surrounding development due to the proposed intermodal facilities under the Green (Preferred) Alternative. The new proposed facilities could foster and promote additional supportive industrial and commercial development within the immediate area. This expansion of the area for industrial or commercial uses would also require expansion of infrastructure.

The potential development of the intermodal facilities as a major employment center could promote new residential development in the vicinity of the proposed development. These impacts would result in potential land use changes in the vicinity of the project area including the City of Russellville, the City of Dardanelle, and surrounding unincorporated areas within reasonable commuting distance.

The above land use changes may be viewed as beneficial or adverse depending on whose perspective is being considered. In general the impacts would be beneficial for most socioeconomic resources, but adverse for most natural resources. The specific impacts of these land use changes cannot be quantified until individual developments are planned and designed. However, proactive steps could be taken by local planners to identify and protect areas in the region that contain high quality wetlands, stream corridors, or any other important resources deserving protection. Such steps may require cooperation between landowners, local citizen groups, private organizations, and city, county, and state governments.

Increased truck traffic associated with the intermodal facilities could result in minor long-term, adverse impacts to safety. Table 4.3 of the SDEIS describes the increase in amount of truck traffic. This increase has the long-term potential to increase the number of accidents that occur on the roads in the general area surrounding the project site.

4.2.2.2.3 Cumulative Impacts

Cumulative impacts associated with the Green (Preferred) Alternative 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 the other past, present, or reasonably foreseeable improvements such as the Arkansas River Navigation Project, which would increase navigation capabilities on the McClellan-Kerr Arkansas River Navigation System (MKARNS). In addition, it is possible that once the intermodal facilities are developed the City of Russellville would purchase additional land in the project vicinity to provide additional industrial growth capacity. However, it is unlikely that this would occur in the reasonably foreseeable future.

An overall improvement in infrastructure would result from development of the Green (Preferred) Alternative intermodal facilities in combination with other improvements, such as the recently completed Highway 247 improvements, MKARNS improvements, extension of railroads, and expansion of utilities. All of these improvements, when combined, would enhance the area's transportation and other infrastructure capabilities to support growth of the regional economy and improve the overall transportation network. The increased tax base and revenue brought into the region by the expansion of industrial, commercial, and residential development would help offset the costs of expanding infrastructure into the area and other public services required to support the development.

Arkansas River Navigation Project

Potential increases in barge traffic associated with the Green (Preferred) Alternative intermodal facilities would combine with potential increases following completion of improvements to the navigability of the MKARNS being proposed by the USACE. It is not anticipated that the level of increased barge traffic associated with the intermodal facilities and the MKARNS improvements would have substantial adverse impacts to the local or regional environment.

Industrial Development in the Arkansas River Bottoms near Russellville

It is expected that at least some industrial development may occur in the Green (Preferred) Alternative project area regardless of the intermodal facilities being constructed. However, more substantial land use changes in terms of increased commercial and industrial development would occur in the area if intermodal facilities were constructed to provide multiple modes of freight transportation options. This increase in industrial land uses would combine with potential increases in industrial and commercial development due to the Highway 247 improvement project and the

Arkansas River Navigation Project, which would create a more efficient truck route and enhance barge transportation making the general project area more suitable or attractive for development. All of these projects would combine to result in a shift from rural residential and agricultural land uses in the immediate project vicinity to industrial or commercial uses. However, the creation of jobs due to the intermodal facilities and expanded industrial and commercial developments may promote increased residential development in the surrounding areas. The increased residential development would maintain and enhance residential land uses in or surrounding the City of Russellville and or adjacent communities including Dardanelle and Pottsville. All of the land use changes or enhancements could result in increased property values especially for strategically located parcels within reasonable commuting distances to the project vicinity, which would include most areas within 20 miles of the site, or possibly more.

Expansion of Soil and Gravel Excavation and Removal

The proposed intermodal facilities project under the Green (Preferred) Alternative would result in shifts in the sand, soil, and gravel excavation operations from within the proposed project boundaries to adjacent areas. Therefore, some minor shifts in land uses may result in those areas where the excavation operations relocate. These land use changes would be in combination with land use changes resulting from the intermodal facilities project and the other reasonably foreseeable projects anticipated in the project vicinity. However, the expansion of soil and gravel excavation operations is not expected to result in major land use changes at any given location as these operations would likely continue to be small, scattered operations most likely impacting lands not currently being used for other more productive uses. There could be some cumulative loss of agricultural land uses where good farmland soils are excavated and transported to areas outside the project vicinity for use as topsoil for lawns, landscaping, or other purposes.

Removal of the soil, sand, and gravel excavation land uses away from the lands within the proposed Green (Preferred) Alternative intermodal facilities boundaries, and potentially in adjacent areas that could eventually become used for industrial or commercial uses, could result in beneficial cumulative impacts. Changing the land uses, including agricultural land uses, to industrial or commercial land uses has less potential for long-term adverse impacts than allowing the current soil, sand, and gravel excavations to continue to somewhat randomly expand on those lands. This is because most of the underlying soils, sand, and gravel would remain in place or onsite if it were used for industrial purposes and could potentially be converted back to productive agricultural land uses in the future. If the soil, sand, and gravel operations continue to expand in the somewhat random fashion that currently exists in the project area, those resources would be lost indefinitely and would not allow for existing agricultural land uses to reoccur on those areas.

Continuation of Agricultural Land Use

No noticeable cumulative impacts associated with continuation of agricultural land use practices in combination with land use changes associated with the intermodal facilities

or other reasonably foreseeable projects would occur. 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 cumulative benefits to local and regional economies. The magnitude of those benefits cannot be determined at this time.

Increase Existing Arkansas River Commerce

There would be beneficial cumulative impacts to land use and infrastructure in combination with an increase in existing Arkansas River commerce. The change in land use from agricultural land use to industrial land use would promote additional transportation of goods along the Arkansas River and increase commerce in the region. The extension of infrastructure in the proposed project area would allow for industries and businesses to fully utilize the project area.

4.2.2.2.4 Mitigation

Since the planning for the intermodal facilities is being developed through the NEPA process, including interagency involvement along with consideration of comments from private citizens and local, state, and federal stakeholders, it is anticipated that impacts to the social, cultural, and natural environment would be minimized. This NEPA study is being conducted to help identify potential adverse impacts early in the process, and these impacts can be avoided, minimized, or mitigated to the extent practicable. Since the NEPA process is being utilized, mitigation for impacts is more likely to occur than if the site were developed with local or private funding that would not require the intensive planning and NEPA study. If the site were to be developed without proper environmental consideration, it is likely that anticipated impacts would be more severe and would not be mitigated to the same level. For instance, it is possible that without the intensive searches for natural, social, and cultural resources in the project vicinity, those resources may be destroyed before they are ever identified. By conducting the NEPA study within the intermodal facilities project area, all known resources are identified and dealt with in a legal and appropriate manner to ensure that long-term adverse impacts are avoided, minimized, and/or mitigated. Those resources are being identified through intensive survey efforts along with input from regulatory agencies, landowners, and the general public.

Unavoidable impacts to the environment associated with construction of the intermodal facilities would be mitigated to the extent practicable. General construction and other appropriate BMPs could be implemented to reduce any unnecessary impacts to adjacent land uses and infrastructure. Adjacent land uses could be protected from construction and development activities of the intermodal facilities through good housekeeping practices and erosion and sedimentation BMPs. Signs and temporary fencing would delineate construction boundaries to minimize impacts to adjacent land uses. Construction and operations of the proposed intermodal facilities would comply with the respective regulations and avoid adverse impacts wherever possible.

Appropriate marking of any existing utilities could reduce any interruptions in existing services and prevent any injuries and damages. Proper coordination with the appropriate highway and railroad entities could reduce interruption in current service.

Without NEPA, it is unlikely that this mitigation would occur and some resources would be completely lost with little or no chance of recovery or replacement. For example, continuation of the current soil and gravel excavation and removal operations would likely continue to expand in the project area. These excavation operations typically are unplanned and have a strong likelihood of adversely impacting cultural resources, wetlands, soils, drainage, and aquatic resources without considering the nature or severity of impacts generated by their operations. These extractive activities could result in the loss of resources on the site forever without any requirement of mitigation or documentation. With the NEPA study being conducted for this project, every effort is being made to document resources and impacts, protect the environment, and mitigate as required for all resources in the project area.

To help reduce overall cumulative impacts associated with shifts in the excavation operations caused by the intermodal facilities and other foreseeable future projects, local planners, resource agencies, and local landowners should help identify areas where such operations would be less detrimental or would have less long-term impacts to existing or adjacent resources and land uses. This would ensure that such mining operations do not relocate or shift to areas where other more productive land uses, such as agriculture, could occur well into the future if the productive soils remained on the area. Proactive planning would allow the soil, sand, and gravel mining operations to occur in a more controlled manner with less apparent random site selection and may help confine the impacts of those operations to fewer sites. Such choices would ultimately be left to local landowners who, as long as they comply with existing environmental laws and regulations, would be free to allow mining operations to occur on their lands. Regulatory agencies should try to monitor impacts caused by new mining operations as they develop to help protect any known sensitive areas.

To help minimize or avoid potential impacts to important resources, such as high quality wetlands and stream corridors, appropriate mitigation measures would be developed. These measures are discussed in Section 4.11. Through coordination and consultation with federal, state, and local agencies, it was determined that the Green (Preferred) Alternative project area does not contain any Section 4(f) protected properties. If, during the preparation of the FEIS, any Section 4(f) properties and/or historic properties or cultural resources protected under Section 106 of the NHPA are discovered on the proposed project area, appropriate agencies would be contacted immediately for further consultation and appropriate actions would be taken to avoid, minimize, and/or mitigate the impacts.

In addition, local planners and regulatory agencies should consider conducting studies and increasing communication to identify such areas and then propose ways to protect those areas from future developments and land use changes. This would reduce the potential for secondary and/or cumulative impacts of future industrial, commercial, and/or residential developments in the area. This form of land use planning has

become more popular for many communities throughout the country as more natural resources or other important aspects of the human and natural environments are impacted by development and more citizens are aware of such impacts. Proper land use planning combined with avoidance, minimization, and mitigation for known impacts to important resources helps benefit humans and their environment.

The NEPA process used in development of the intermodal facilities project has already resulted in reducing the potential impacts of the project through the public involvement process, interagency coordination, and detailed environmental technical studies that have been conducted. Several potential locations studied for this project were initially avoided for development of the intermodal facilities due to various limitations including substantial impacts to the natural, social, cultural, or human environments. Where impacts are unavoidable, continued efforts will be made to avoid, minimize, or mitigate for impacts to important resources in the project area.

Although such detailed studies and mitigation efforts are not required for most local and/or private developments, those NEPA-like studies and land use planning efforts would help enhance protection of the most sensitive natural resources or important cultural resources.

4.2.2.3 Potential Land Use and Infrastructure Consequences of the Red Alternative

Under the Red Alternative, impacts to land use and infrastructure would be similar to those under the Green (Preferred) Alternative. However, approximately 155 fewer acres would be removed from agricultural production than under the Green (Preferred) Alternative. There would be two more residential relocations and one business relocation under the Red Alternative.

Direct, indirect, and cumulative impacts to land use and infrastructure and mitigation measures under the Red Alternative are presented in detail in Section 4.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.2.2.4 Potential Land Use and Infrastructure Consequences of the Purple Alternative

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, indirect, and cumulative impacts to land use and infrastructure and mitigation measures under the Purple Alternative are presented in detail in Section 4.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.3 FARMLAND, SOILS, AND PHYSICAL ENVIRONMENT

4.3.1 Affected Environment

Descriptions of the farmland, soils, and physical environment of the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.3.1 of the SDEIS. The SDEIS can be found online at the following location:

<http://www.rivervalleyintermodal.org/deis.htm>.

4.3.2 Consequences

4.3.2.1 Potential Farmland, Soils, and Physical Environment Consequences of the No Action Alternative

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no impacts to farmland, soils, and physical environment. However, if the intermodal facilities are not built in the project area the current soil and gravel excavation and removal operations would continue and would likely expand, resulting in the long-term loss of productive topsoil from the area and altered drainage patterns. This would negatively affect farmland as these borrow sites would not be able to support the current agricultural land uses once the topsoil has been removed.

Direct, indirect, and cumulative impacts to farmland, soils, and physical environment and mitigation measures under the No Action Alternative are presented in detail in Section 4.3.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.3.2.2 Potential Farmland, Soils, and Physical Environment Consequences of the Green (Preferred) Alternative

4.3.2.2.1 Direct Impacts

The NRCS identified areas of prime and unique farmland and assigned a land evaluation point rating for the proposed alternative. A site assessment evaluation was completed and point values were assigned for the project area. The build alternative alignment was rated at 168 points. Approximately 615 acres of land would be removed from agricultural production, primarily soybeans and hay. That land would be converted from agricultural land to industrial and commercial uses. However, the area could be converted back to farmland at some point in the future as the farmland soils would not be removed from the site permanently. The farmland in the project area represents only a small percentage of the total acres of farmland in Pope County. A copy of the NRCS letter and associated farmland impact rating form is included in Appendix A of the SDEIS.

Minor, long-term adverse impacts to topography and soils of the proposed project area would occur because some earth moving activities would be required. Soil movement would be required for the construction of various buildings, roads, levees, and other infrastructure. Although topsoil in the project area may be moved during construction,

most of the topsoil would remain within the intermodal facilities project area and would not be permanently removed from the site. Dredging of the slackwater harbor would produce dredged materials that would likely be deposited on-site. Some of these dredged materials may be placed in areas containing prime farmland soils.

The main earthmoving operations would occur during construction of the levee that would be built around the proposed intermodal facilities to protect the area from flooding from the Arkansas River and Whig Creek. This levee would be built to a height suitable to protect the site during a 500-year flood event. It is anticipated that most of the materials used to create this levee would be taken from on-site by scraping and depositing soil materials on the levee. This would result in long-term adverse impacts to soils and farmland on the site. Because much of the on-site soils contain a high content of sand and other permeable materials, additional material may need to be brought from off-site to provide a non-permeable core for the levee. All material brought from off-site would be taken from a pre-approved location and would consist of clean fill material. The pre-approved site would be surveyed for natural and cultural resources to ensure the borrow area used results in only minimal impacts. It is anticipated that soils containing high clay content would be used to support the levee. This type of soil is typically found in upland areas and therefore would likely not be taken from the region's more fertile floodplains.

Impacts to groundwater are expected to be minor because use of BMPs as well as regulations set forth in environmental permits would help protect groundwater resources in the area. Any accidental releases of contaminants on the site would be remediated immediately.

Due to the separation of groundwater on the east and west sides of the river it is assumed that any contaminants that are potentially accidentally released into the groundwater under the proposed intermodal facilities would not enter into the Dardanelle aquifers on the west side of the river. Because the proposed intermodal facilities project area is located directly across to somewhat downstream of Dardanelle, it is not expected that potential pollutants accidentally released from the intermodal facilities into surface waters, including the Arkansas River, would impact the Dardanelle aquifers or well fields either. In order for contaminants to reach the groundwater supply of Dardanelle, they would have to travel almost directly horizontal across the surface waters of the river, filter through the alluvial sediments, and then flow into the groundwater aquifers. Spill Prevention, Control, and Countermeasures (SPCC) Plans would likely be required for tenants using the intermodal facilities that would potentially handle, store, or transport contaminants such as oil. All requirements and guidelines set forth in those plans and other environmental permits would be complied with to further reduce any risks associated with accidental releases of contaminants.

BMPs would be employed as part of proposed development projects to reduce the amount of surface runoff and erosion. These BMPs would also help eliminate sediment erosion and migration from potential construction sites. All exposed soils would be planted with grasses and other vegetation immediately following construction to further protect the soils.

4.3.2.2.2 Indirect Impacts

There is potential for long-term beneficial impacts to soils because construction of the intermodal facilities on the proposed site would cease the current soil excavation and removal activities that are taking place. Although soils on the site would be moved and disturbed during construction of the intermodal facilities, it is anticipated that the majority of the soils would remain on the site near their current location and could potentially be returned to their approximate locations in the future, if necessary. If the soil excavation and removal operations were allowed to continue, with expansion of the operations likely, the soils would be permanently transported off-site.

Construction of the intermodal facilities could foster and promote additional supportive industrial and commercial development within the immediate area resulting in additional loss of farmland and disturbance of soils. In addition, because the current soil and gravel removal operations would cease within the project area, there is a chance that these operations would shift to adjacent areas with similar natural resource characteristics, resulting in a long-term loss of soils and farmland and alteration of existing drainage patterns in those areas. These impacts cannot be fully predicted at this time, however, the impact is expected to be relatively minor given the minor nature of the impacts to soils and farmland anticipated to occur with implementation of the Green (Preferred) Alternative.

Some of the initial loss of farmland within the proposed intermodal facilities project boundaries could be partially offset by the potential increase in value of the remaining farmland adjacent to the site, which would indirectly protect those adjacent farmlands from being taken out of production and perhaps used for more destructive uses such as sand, soil, and/or gravel mining. The value of the adjacent land could potentially increase, because farming the remaining lands may become more cost effective due to the new options for storing and transporting grain or other agricultural products that would be made available at the neighboring intermodal facilities. Any cost savings provided to local farmers may be enough to make continuation of farming of the adjacent properties a better option than selling their land or allowing it to be used for other purposes. If the lands could continue to be effectively farmed in the long-term, it would not be logical to mine the soils to gain the relatively short-lived income received from such operations. Once soils are completely removed from a property, the landowner no longer has the option of going back and farming the land to make additional revenues.

Secondary developments associated with the intermodal facilities are not expected to substantially impact groundwater aquifers in the area, especially those used by the City of Dardanelle. Major toxic releases from barges into the harbor or the Arkansas River are unlikely to impact Dardanelle's municipal water system. A release of this type within the harbor would be quickly identified and remediation steps would be implemented rapidly. An SPCC Plan would be required if certain pollutants, such as containers of oil are to be transported or stored at the facilities. Such plans would identify steps that would be taken to minimize potential dangers resulting from spills. If a spill were to occur within the harbor area, the portion of the Arkansas River impacted would likely be

relatively limited. Furthermore, recharge from the river represents only a small portion of the yield of the public water supply. The impacts to the public water supply would significantly lag the time of the release, allowing for a testing program to be established to quantify any possible impact to the wells. In the unlikely event of a catastrophic release, the Arkansas River currents would likely disperse and dilute the release, making it even more unlikely that the released contaminants would cross the river, enter and migrate through the alluvium, and into ground water wells.

4.3.2.2.3 Cumulative Impacts

Arkansas River Navigation Project

Dredging impacts associated with this project would not cause substantial increases in impacts to farmland or soils when combined with the proposed MKARNS improvements the USACE intends to implement. Only a minor amount of initial and maintenance dredging in the channel of the Arkansas River is expected to occur to support the intermodal facilities. The main dredging would occur in the slackwater harbor area, most of which can be completed prior to opening the connection of the harbor to the actual river channel. Dredged material removed for the project would likely be placed within the intermodal facilities boundaries and not on the USACE dredge disposal site located near the site's southern boundary. The proposed slackwater harbor area is in a mostly disturbed area currently being used as a soil, sand, and gravel excavation area by a private company.

Industrial Development in the Arkansas River Bottoms near Russellville

It is possible that some of the lands adjacent to the intermodal facilities proposed for the Green (Preferred) and Red Alternative project areas would be converted to industrial or commercial land uses by the City of Russellville or private individuals at some point in the future. However, because an adequate amount of property is being considered for development of ancillary facilities and industrial uses as part of the intermodal facilities project, it is assumed that most of the reasonably foreseeable industrial and commercial development would occur exclusively in the proposed project boundaries. Therefore, 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.

Expansion of Soil and Gravel Excavation and Removal

The proposed intermodal facilities project would result in shifts in the sand, soil, and gravel excavation operations from within the proposed project boundaries to adjacent areas. This could result in increased impacts to farmland and soils in those adjacent areas. These impacts would be in combination with impacts to soils and farmland resulting from the intermodal facilities project and the other reasonably foreseeable projects anticipated in the project vicinity. It is anticipated that most new sand, soil, and gravel operations would continue to be small, scattered operations most likely impacting lands not currently being used for crops or other more productive agricultural uses. There may however be some cumulative loss of agricultural land uses where farmland

soils are excavated and transported to areas outside the project vicinity for use as topsoil for lawns, landscaping, or other purposes.

Removing the soil, sand, and gravel excavation operations from the lands within the proposed intermodal facilities boundaries, and potentially in adjacent areas that could eventually become used for industrial or commercial uses, may result in beneficial cumulative impacts to farmland and soils. The reasoning is that changing the land uses, including agricultural land uses, to industrial or commercial land uses has less potential for long-term adverse impacts to farmland and soils than allowing the current soil, sand, and gravel excavations to continue in the project area. This is because most of the underlying soils, sand, and gravel would remain in place or onsite if it were used for industrial purposes and could potentially be converted back to productive agricultural land uses in the future. If the soil, sand, and gravel operations continue to expand in the somewhat random fashion that currently exists in the project area, those resources would be lost indefinitely and would not allow for most agricultural land uses to reoccur on those areas.

Continuation of Agricultural Land Use

Continuation of agricultural land uses in areas adjacent to the intermodal facilities would not result in adverse impacts to farmland or soils, other than minor loss of soils due to wind erosion. Continuation of agricultural land uses may be more likely to occur on the properties adjacent to the intermodal facilities because local farmers would have new grain storage capacity and transportation options available in the vicinity potentially providing them overall savings in grain handling and transportation activities. Therefore, 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. Without the intermodal facilities, there is a potential that farmland in the area would gradually be taken out of production and the lands used for other purposes. If those lands would not continue to be used for agricultural purposes, there is a possibility that adverse impacts to farmland and soils would occur on those adjacent lands. This would be especially true if those lands were to be used for sand, soil, and/or gravel mining operations that would adversely impact farmland and soils resources in the long-term and not allow those resources to be replaced in the future.

Increase Existing Arkansas River Commerce

Construction of the proposed intermodal facilities would enhance commerce along the Arkansas River. Enhanced commerce on the river is not expected to impact farmland, soils, and the physical environment. Therefore, there are no cumulative impacts to farmland, soils, and the physical environment associated with implementation of this alternative combined with the increase commerce on the Arkansas River.

4.3.2.2.4 Mitigation

Because the planning for the intermodal facilities is being developed through the NEPA process including interagency involvement along with consideration of comments from

private citizens and local, state, and federal stakeholders, it is anticipated that impacts to the social, cultural, and natural environment would be minimized. This NEPA study is being conducted to help identify all potential adverse impacts early in the process, and these impacts can be identified and avoided, minimized, or mitigated to the extent practical. Mitigation for impacts is more likely to occur than if the site were developed with local or private funding that would not require the intensive planning and NEPA study as does this project that involves federal funding. If the site were to be developed without proper environmental consideration, it is likely that the anticipated impacts would be more severe and would not be mitigated for where appropriate.

Unavoidable impacts to the environment associated with construction of the intermodal facilities would be mitigated to the extent practicable. Required mitigation would be determined through continued coordination with regulatory agencies. Without NEPA, it is unlikely that this mitigation would occur and some resources would be lost with little or no chance of recovery or replacement. For example, continuation of the current soil and gravel excavation and removal operations would likely continue to expand within the project area. These excavation operations have a basic lack of planning associated with them and have a good likelihood of adversely impacting cultural resources, wetlands, soils, farmland, and aquatic resources without any consideration of the severity of the impact. These operations could result in the permanent loss of on-site resources without the appropriate identification, documentation, or mitigation ever being required or occurring. With the NEPA study being conducted for this project, every effort is being made to identify, document, protect, and mitigate as required for all resources in the area. Proper advanced planning of a development, such as the proposed intermodal facilities, is essential in order to ensure that the required environmental considerations are taken and every effort is made to avoid impacts.

To reduce impacts of soil disturbance a Sediment and Erosion Control Plan (SECP) would be implemented, and the appropriate BMPs concerning sediment control would be applied. BMPs would be used to protect surface and groundwater resources in the project area. Any accidental contamination of such resources would be remediated immediately.

4.3.2.3 Potential Farmland, Soils, and Physical Environment Consequences of the Red Alternative

Under the Green (Preferred) Alternative, impacts to farmland, soils, and the physical environment would be similar to those under the Red Alternative. However, approximately 155 fewer acres would be removed from agricultural production than under the Green (Preferred) Alternative. The NRCS identified areas of prime and unique farmland and assigned a land evaluation point rating for the proposed alternative. A site assessment evaluation was completed and point values were assigned for the project area. The build alternative alignment was rated at 166 points.

Direct, indirect, and cumulative impacts to farmland, soils, and physical environment and mitigation measures under the Red Alternative are presented in detail in Section 4.3.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.3.2.4 Potential Farmland, Soils, and Physical Environment Consequences of the Purple Alternative

The NRCS identified areas of prime and unique farmland and assigned a land evaluation point rating of 49.4 for the proposed Purple Alternative. A site assessment evaluation was completed and a point value of 116 was assigned for the project area resulting in a sum of points on the form of 165 points. Due to the steep slopes in the area, moderate short-term and long-term adverse impacts to soils in the proposed project area are expected under the Purple Alternative because soil movement would be required for the construction of various buildings, roads, and other infrastructure.

Direct, indirect, and cumulative impacts to farmland, soils, and physical environment and mitigation measures under the Purple Alternative are presented in detail in Section 4.3.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.4 SOCIAL ENVIRONMENT

4.4.1 Affected Environment

A description of the social environment for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.4.1 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.4.2 Consequences

4.4.2.1 Potential Social Consequences of the No Action Alternative

Under the No Action Alternative, there could be potential long-term adverse social impacts because lack of development of the area as a potential employment center could contribute to stagnant population growth in the region. Under the No-Action alternative the existing land use pattern of the project area would most likely continue.

Direct, indirect, and cumulative impacts to the social environment under the No Action Alternative are presented in detail in Section 4.4.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.4.2.2 Potential Social Consequences of the Green (Preferred) Alternative

4.4.2.2.1 Direct Impacts

There would be both direct short-term adverse social impacts due to relocations and long-term beneficial social impacts due to development and potential population growth under the Green (Preferred) Alternative. Short-term adverse impacts would include the potential displacement and relocation of six residences, one business, and one partial business relocation.

All relocations are within Census Block 5015, which has 87 housing units, 205 people, and approximately 10 minorities. Because minorities make up approximately 5% of the

population, it is not anticipated that the proposed alternatives would have a disproportionate impacts on minorities. However, some of the households may contain low-income families. As reflected in Table 4.4 of the SDEIS, the percent of persons below the poverty level within the project area (22.4%) slightly exceeds that of Pope County (15.7%) and the City of Russellville (15.6%). This equates to one of every five or six persons being below the poverty level in Pope County, the City of Russellville, and the project area. Although a house to house survey of household income was not conducted, considering what was stated above and field observations, there may be the potential for an impact on the low-income population. However, potential impacts to the low-income population would not be disproportionate.

Neighborhood and community cohesion would not be adversely impacted by implementation of the proposed project because no splitting or truncation of existing neighborhoods, communities, or business districts would occur with implementation of the Green (Preferred) Alternative. The proposed development would be aligned and associated with the adjacent Arkansas River, a significant water transportation resource currently under-utilized by the City of Russellville, Pope County, and the ARV. Proposed development under the Green (Preferred) Alternative would enhance 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.

Long-term beneficial social impacts could include additional population growth potentially attributable to direct and indirect employment and other opportunities afforded by the proposed intermodal facilities.

Development of the project area under the Green (Preferred) Alternative would result in long-term beneficial impacts in the provision of public services. Water line for fire protection and other services can be expanded and extended into the proposed project area as required during development phasing. The project site for the Green (Preferred) Alternative has ready access for future public services from the City of Russellville. No major adjustments in school bus routes would result from project implementation.

4.4.2.2.2 Indirect Impacts

Potential additional population growth fostered by increased employment and other opportunities afforded by the proposed facilities would require the provision of additional public services. However, the increased tax base resulting from the new development would contribute to financing the costs of these additional services.

The currently undeveloped or under-developed areas in the vicinity of the proposed project could potentially be developed residentially, especially in the areas east and north of the project area. Increased residential development would result in increased demands on local school districts as increased school enrollment would most likely occur. Additional tax revenues generated by the primary and secondary industrial, commercial, and residential developments in and around the intermodal facilities project area would provide additional funding to help offset the increased demands on schools.

Although it is anticipated that some additional railroad and truck traffic would be generated locally as trains and trucks enter and leave the intermodal facilities, it is not anticipated that the amount of increased traffic would be substantial. Therefore, it is not anticipated that any noticeable changes would occur in terms of local highway or railroad safety conditions as a result of this project. The USDOT FHWA and FRA continually strive to monitor and improve safety conditions on highways and railroads. The FRA Office of Safety promotes and regulates safety throughout the nation's railroad industry (FRA 2007). Railroads used by the intermodal facilities would be operated following all FRA guidelines to ensure any increased rail traffic generated by the intermodal facilities in the ARV region would move through the area in a safe and efficient manner. It is possible that overall safety could improve for the ARV region as a whole if more barges are used to ship products to and from the area once the efficient and modern intermodal facilities were available. Using barges to ship more products would likely reduce the number of trucks and/or trains moving in and out of the region.

The removal of agricultural land from production would have minor adverse impacts on local businesses that serve the agricultural producing sector because a small portion of their clientele would be removed. However, there would continue to be agricultural uses in the general vicinity that would continue to support those agriculture-related businesses. There is some potential that the intermodal facilities could indirectly increase agricultural production in the adjacent areas as the facilities would provide cost saving potential to local farmers by providing additional grain storage capacity and increased transportation options. These savings could entice farmers to continue to produce, or restart production, on marginal agricultural lands that may not always yield enough return to make it worthwhile to farm those lands. If new transportation savings are available, the cost/benefit ratio for farming on those lands may favor production over leaving the lands idle. This secondary increase in agricultural production could in turn help to offset some of the initial loss of business for the agriculture-related businesses from conversion of agricultural lands in the boundaries of the intermodal facilities.

4.4.2.2.3 Cumulative Impacts

Arkansas River Navigation Project

Construction of the intermodal facilities under the Green (Preferred) Alternative would allow the ARV region to take full advantage of the MKARNS resource available to the area. In addition, the potential benefits of the proposed channel deepening of the Arkansas River for commercial navigation purposes would be more fully realized by providing additional interconnection between the barges and land-based shipping options via trucks and trains. The benefits provided by interconnecting the individual transportation methods would combine to provide long-term beneficial impacts in terms of opportunities for potential social and economic growth of the region.

Industrial Development in the Arkansas River Bottoms near Russellville

Additional benefits to the social and economic environments would occur if industrial development occurs in the Arkansas River bottoms near Russellville separate from the industrial development expected as part of the intermodal facilities project. 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 there. Therefore, 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.

Expansion of Soil and Gravel Excavation and Removal

The expansion of sand, soil, and gravel operations in the Russellville bottoms area would not provide substantial adverse or beneficial impacts to social or economic resources in the region. If anything, the impacts would tend to be adverse as the removal of sand, soil, and gravel from the properties in the area could result in those lands becoming less usable for other more productive uses in the future. Unless a large operation is developed, these impacts are expected to be minimal in the reasonably foreseeable future. If mining operations are kept from occurring on highly productive agricultural areas or prime developable lands, these operations could provide slight benefits to local social and economic resources in terms of revenues they produce and by providing the necessary components needed for construction materials, such as concrete or road materials.

Continuation of Agricultural Land Use

Continuing agricultural land uses in areas surrounding the intermodal facilities would have primarily beneficial impacts to social and economic resources in the region. Such benefits would be due to continuation of agricultural revenues from farm operations as well as continued support for local agricultural-related businesses. Also, agricultural land uses are perceived to be more aesthetically pleasing to some individuals than other more intense land uses such as industrial or commercial developments. These agricultural areas would continue to provide open space and some wildlife habitat compared to areas that become converted to industrial, commercial, or residential uses. These aspects can provide some social benefits such as outdoor recreation opportunities. Continuation of agricultural land uses in the non-levee protected portions of the Arkansas River bottoms would provide additional floodwater storage capacity during flooding events.

Minor cumulative adverse impacts in terms of air quality may occur due to dust from crop fields and from use of gravel and dirt roads used to access most of the agricultural areas in the project vicinity. Dust from those areas would be in addition to the short-term construction dust that may occur while the intermodal facilities are being developed. Reduced air quality could impact the social environment especially for residents living downwind of the agricultural areas.

In the long-term, overall dust emissions from the area would be slightly reduced as the exposed soils and gravel and dirt roads currently in the intermodal facilities area would be replaced by hardened surfaces, paved roads, and would likely contain permanent vegetation in non-developed areas. Most of the residents currently impacted by

agricultural-related dust live adjacent to the north and east of the Russellville bottoms project area. The intermodal facilities would likely be placed closer to that area thereby replacing the dusty agricultural area with the less dusty environment. Other air quality impacts associated with the intermodal facilities are unknown at this time as it is not known what types of industries may choose to locate their operations at the new facilities. Although the exact industries that would use the intermodal facilities are unknown, it is anticipated that a mixture of industrial, commercial, and warehousing activities will occur at the intermodal facilities. Potential adverse impacts to air quality for adjacent residents would be regulated by state and Federal regulatory agencies, such as the USEPA, that regulate and monitor those industries. Consequently adverse impacts, if any, would be expected to be minor.

Increase Existing Arkansas River Commerce

Under this alternative the Russellville community and the ARV would be afforded the opportunity to take full advantage of the resource available to the area. The potential benefits of the proposed channel deepening of the Arkansas River for navigation purposes and the construction of the recently completed Highway 247 bypass would be fully realized under this alternative because opportunities for potential social and economic growth of the region would be available. Additionally, there would be great potential for business expansion as well as employment and income opportunities in the region.

4.4.2.2.4 Mitigation

The displacement and relocation of the affected residences, businesses, and non-profit organizations would be addressed and minimized by the appropriate authorities. Relocation assistance would be in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Act of 1970* (Public Law 91-646). It is policy of AHTD that no person shall be displaced unless and until comparable replacement housing has been provided. AHTD provides written assurance of compliance with the Public Law 91-646, and that all replacement housing is fair housing, or open and available to all persons regardless of race, color, religion, sex or national origin. AHTD relocation policy also includes construction of "Housing of Last Resort" (HLR) if comparable, decent, safe, and sanitary replacement housing is not available in the local housing market.

4.4.2.3 Potential Social Consequences of the Red Alternative

The short-term and long-term social impacts under the Red Alternative would be similar to those under the Green (Preferred) Alternative. Impacts on minority and low-income populations would also be similar to those under the Green (Preferred) Alternative. The Red Alternative would have eight potential residential relocations, one business and one partial business relocation, and one not-for-profit organization (Community Church).

Direct, indirect, and cumulative impacts to the social environment and mitigation measures under the Red Alternative are presented in detail in Section 4.4.2 of the

SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.4.2.4 Potential Social Consequences of the Purple Alternative

There would be both direct short-term adverse social impacts due to relocations and long-term beneficial social impacts due to development and potential population growth under the Purple Alternative. Short-term adverse impacts would include the potential displacement and relocation of 15 residences. Six of the residences are considered businesses, since they are family farms. Impacts would be similar to those under the Green (Preferred) Alternative.

Direct, indirect, and cumulative impacts to the social environment and mitigation measures under the Purple Alternative are presented in detail in Section 4.4.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.5 RELOCATION

4.5.1 Affected Environment

Relocation procedures for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.5.1 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

A detailed displacement/relocation analysis is contained in the *Relocation Technical Memorandum* located in Appendix D of the SDEIS.

4.5.2 Consequences

4.5.2.1 Potential Relocation Consequences of the No Action Alternative

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no direct or indirect relocation impacts. However, cumulative relocation impacts may occur due to a combination of unrelated past, present, and reasonably foreseeable future projects regardless of whether the proposed intermodal facilities are built.

Direct, indirect, and cumulative relocation impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.5.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.5.2.2 Potential Relocation Consequences of the Green (Preferred) Alternative

4.5.2.2.1 Direct Impacts

Under the Green (Preferred) Alternative, there would be six residential relocations. These relocations consist of four residences on Jennings Road, one residence on Levi

Lane, and one residence on Robinson Lane. All of these potential relocations are also potential relocations under the Red Alternative.

One business and a partial business displacement would be required under the Green (Preferred) Alternative; the same businesses would also be displaced under the Red Alternative. This business consists of a private commercial horse stable on Robinson Lane south of Robinson Sand & Gravel Excavating. In addition, there would be a partial business displacement associated with the Robinson Sand & Gravel Excavating business on Robinson Lane. This latter displacement consists of a house recently converted to office space associated with the above business.

There would be no institutional or public relocations under the Green (Preferred) Alternative.

4.5.2.2.2 Indirect Impacts

Existing housing resources within the City of Russellville or the region would be necessary for relocation of the displaced households from the project area. Current vacant housing in the area would be utilized for this purpose. Several of the displaced households may be relocated into housing of higher quality and value than their existing residence under the policies and guidelines of the *Uniform Relocation Assistance and Real Property Acquisition Act*.

No additional relocations of residences or businesses are anticipated due to secondary developments induced by the intermodal facilities. Those developments would occur on properties purchased from willing sellers and would not require individuals to relocate or sell their properties if they did not desire to do so.

4.5.2.2.3 Cumulative Impacts

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 displacees. In the long-term, additional residential developments may be required in the ARV region due to the operation of the intermodal facilities, especially in areas within reasonable commuting distances. This additional housing would be required if a substantial number of new jobs become available as new industries locate their operations in the intermodal facilities industrial area or in adjacent areas. New employees for those new developments would increase demands for housing in the area. The increased populations could also result in the need for additional infrastructure improvement projects that could result in scattered relocations.

Arkansas River Navigation Project

The proposed improvements to the MKARNS would not result in any relocation impacts in the project area; therefore, no cumulative relocation impacts would occur.

Industrial Development in the Arkansas River Bottoms near Russellville

No involuntary relocations would be expected due to additional industrial development in the Arkansas River bottoms outside of the intermodal facilities boundaries. If future industrial developments occur in the area, they would likely occur on currently vacant lands or on lands bought from willing sellers that would relocate voluntarily. Therefore, no measurable cumulative relocation impacts would be anticipated due to industrial developments in the area.

Expansion of Soil and Gravel Excavation and Removal

No involuntary relocations would be expected due to expansion of sand, soil, and/or gravel mining operations in the area. If future expansions of such operations occur in the area, they would likely occur on currently vacant lands or on lands bought from willing sellers that would relocate voluntarily. Therefore, no measurable cumulative relocation impacts would be anticipated due mining operations in the area.

Continuation of Agricultural Land Use

No involuntary relocations would be expected due to continuation of agricultural land uses in the area. Therefore no cumulative relocation impacts would be anticipated due agricultural land uses in the area.

Increase Existing Arkansas River Commerce

The increase in river commerce would not result in any relocation impacts in the project area; therefore, no cumulative relocation impacts would occur.

4.5.2.2.4 Mitigation

Relocation assistance would be in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Act* as amended by the *Surface Transportation and Uniform Relocation Act of 1987*. Comparable replacement housing would be provided for all displaced households under the provisions of the above laws. AHTD relocation policy also includes construction of HLR if comparable, decent, safe, and sanitary replacement housing is not available in the local housing market. HLR is presented as a relocation option by AHTD relocation agents as circumstances require. If necessary, a relocation office would be established in the vicinity of the project area at the initiation of negotiations for property acquisition.

4.5.2.3 Potential Relocation Consequences of the Red Alternative

Impacts from relocation under the Red Alternative would be similar to those under the Green (Preferred) Alternative. There would be eight residential relocations under the Red Alternative. These relocations consist of four residences on Jennings Road, three residences on or near Levi Lane, and one residence on Robinson Lane. All of the residences are single-family homes with one of the residences a farmstead associated with a farming operation. Four of the residences are mobile homes.

One business and a partial business displacement would be required under the Red Alternative; the same businesses would also be displaced under the Green (Preferred) Alternative. There would be one institutional relocation, a community church on Levi Lane, under the Red Alternative.

Direct, indirect, and cumulative impacts from relocation under the Red Alternative and mitigation measures under the Red Alternative are presented in detail in Section 4.5.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.5.2.4 Potential Relocation Consequences of the Purple Alternative

There would be fifteen residential relocations under the Purple Alternative. These relocations consist of three residences on Highway 64/Old Highway 64, four residences on county road (CR) 1650, one on CR 1670, two on CR 1631, three on CR 1638, and two on CR 1660. Approximately thirteen of the residences are single-family homes and two are mobile homes.

Six of the residences are family farm operations. Relocation payments for business reestablishment, moving costs, and other related expenses would be afforded the business owners in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Act of 1970*. There would be no institutional or public relocations under the Purple Alternative.

Direct, indirect, and cumulative impacts from relocation under the Purple Alternative and mitigation measures under the Purple Alternative are presented in detail in Section 4.5.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.6 ECONOMIC

4.6.1 Affected Environment

A description of the economic environment for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.6.1 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

A more detailed description and analysis of the regional economy is contained in the *Community Impact Assessment Technical Memorandum* located in Appendix C of the SDEIS.

4.6.2 Consequences

4.6.2.1 Potential Economic Consequences of the No Action Alternative

The currently under-utilized and undeveloped nature of the project area would most likely remain under the No Action Alternative. The physical features of the project area

and lack of infrastructure would continue as major constraints to future development without major private or public investment.

Direct, indirect, and cumulative economic impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.6.2 of the SDEIS. The SDEIS can be found online at the following location:

<http://www.rivervalleyintermodal.org/deis.htm>.

4.6.2.2 Potential Economic Consequences of the Green (Preferred) Alternative

4.6.2.2.1 Direct Impacts

Short-term and long-term beneficial impacts due to operation of the proposed RVIF, increased employment, and increased tax revenues would occur under the Green (Preferred) Alternative. Adverse economic impacts due to loss of property tax revenues would occur under the Green (Preferred) Alternative. Short-term beneficial impacts would be realized by employment associated with the construction of the intermodal facilities. This new construction related employment would create additional personal income for the local and regional purchase of consumer goods and services during the construction period, which would most likely occur intermittently over a period of 15-20 years.

Long-term beneficial impacts would be realized by the operation of the intermodal facilities. According to an analysis of the economic feasibility of the intermodal facilities (Hamilton et al., 2002), there are over 500 potential waterway users in the ARV six-county area. These users include twelve industry classifications that have a high or medium potential for using the MKARNS. Industries included in these classifications that would benefit the most from the intermodal facilities include the following: paper and allied products; primary and fabricated metals; glass products; industrial machinery; lumber and wood products; food products; and stone, clay, and mining products. The same study identified two distinct major types of benefits of the intermodal facilities. These include cost savings to current waterway users, and the shift-of-mode benefits for cargos that would reallocate to waterborne transport from their current non-waterborne transportation (for example, shifting from long-haul trucks to barges).

Additional long-term economic benefits would be realized with increased real property and other tax revenues resulting from development of the intermodal facilities.

Property tax rates are determined by local millage (mil) rates. A mil equals one-thousandth of a dollar (.001). In Arkansas, Counties can levy up to 21 mils of property tax while cities can levy up to 20 mils. School districts must levy 25 mils at a minimum with no maximum, and their mil amounts are determined by vote. For example, a 50-mil property tax would mean you pay approximately \$50 for every \$1,000 in assessed value.

According to the Little Rock Port Authority, they estimate it would take approximately 20-25 years for the proposed intermodal facilities to reach complete build-out. The Little

Rock Port has approximately 55 plants on 1,500 acres, so using the same ratio, there would be approximately 33 plants on the proposed 882 acre site. Factories and warehouses range in size from 25,000-50,000 SF and build cost for the Russellville Area is approximately \$50/square foot (RSMMeans, 2010). Based on the following:

- an Arkansas assessment ratio of 20 percent (State of Arkansas, 2009);
- an estimated property tax rate of 21 mil for the county and 25 mil for the school district; and
- an estimated construction cost value that would be similar to the property value.

An intermodal facilities complex with a mixture of 33 factories and warehouses all 25,000 SF in size could generate a total of \$2.0 million in property tax. The majority of this new tax revenue would be collected by the local school district. Since the land would be owned and leased by the Authority, tax revenues would only be generated by private improvements within the project area.

The presence of a national transportation system and central market location in the U.S. are major factors that contribute to the ARV's potential for a major freight consolidation and distribution center. A study by the USACE projected waterborne cargo flows within the six-county region "without project" and "with project" (USACE, 2001). The projections indicated that by the year 2022 over 35 percent of the total regional cargo or commodity movement would consist of waterborne transport under the "with project" versus only 14 percent under the "without project." The majority of this increase in waterborne traffic would be the result of a shift-of-mode for commodity movement. The intermodal facilities would provide for economic development of the region by offering a competitive advantage in transportation efficiencies.

Specific long-term beneficial economic impacts would be incurred with new employment associated with the intermodal facilities and the industrial, commercial, and other facilities within the project area associated directly or indirectly with the port. Development of the intermodal facilities would enhance the capacity of the region for the retention and expansion of existing industries and the attraction of new industries. It is anticipated that employment levels associated with the RVIF and four associated industries at full build-out would bring approximately 1,100 employees (Garver Engineers, 2002). The Little Rock Port encompasses approximately 1,700 acres with approximately 55 plants that employ nearly 5,000 (Latture, personal communication 2010). Utilizing the Garver Engineers research and since the proposed sites are half the size of the Little Rock Industrial Site, it is anticipated that the RVIF may employ between 1,500 and 2,500. On average, employees in the production sector in Arkansas make approximately \$27,000 (USBLS, 2008). This additional direct annual employment income could range from \$41 million to \$68 million, with additional indirect personal income created by indirect or secondary employment generated by the intermodal facilities. The new permanent employment generated would create additional personal income for consumption of goods and services in the local and regional economy.

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. Under the Green (Preferred) Alternative improved and unimproved parcels with a total assessed valuation ranging between \$150,000 and \$160,000 would be removed from the local real property tax roll. This loss of tax revenue producing property translates into an approximate annual loss of \$7,500 to \$8,000 in real property tax revenue, of which approximately 90 percent would be lost from the Pottsville School District.

4.6.2.2.2 Indirect Impacts

Indirect short-term beneficial impacts would be realized in the additional jobs created both on- and off-site during construction and site development. Indirect employment would result in the form of jobs associated with the provision of supportive goods, supplies, and services necessary for the construction phase of the project. This creation of indirect employment would result in additional indirect personal income for the purchase of goods and services within the region.

Indirect long-term beneficial economic impacts would be incurred from the operations of the intermodal facilities and associated development. These impacts would be the indirect employment and personal income created because of additional business generated from the operations of the intermodal facilities. Local and regional retail and service outlets would realize increased business volume and personal income. In addition, local and regional vendors of goods and supplies for the businesses within the project area would benefit from the proposed action. A study on the impact of waterways in Arkansas estimated that indirect impacts on job creation and personal income are approximately equal to direct impacts on employment and income (Nachtmann, 2002).

Other indirect beneficial impacts could result from the potential expansion of existing businesses and development of new businesses that would have an interest in the transportation and other services offered by the intermodal facilities. In addition, development of a less expensive mode of transportation and a shift-of-mode in commodity movement could create more savings for business investment. It is also expected that land values within the vicinity of the project area would increase because of new development opportunities afforded by the intermodal facilities. This includes the potential need for residential developments needed to supply housing for increased numbers of people working in the region as increased numbers of jobs become available with the development of the intermodal facilities and any secondary growth.

The development of the project area as proposed would demand new infrastructure and public services in the project area, including water, sewer, electricity, natural gas, communication, fire, police, and EMS. Costs associated with such services include the initial construction and subsequent provision of these services. It is expected that increased property and sales tax revenues associated with new developments would help offset costs for providing such services. Development of utilities would result in the generation of additional utility franchise tax revenue.

Potential long-term indirect adverse economic impacts could be realized by the private Port of Dardanelle and the Dardanelle School District. The Port of Dardanelle is located upstream and adjacent to the proposed intermodal facilities. There is a potential for competition between the proposed public intermodal facilities and the Port of Dardanelle. Adverse impacts on the existing private port may result in loss of employment and personal income associated with the intermodal facilities and its activities. In addition, the Dardanelle School District could be adversely impacted because of the loss of real property tax revenues if the private port ceased to operate, and if no reuse of the site and facilities subsequently occurred. Currently, the Dardanelle School District receives approximately \$4,500 in annual real property tax revenues from these facilities. It is anticipated that some of this loss may be offset by future residential and/or commercial developments that could occur in Dardanelle due to the proximity to the proposed intermodal facilities. Increased property values and increased property tax revenue would be expected as economic growth generated by the intermodal facilities occurs. New residents locating to the region to work at the intermodal facilities or any secondary businesses associated with the facilities may choose to live in the Dardanelle area, because commuting distance and times to the intermodal facilities would be minimal. Other local school systems would likely benefit from tax revenues generated by the intermodal facilities and associated secondary developments.

Other long-term indirect adverse economic impacts include the loss of productive farmland within the project area. Approximately 615 acres of farmland, consisting primarily of soybeans and hay, would be removed from agricultural production under the Green (Preferred) Alternative. Based on the most recent five-year average per acre yield and price/bushel data, approximately \$127,000 of gross revenue from soybean production would be lost annually (USDA, 2005). In addition, there would be an annual loss of revenue from the cessation of the production and sale of hay on over 80 acres used for this purpose. The revenues generated by the intermodal facilities and associated secondary growth in the area would help offset the loss of farmland revenue.

There are reduced freight rates associated with barge transportation, especially for bulk commodities moved long distances (AHTD, 2005). Where barge transportation is available, rates of either truck or rail, particularly rail, tend to be lower. The corollary is that where barge transportation is not available, rail rates tend to be higher. Shippers are aware of this economic reality as they constantly compare transportation costs in an attempt to reduce operating expenses. Lower costs to the shipper translate into lower costs for the consumer (CARIA, 2007). By promoting use of barge transportation through provision of intermodal facilities that interconnect water transportation with other modes of transportation in the region, this project is expected to result in reduced costs for producers. Increasing the competitive value of water transportation in the area would likely help reduce costs for other modes of transportation in the region. These savings would likely be passed on to consumers eventually buying the products being shipped at the cheaper rates.

4.6.2.2.3 Cumulative Impacts

The proposed intermodal facilities would create improved and expanded transportation services in the ARV by providing for more economically efficient movement of goods by a combination of truck, rail, and water. Currently, the region is lacking shipping choices and transportation support facilities that facilitate the use of different transportation modes. The proposed facilities would result in 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 new intermodal facilities proximate to a high level of existing industries (see Table 3.4 and Figure 3.13 in the SDEIS) would be a considerable attraction for 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 along with greater product profits accruing from lower transportation costs.

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. This assumes that the Port of Dardanelle is adversely impacted by the intermodal facilities. However, the recent improvement of Highway 247 could offset some of the potential adverse impacts associated with the intermodal facilities as the improvements to Highway 247 would provide the same types of benefits for the existing port as they would for the proposed intermodal facilities. Access to and from the existing Port of Dardanelle has been improved with the Highway 247 improvements. In addition, due to the proximity of the existing Port of Dardanelle, its facilities could potentially complement the new intermodal facilities rather than be replaced by them.

If the Port of Dardanelle is adversely impacted, the Dardanelle School District could potentially be adversely affected. The loss of real property tax revenues, approximately \$4,500 annually, would occur if the private port ceased to operate and if no reuse of the site and facilities subsequently occurred. However, it is anticipated that some of this loss may be offset by future residential and/or commercial developments that could occur in Dardanelle due to the proximity to the proposed intermodal facilities. Increased property values and increased property tax revenue would be expected as economic growth generated by the intermodal facilities occurs. New residents locating to the region to work at the intermodal facilities, or any secondary businesses associated with the facilities, may choose to live in the Dardanelle area because commuting distance and times to the intermodal facilities would be minimal. Other schools, such as those located in Pottsville and Russellville, would likely benefit from increased tax revenues generated by economic growth in those areas prompted by the intermodal facilities and/or associated secondary developments.

Other long-term cumulative adverse economic effects include the loss of approximately 615 acres of productive farmland within the project area, consisting primarily of soybeans and hay that would be removed from agricultural production. Based on the most recent five-year average per acre yield and price/bushel data, approximately

\$127,000 of gross revenue from soybean production would be lost annually. In addition, there would be an annual loss of revenue from the cessation of the production and sale of hay on over 80 acres used for that purpose. The revenues generated by the intermodal facilities and associated secondary growth in the area would help offset the loss of farmland revenue.

Arkansas River Navigation Project

The proposed improvements to the MKARNS and its commercial navigational uses proposed with the Arkansas River Navigation Project have a good potential to result in beneficial impacts to the ARV economy. However, unless additional intermodal connections are provided in the area, the full benefits of the project would not be realized. The intermodal facilities would ultimately combine all of the positive beneficial impacts to the ARV regional economy provided by the proposed MKARNS improvements and the recently completed Highway 247 improvements by interconnecting these available transportation modes and providing a unique facilities complex to attract additional industries to the area. Providing more freight transportation options with reduced costs and handling capacity would provide increased economic growth in the ARV region by attracting industries that would otherwise go elsewhere where such options or capacities were available.

Industrial Development in the Arkansas River Bottoms near Russellville

Additional benefits to the economic environment would occur if industrial development occurs in the Arkansas River bottoms near Russellville separate from the industrial development expected as part of the intermodal facilities project. Most of the industrial development in the Russellville bottoms in the reasonably foreseeable future is anticipated to occur within the actual intermodal facilities property because infrastructure and utilities would be provided there. Therefore, 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.

Expansion of Soil and Gravel Excavation and Removal

The expansion of sand, soil, and gravel operations in the Russellville bottoms area would not provide substantial adverse or beneficial impacts to economic resources in the region. If anything, the impacts would tend to be adverse as the removal of sand, soil, and gravel from the properties in the area could result in those lands becoming less usable for other more productive uses in the future. Unless a large operation is developed, those impacts are expected to be minimal in the reasonably foreseeable future. If mining operations are kept from occurring on highly productive agricultural areas or prime developable lands, those operations could provide slight benefits to local social and economic resources in terms of revenues they produce and by providing the necessary components needed for construction materials such as concrete or road materials.

Continuation of Agricultural Land Use

Continuing agricultural land uses in areas surrounding the intermodal facilities would have primarily beneficial impacts to economic resources in the region. Such benefits would be due to continuation of agricultural revenues from farm operations as well as continued support for local agricultural-related businesses.

Increase Existing Arkansas River Commerce

Under this alternative the Russellville community and the ARV would be afforded the opportunity to take full advantage of the resource available to the area. The potential benefits of the proposed channel deepening of the Arkansas River for navigation purposes and the recent construction of the Highway 247 bypass would be fully realized under this alternative. Thus, opportunities for potential social and economic growth of the region would be available under this alternative and there would be great potential for business expansion as well as employment and income opportunities in the region.

4.6.2.2.4 Mitigation

The overall economic benefits the intermodal facilities would provide to the local and regional economies would mitigate potential adverse impacts due to losses of current revenues generated in the proposed project area. Potential long-term adverse impacts to the Port of Dardanelle can be minimized by developing mutually beneficial relationships and possibly developing cooperative agreements between the Port and the Authority.

4.6.2.3 Potential Economic Consequences of the Red Alternative

The economic impacts under the Red Alternative would be similar to those under the Green (Preferred) Alternative. However, some indirect impacts would be reduced under the Red Alternative. For example, using the same estimates and assumptions from section 2.2.2.4 of the SDEIS, there would be approximately 31 plants on the 832 acre site under the Red Alternative. An intermodal facilities complex with a mixture of 31 factories and warehouses all 25,000 SF in size could generate a total of \$1.7 million in property tax (versus \$2.0 million under the Green (Preferred) Alternative). In addition, approximately 155 fewer acres of soybeans would be removed from production. Based on recent five-year average yield and price data from the United States Department of Agriculture, Arkansas Statistical Office, approximately \$90,000 of gross revenue from soybean production would be lost annually, or \$37,000 less than under the Green (Preferred) Alternative.

Direct, indirect, and cumulative economic impacts under the Red Alternative and mitigation measures under the Red Alternative are presented in detail in Section 4.6.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.6.2.4 Potential Economic Consequences of the Purple Alternative

The economic impacts under the Purple Alternative would be similar to those under the Green (Preferred) Alternative. However, some negative impacts would be greater under the Purple Alternative because of tax revenue losses. Improved and unimproved parcels with a total assessed valuation around \$1,000,000 would be removed from the local real property tax roll.

Under the Purple Alternative, approximately 450 acres of farmland, consisting primarily of cattle pasture and hay production, would be removed from agricultural production. The beneficial impacts from property tax would be smaller than the benefits under the Red and Green (Preferred) Alternative because a smaller site would be utilized. Using the same estimates and assumptions from section 2.2.2.4 of the SDEIS, there would be approximately 27 plants on the 742 acre site. An intermodal facilities complex with a mixture of 27 factories and warehouses all 25,000 SF in size could generate a total of \$1.5 million in property tax.

Direct, indirect, and cumulative economic impacts under the Purple Alternative and mitigation measures under the Purple Alternative are presented in detail in Section 4.6.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.7 PEDESTRIAN AND BICYCLIST CONSIDERATIONS

4.7.1 Affected Environment

The project area is used primarily for agricultural activities and has no pedestrian or bicycle paths. The roads in the project area are used primarily to transport farm equipment. The proposed intermodal facilities would support industrial, railroad, and shipping type activities, which are not conducive to pedestrian and bicycle activities. The large machinery that would be used would be dangerous to those types of recreational activities. Therefore, no consideration is being given to the provision of pedestrian and bicycle facilities.

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.

4.8 AIR QUALITY

4.8.1 Affected Environment

A description of air quality for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.8.1 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.8.2 Consequences

4.8.2.1 Potential Air Quality Consequences of the No Action Alternative

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no impacts to air quality.

Direct, indirect, and cumulative air quality impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.8.2 of the SDEIS. The SDEIS can be found online at the following location:

<http://www.rivervalleyintermodal.org/deis.htm>.

4.8.2.2 Potential Air Quality Consequences of the Green (Preferred) Alternative

4.8.2.2.1 Direct Impacts

No portion of this project is within a designated nonattainment area for any of the air pollutants for which the USEPA has established standards. Accordingly, a conformity determination under 40 CFR Part 93 (Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act) is not required.

The results of the microscale CO analysis indicate that this project would not result in any violations of either the one-hour (35.0 ppm) or eight-hour (9.0 ppm) NAAQS for CO. All of the predicted 1-hour CO concentrations are well below the NAAQS of 35.0 ppm. The highest predicted 8-hour concentration is 2.1 ppm at the intersection and below the NAAQS of 9.0 ppm. It is unlikely that this concentration level would ever be experienced by anyone, because extremely conservative assumptions were built into the modeling for this project. The most conservative assumption is the locating of receptors along the edge of the right of way, which means a person would have to be located on the right of way for 8 hours to experience the calculated maximum concentration.

As shown on Table 4.3 of the SDEIS, a localized estimated average increase of 11,196 truck loads/year is expected with use of the intermodal facilities. This increase is expected to have a very minor long-term adverse impact on air quality due to emissions. Increased barge and rail traffic would also have minor long-term adverse impacts on air quality due to emissions.

No microscale air quality models are available to calculate site specific pollutant emissions from rail vehicles. However, given the projected train volume on the site (i.e., up to one train per hour), impacts to air quality from increased rail traffic would be negligible.

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

4.8.2.2.2 Indirect Impacts

Although localized increases in truck traffic would occur, there would be long-term beneficial impacts to regional air quality from the intermodal facilities project because of the potential shift from truck to barge transportation. Promoting the use of barges to transport products to and from the region versus having those products shipped primarily by truck would result in beneficial impacts to air quality. This is because barges could be used to reduce the total number of trucks operating in the region. As discussed in Section 2 of the SDEIS, trucks produce much worse air quality impacts than do barges and/or trains. Therefore providing facilities that promote the use of these other alternative modes of transportation would help reduce overall air quality impacts in the region.

Short-term, indirect impacts to air quality will occur in the surrounding areas during construction due to construction equipment exhaust and dust. In the long term, it is anticipated that dust emissions within the project area would be reduced because the current agricultural practices that result in excess dust during dry periods would be removed (NRCS, 2007). Much of the dust currently generated in the project area occurs when vehicles drive on the areas gravel roads and when farm equipment is used to prepare crop fields or produce hay. If the intermodal facilities were constructed, dust emissions would be reduced because the access roads and on-site roads would all be paved. Much of the remaining land would consist of other hardened surfaces such as concrete parking lots or holding areas or would contain large warehouses or other structures. Remaining portions of the intermodal facilities would likely consist of lawns or other permanent vegetation or landscaping resulting in less exposed soils than occurs under the current conditions.

It is likely that fewer chemicals would be sprayed in the project area compared to the amounts used for current agricultural purposes. Emissions from vehicles and equipment would likely be the primary air quality concerns if the intermodal facilities were constructed. Direct air quality impacts associated with the intermodal facilities were described in the DEIS. Many of the air quality impacts cannot be determined until it is known what types of industries or activities would occur on the site. Although the exact industries that would use the intermodal facilities are unknown, it is anticipated that a mixture of industrial, commercial, and warehousing activities will occur at the intermodal facilities. Local permits as well as monitoring and permitting required by state and Federal regulatory agencies would help ensure that air quality impacts are kept to the minimum possible and that no substantial long term impacts to air quality occur.

4.8.2.2.3 Cumulative Impacts

Cumulative impacts to local air quality may be somewhat beneficial in the long-term because of reduced emissions from trucks and lower dust emissions. Reduced emissions would result from promoting the use of barge and/or train transportation versus primarily truck transportation. Replacing numerous trucks with more air quality-friendly modes such as barges and/or trains would result in long term beneficial impacts to air quality.

Lower dust emissions would result from fewer gravel or dirt roads being utilized in the project area along with fewer agricultural activities, all of which can combine to result in adverse air quality impacts especially during dry periods. In addition, fewer chemicals would likely be sprayed in the area.

Arkansas River Navigation Project

The Arkansas River Navigation Project and the Intermodal Facilities projects would combine to promote increased use of barge transportation in the region. When viewed cumulatively, increased use of river transportation via barges would result in air quality improvements for the entire region.

The improved commercial navigation capabilities that would be occur on the MKARNS from the Arkansas River Navigation project would result in some increased barge traffic and possibly result in minor adverse impacts to local air quality. This would combine with increased truck traffic in the localized area adjacent to the intermodal facilities. Because the general local air quality is relatively good at this time, the cumulative impact of the increased barge and truck traffic on air quality is not expected to be substantial. The increased number of barges and trucks in the local area would not be anticipated to be substantial. The overall benefits to the regional air quality described above would negate any minor localized adverse air quality impacts. The recently improved Highway 247 would provide trucks entering and leaving the intermodal facilities with a non-congested route. This new, more efficient roadway would reduce the potential for adverse air quality impacts in the local environment.

Industrial Development in the Arkansas River Bottoms near Russellville

Additional industrial development in the Arkansas River bottoms outside of the proposed intermodal facilities development is expected to be relatively minor in the reasonably foreseeable future. Most new industrial development in the area is expected to occur in the intermodal facilities project boundaries. Therefore, potential air quality impacts from industrial development outside the intermodal facilities would be minor. Although the exact industries that would use the intermodal facilities are unknown, it is anticipated that a mixture of industrial, commercial, and warehousing activities will occur at the intermodal facilities. It is not anticipated that substantial impacts to air quality would occur as state and Federal regulatory agencies would identify and monitor potential air quality impacts as part of their permit requirements and regulatory activities.

Expansion of Soil and Gravel Excavation and Removal

It is not anticipated that expansion of soil and gravel operation in the area would have substantial cumulative impacts to air quality due to the relatively small size of the operations anticipated to occur in the area.

Continuation of Agricultural Land Use

Minor cumulative adverse impacts in terms of air quality may occur due to dust from crop fields and from use of gravel and dirt roads used to access most of the agricultural

areas in the project vicinity. Dust from those areas would be in addition to the short-term construction dust that may occur while the intermodal facilities are being developed or while other reasonably foreseeable projects are being implemented.

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. Most of the residents currently impacted by agricultural-related dust live adjacent to the north and east of the Russellville bottoms project area. The intermodal facilities would likely be placed closer to that area thereby replacing the dusty agricultural area with the less dusty environment. Although the exact industries that would use the intermodal facilities are unknown, it is anticipated that a mixture of industrial, commercial, and warehousing activities will occur at the intermodal facilities. Potential adverse impacts to air quality for adjacent residents would be regulated by state and Federal regulatory agencies, such as the USEPA, that regulate and monitor those industries. Consequently adverse impacts, if any, would be expected to be minor.

Increase Existing Arkansas River Commerce

The increase in existing Arkansas River commerce and the Intermodal Facilities projects would combine to promote increased use of barge transportation in the region. When viewed cumulatively, increased use of river transportation via barges would result in air quality improvements for the entire region. This is due to reducing the reliance on truck transportation, which results in much higher adverse impacts to air quality than barge transportation.

Increased barge traffic would possibly result in minor adverse impacts to local air quality. This would combine with increased truck traffic in the localized area adjacent to the intermodal facilities. Because the general local air quality is relatively good at this time, the cumulative impact of the increased barge and truck traffic on air quality is not expected to be substantial. The overall benefits to the regional air quality described above would negate any minor localized adverse air quality impacts.

4.8.2.2.4 Mitigation

No violations of the NAAQS are projected for this project. Therefore, no air quality mitigation measures are required for the project improvements.

During construction the contractor must comply with all federal, state, and local laws and regulations governing the control of air pollution. Adequate dust-control measures would be maintained so as not to cause detriment to the safety, health, welfare, or comfort of any person or cause any damage to any property or business.

All bituminous and Portland cement concrete proportioning plants and crushers would meet the requirements of AHTD. For any portable bituminous or concrete plant or crusher, the contractor must apply for a permit-to-install from AHTD.

Demolition and construction activities can result in short-term increases in fugitive dust and equipment-related particulate emissions in and around the project area. (Equipment-related particulate emissions can be minimized if the equipment is well maintained.) The potential air quality impacts would be short-term, occurring only while demolition and construction work is in progress and local conditions are appropriate.

The potential for fugitive dust emissions typically is associated with building demolition, ground clearing, site preparation, grading, stockpiling of materials, on-site movement of equipment, and transportation of materials. The potential is greatest during dry periods, periods of intense construction activity, and during high wind conditions.

Dust and airborne dirt generated by construction activities would be controlled through dust control procedures or a specific dust control plan, when warranted. The contractor and the Authority would meet to review the nature and extent of dust-generating activities and would cooperatively develop specific types of control techniques appropriate to the specific situation. Techniques that may warrant consideration include measures such as minimizing track-out of soil onto nearby publicly-traveled roads, reducing speed on unpaved roads, covering haul vehicles, and applying chemical dust suppressants or water to exposed surfaces, particularly those on which construction vehicles travel. With the application of appropriate measures to limit dust emissions during construction, this project would not cause any short-term particulate matter air quality impacts.

Paving access roads and other roads within the intermodal facilities would reduce overall dust emissions from within the project area in the long-term. In addition, replacing crop fields with hardened surfaces, buildings, or permanent vegetation would potentially reduce dust emissions in the project area as well. Currently during dry periods, high winds can blow dust particles from the open, flat fields and carry them substantial distances downwind. Dust emissions can also be high when fields are being prepared for planting or being harvested or when hay is being mowed and baled. These activities often occur when the surface of the agricultural fields is dry allowing equipment to be driven on the land. The dry surfaces allow additional dust to be transported in the air and carried downwind.

4.8.2.3 Potential Air Quality Consequences of the Red Alternative

Impacts due to implementation of the Red Alternative would be similar to those listed for the Green (Preferred) Alternative except that the long term reduction in dust emissions in the project area may be slightly better under the Green (Preferred) Alternative as more gravel roads and agricultural lands would be replaced with hardened surfaces, structures, or permanent vegetation compared to the Red Alternative.

4.8.2.4 Potential Air Quality Consequences of the Purple Alternative

Impacts due to implementation of the Purple Alternative would be similar to those listed for the Green (Preferred) Alternative.

4.9 NOISE

4.9.1 Affected Environment

A description of noise for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.9.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.9.2 Consequences

4.9.2.1 Potential Noise Consequences of the No Action Alternative

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no impacts as the result of noise. Direct, indirect, and cumulative noise impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.9.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.9.2.2 Potential Noise Consequences of the Green (Preferred) Alternative

4.9.2.2.1 Direct Impacts

Noise impacts for this project were evaluated in accordance with the FHWA Noise Assessment Guidelines. Direct noise impacts will occur due to the increase of barge, truck, and train traffic because of 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.

4.9.2.2.2 Indirect Impacts

Indirect noise impacts would occur due to an increase of traffic associated with growth in the adjacent communities attributed to the intermodal facilities and any secondary developments that may be prompted by the facilities. Construction activities associated with secondary growth and development in the area would result in short-term noise impacts around those specific developments.

4.9.2.2.3 Cumulative Impacts

Direct 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 impact the residences interspersed along Highway 247.

Arkansas River Navigation Project

Additional noise generated by the intermodal facilities, including increased barge, truck train, and equipment noise would result in some cumulative impacts with increased barge traffic noise associated with the proposed improvements to the MKARNS. These increases in barge noise would combine with existing noise in the project area from

farming and mining operations and increased noise from additional trucks using the improved Highway 247. Noise impacts from barges would not be considered substantial as total number of barges passing through the area per day would not be high, primarily because fewer barges are required to carry large quantities.

Industrial Development in the Arkansas River Bottoms near Russellville

Additional industrial development in the Arkansas River bottoms outside of the proposed intermodal facilities development is expected to be relatively minor in the reasonably foreseeable future. Most new industrial development in the area is expected to occur in the intermodal facilities project boundaries. Therefore, potential cumulative noise impacts from industrial development outside the intermodal facilities would be minor.

Expansion of Soil and Gravel Excavation and Removal

It is not anticipated that expansion of soil, sand, and gravel mining operations in the area would have substantial cumulative impacts to noise due to the relatively small size of the operations anticipated to occur in the area. Some increased truck traffic would occur with expansion of the soil and gravel excavation areas. This would combine with additional truck traffic from the intermodal facilities and the recently improved Highway 247. The additional noise impacts from mining traffic would be minimal.

Continuation of Agricultural Land Use

There would not be any additional agricultural noise in the foreseeable future above the baseline conditions. Noise from farm equipment is not expected to result in substantial noise impacts when combined with noise from other activities or foreseeable projects in the area. If anything, there could be a slight reduction in agricultural noises because some agricultural land uses would be removed from the area if the intermodal facilities are constructed in the proposed area. However, the decreases in agricultural noise would be replaced by noises associated with the intermodal facilities, which would likely be more intense than noises from farm equipment or other agricultural noise.

Increase Existing Arkansas River Commerce

The increase in noise levels from the increase existing Arkansas River commerce is expected to be relatively minor in the reasonably foreseeable future. Therefore, potential cumulative noise impacts from the increase in existing Arkansas River commerce would be minimal and would not be measurable.

4.9.2.2.4 Mitigation

Although projected noise levels at certain receptors exceed the FHWA criteria for the Build alternatives in the year 2025, no noise mitigation is proposed for this project.

The typical method of mitigating traffic noise impacts is to construct a noise barrier in the form of an earthen berm and/or vertical wall. Typically, noise abatement is only

provided for zoned residential land uses and publicly used, or non-profit, institutional structures, such as hospitals, libraries, schools, and churches.

Noise abatement could be provided for sensitive receptors projected to experience noise levels greater than 67 dBA or projected to experience a 10 dBA increase from existing noise levels. The primary source of noise at the noise receptors evaluated is from traffic along Highway 247. A noise barrier along the intermodal facilities property would not be effective at attenuating noise at the sensitive receptors, because it would not block noise from Highway 247. A noise barrier along Highway 247 would not be effective, because maintaining access to the adjacent properties would require “breaks” in the barrier, which would limit its effectiveness. Noise mitigation would also not be economically feasible for this project, because the impacted receptors are dispersed throughout the corridor, requiring an individual barrier for most of the impacted receptors.

In addition to noise barriers, other abatement measures, such as eliminating truck traffic, reducing the speed limit, or providing air conditioning and insulation were considered and found to be either unwarranted or infeasible for this project.

Construction noise impacts were also considered. As with any major construction project, areas around the construction site would likely experience varied periods and degrees of noise impact if a build alternative were constructed. Construction noise would be minimized by the use of mufflers on construction equipment. Air compressors would meet federal noise level standards and would, if possible, be located away from or shielded from residences and other sensitive noise receptors.

Where pavement must be fractured or structures must be removed, care will be taken to prevent vibration damage to adjacent structures. In areas where construction-related vibration is anticipated, basement surveys could be conducted before construction begins to document any damage caused by facilities construction.

Trucks and machinery used for construction produce noise and vibration, which may affect some land uses and activities during the construction period. Individuals inhabiting homes adjacent to the project area will at times notice construction noise and vibration from the implementation of this project. Occupants of buildings within a radius of approximately 200 feet from very specific construction equipment may perceive ground vibration effects during the operation of that equipment. These noise impacts would be temporary and would vary from day to day based on specific construction operations. Cosmetic damages are unlikely to occur to buildings situated beyond approximately 100 feet from the heaviest vibration generators. To minimize or eliminate the effects of construction noise on adjacent sensitive receptors, mitigation measures meeting state requirements should be incorporated into the standard specifications for this project.

Under normal circumstances, construction activity is typically confined to the hours between 7:00 a.m. and 6:00 p.m. on weekdays. Therefore, critical time periods in which

sleep or outdoor recreation would occur would not be subject to noise intrusion from construction activities.

There will also be noise generated from operations occurring at the proposed intermodal facilities. Predicting these noise levels accurately is not reasonable at this stage of project development. Post-construction noise levels will be measured near the intermodal facilities to determine if any noise impacts are caused by operations at the facilities.

4.9.2.3 Potential Noise Consequences of the Red Alternative

Impacts due to the implementation of the Red Alternative would be similar to those listed for the Green (Preferred) Alternative. Direct, indirect, and cumulative noise impacts under the Red Alternative and mitigation measures under the Red Alternative are presented in detail in Section 4.9.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.9.2.4 Potential Noise Consequences of the Purple Alternative

Impacts due to the implementation of the Purple Alternative would be similar to those listed for Green (Preferred) Alternative. Direct, indirect, and cumulative noise impacts under the Purple Alternative and mitigation measures under the Purple Alternative are presented in detail in Section 4.9.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.10 WATER QUALITY

4.10.1 Affected Environment

A description of water quality for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.10.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.10.2 Consequences

4.10.2.1 Potential Water Quality Consequences of the No Action Alternative

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no direct impacts to water quality. Direct, indirect, and cumulative water quality impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.10.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.10.2.2 Potential Water Quality Consequences of the 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 approximately 2,800 linear feet of streambank. Implementation of the Green (Preferred) Alternative would result in construction activities and facilities along the south bank of

Whig Creek. Other than the cut for the slackwater harbor, the riparian buffer along the east side of the Arkansas River would not be altered if the Green (Preferred) Alternative were implemented. The Green (Preferred) Alternative would not destroy wetlands that drain directly into Whig Creek. Those wetlands would continue to serve as filters of surface water that drain into the creek from upstream area.

4.10.2.2.1 Direct Impacts

Direct impacts due to the implementation of the Green (Preferred) Alternative would be similar to those listed for the Red Alternative. A slackwater harbor would be constructed that is hydrologically connected to the Arkansas River. Excavation of the harbor would cause some sediment to be released into the River. Proper BMPs and construction techniques would be employed so that impacts are minimal. 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.

The potential for water quality impacts to the tributary to Whig Creek, the tributary to Flagg Lake, and Whig Creek would be slightly reduced in comparison to the Red Alternative due to the project area being shifted south away from those streams under the Green (Preferred) Alternative. 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.

A long-term potential impact to water quality exists due to the potential for small incremental releases or large accidental spills of contaminants into the Arkansas River or Whig Creek. Because the types of materials that would be transferred or used at the proposed intermodal facilities are not known at this time, it is difficult to quantify these impacts.

Accidental spills of dissolved contaminants that enter the Arkansas River would have little or no chance of impacting the quality of water produced from the City of Dardanelle's well field, because the proposed intermodal facilities project area is located almost directly across the Arkansas River from Dardanelle. In order for contaminants to reach the groundwater supply of Dardanelle, they would have to travel almost directly horizontal across the surface waters of the river, filter through the alluvial sediments, and then flow into the groundwater aquifers. Due to the separation of groundwater on the east and west sides of the river it is assumed that any pollutants that are potentially accidentally released into the groundwater under the proposed intermodal facilities on the east side of the river would not enter into the Dardanelle aquifers on the west side of the river (AGC, 2003).

SPCC Plans would likely be required for tenants using the intermodal facilities that would potentially handle, store, or transport contaminants, such as oil. All requirements and guidelines set forth in those plans and other environmental permits would be complied with to further reduce any risks associated with accidental releases of contaminants.

Most transfers of materials to and from barges would occur within the proposed slackwater harbor area. If spills occurred in the slackwater harbor it is likely the release would be quickly identified and contained mainly within the harbor itself. Containment and remediation steps would be implemented rapidly to avoid the spread of contaminants into the main channel of the Arkansas River. If contaminants are accidentally released into the main channel of the Arkansas River, it is likely that the swift currents would quickly dilute and disperse the materials. It is unlikely that dangerous concentrations of contaminants would accumulate near public water supply areas as containment and remediation efforts would be implemented immediately following an accidental release. Any potential impacts to the public water supply would lag behind the time of an accidental release providing ample time for testing programs to become established to quantify any potential dangers to the public.

Contrary to the beliefs of many people, environmental safety may be better when materials are shipped via waterways because truck and rail spills occur more often than barge spills (USDOT, 1994). Design features of barges, such as double-hulls and navigational aids, help reduce the frequency of accidents. All new inland tank barges carrying liquid cargo now have an inner and outer hull. The United States Coast Guard (USCG) regulates the design and construction of these vessels and equipment as well as qualifications of the personnel manning them. The USCG inspects the vessels annually to ensure compliance (USDOT, 1994). Therefore, promoting the use of barge transportation would not be considered a major threat to water quality due to spills from barges.

Although the exact industries that would use the intermodal facilities are unknown, it is anticipated that a mixture of industrial, commercial, and warehousing activities will occur at the intermodal facilities. Water quality impacts associated with these industries would be associated with non-point source runoff from the businesses and potentially point source discharges for industries requiring large volumes of water. Non-point source impacts would be expected to be minor as stormwater detention ponds will be incorporated into the overall intermodal facilities design. Point source impacts would be managed via the water quality permitting process on an individual industry basis and could include NPDES permits and SPCC plans.

Use of BMPs and adherence to environmental permits would help protect groundwater resources in the area. Any accidental releases of contaminants on the site would be remediated immediately.

4.10.2.2.2 Indirect Impacts

Short-term adverse indirect impacts to aquatic habitats would occur during clearing, site preparation, and construction of the proposed RVIF. There could be short-term adverse indirect impacts to aquatic species due to reduced water quality from physical disturbances. During construction, sedimentation and soil erosion would likely increase due to soil disturbances, especially during storm events. This situation could lead to increased silt loads (suspended solids and total solids), increased turbidity, and potential for the introduction of contaminants, such as oil and grease from construction equipment. Siltation can eliminate or impair the growth of benthic fauna and fish, while

increased turbidity can impact primary production by aquatic plants and phytoplankton. Petroleum products in contaminated runoff could have direct toxic effects on the stream flora and fauna. Larval and juvenile fish would likely be the most adversely affected since they are less mobile and have a narrow range of tolerance to disturbance and pollution. In general, changes in surface water quality in tributaries to the Arkansas River from construction of the project would not be expected to cause measurable changes in the water in the Arkansas River or in the water produced from the City of Dardanelle's well field.

The riparian buffer that is present along the Arkansas River would remain under the Green (Preferred) Alternative, and the levee would be constructed east of the riparian buffer. The mature trees and shrubby vegetation would continue to intercept sediment and runoff, and would provide water quality protection during construction and every day operation of the intermodal facilities. Also, the wetlands along the tributary to Whig Creek in the northern portion of the Red Alternative would not be impacted by the Green (Preferred) Alternative. Therefore the potential for water quality impacts to the lower portion of Whig Creek would be reduced under this alternative, because the wetlands could continue to function as filters for water from the tributary to Whig Creek.

Long-term adverse indirect impacts to aquatic resources would occur from increased impervious surface area and conversion from rural to industrial use. Activities related to industrial traffic in the project area would increase the potential for chemical contaminants from equipment, such as oil and grease, to indirectly impact aquatic habitats.

Small incremental releases of contaminants, such as oils, greases, and other materials are possible during the long-term operation of the intermodal facilities. Such contaminants could indirectly impact water quality for the adjacent streams and rivers due to stormwater runoff transporting them off of the site. However, it is unlikely that major impacts to local water quality would result, because most small incremental releases would likely occur in portions of the intermodal facilities with impermeable surfaces such as pavement or concrete. These areas could be cleaned periodically to keep the contaminants from being transported through stormwater runoff from the site. Any visible concentrations or puddles of contaminants such as oils would be cleaned to keep those materials from being transported from the site with stormwater runoff. Periodic cleaning of the impervious surfaces such as pavement or concrete would further reduce the chance of such contaminants entering groundwater and potentially being transported through the alluvium adjacent to the Arkansas River.

Although Whig Creek is listed as "water quality limited," it is unlikely that the project would compound existing problems along the creek. Major impacts to Whig Creek are from municipal sewage and minor impacts are from industrial heavy metals. It is not anticipated that municipal sewage would be discharged from intermodal facilities; however, it is possible that some industrial heavy metals would occur on the site. If industries transporting such materials do choose the intermodal facilities, they would be required to obtain the necessary permits and develop the appropriate management plans. Some examples include NPDES permits and SPCC plans.

Long-term beneficial indirect impacts would also occur by eliminating the use of the project area for agriculture. Extensive agricultural usage exposes bare soil to runoff and wind erosion and increases sedimentation into aquatic resources. Chemical contamination of aquatic resources from fertilizer and pesticide would be eliminated in the project area.

4.10.2.2.3 Cumulative Impacts

Most of the potential cumulative water quality impacts associated with the reasonably foreseeable projects or activities in the area would be short-term impacts that occur during the construction phase of the project. It is not likely that construction phases for the various foreseeable projects, including the intermodal facilities, would occur at the same time. Therefore, potential impacts to water quality would likely not be substantial at any given period. Use of BMPs and mitigation efforts would likely be required for all projects requiring NPDES permits or other permits from regulatory agencies. This would help to ensure that overall water quality impacts to surface and groundwater resources in the area remain minimal.

Arkansas River Navigation Project

Activities associated with the proposed Arkansas River Navigation project could increase barge traffic on the MKARNS. An increase in barge traffic elevates the chance of spilling contaminated material, resulting in potential adverse impacts to water quality. However, contrary to the beliefs of many people, environmental safety may be better when materials are shipped via waterways, because truck and rail spills occur more often than barge spills (USDOT, 1994). Design features of barges, such as double-hulls and navigational aids, help reduce the frequency of accidents. All new inland tank barges carrying liquid cargo now have an inner and outer hull. The USCG regulates the design and construction of these vessels and equipment as well as qualifications of the personnel manning them. The USCG inspects the vessels annually to ensure compliance (USDOT, 1994). Therefore, promoting the use of barge transportation would not be considered a major threat to water quality due to spills from barges.

Implementation of the MKARNS project would increase maintenance dredging on the Arkansas River, resulting in occasional increased turbidity and decreased water quality. These impacts would combine with any increased turbidity or decreased water quality associated with the intermodal facilities and any other projects or activities in the area. Anticipated use of BMPs during construction and operation of the intermodal facilities would help reduce the cumulative effect to water quality.

Industrial Development in the Arkansas River Bottoms near Russellville

It is not likely that substantial industrial development would occur outside of the intermodal facilities project area in the reasonably foreseeable future that could contribute to substantial cumulative water quality impacts in the area. It is anticipated that much of the industrial development in the reasonably foreseeable future would occur within the boundaries of the intermodal facilities due to the levee protected areas provided and the other transportation services and infrastructure that would be

provided. Impacts associated with industrial development within the intermodal facilities were discussed under the direct and indirect impacts discussions.

If additional industrial development does occur in the Arkansas River bottoms near Russellville, the potential for water quality impacts would be similar and cumulative to those of the intermodal facilities. However, as with the intermodal facilities, the exact industries that would become established are unknown, it is anticipated that a mixture of industrial, commercial, and warehousing activities would become established. Therefore, it would not be possible to accurately determine if heavy metals or other hazardous materials would be transported at the site. If a business that handled, shipped, or produced such materials built, leased, or operated a facility in the area, that business would likely be required to obtain permits such as NPDES permits and develop the appropriate management plans such as the SPCC plans mentioned earlier. Regulatory agencies would be responsible for identifying and/or monitoring water quality impacts of private industries in the area and would require compensation and remediation if any violations were observed.

Use of BMPs as well as regulations set forth in environmental permits would help protect groundwater resources in the area. Any accidental releases of contaminants on the site would be remediated immediately.

Expansion of Soil and Gravel Excavation and Removal

Expansion of sand, soil, and gravel mining operations in the project vicinity would result in increases in water quality impacts. The mining operations would primarily result in increased erosion due to exposed soils and/or increased runoff and sedimentation into adjacent streams in the area. Most of the mining operations would likely occur in areas separated from streams or rivers by vegetation buffers or other areas that would help to filter sediments or slow surface drainage leaving those areas. Adverse impacts to water quality associated with the mining operations would be cumulative to any water quality impacts associated with the intermodal facilities project and any other reasonably foreseeable activities or projects in the area that could also impact water quality.

Continuation of Agricultural Land Use

Continuation of agricultural land uses in the project vicinity would result in continued potential for cumulative adverse impacts to water quality. Agricultural land uses would continue to contribute to water quality impacts due to contaminated runoff from agricultural fields that may include fertilizers, pesticides, herbicides, or other pollutants. These water quality impacts would be cumulative with other water quality impacts associated with reasonably foreseeable projects in the project vicinity. Due to the past and present agricultural land uses and past water quality reductions in the area, it is not likely that substantial additional water quality increased would occur, even with the cumulative effect of the foreseeable projects.

In some streams in the project area, construction of the intermodal facilities could potentially increase water quality in the long-term as the agricultural land uses would be

replaced by other uses. It is possible that the uses of the land in the intermodal facilities may not result in as severe of water quality issues as the present agricultural uses. However, this cannot be determined at this time because it is not known what industries may utilize the property or how the streams would be directly impacted during construction of the project. It is possible that further protection may be provided for the streams in the area, because regulatory agencies may have additional jurisdiction over the proposed industrial uses than they currently have over certain agricultural and small mining practices presently occurring on the lands.

Increase Existing Arkansas River Commerce

Construction of the proposed intermodal facilities would enhance commerce along the Arkansas River. Enhanced commerce on the river is not expected to measurably impact water quality. Therefore, there are no cumulative impacts to water quality associated with implementation of this alternative combined with the increase in commerce expected on the Arkansas River.

4.10.2.2.4 Mitigation

It is expected that the combined use of water quality protection measures during construction and appropriate mitigation measures would result in no overall reduction in the long-term water quality.

Although short-term and long-term adverse impacts would be anticipated, BMPs would be followed to reduce or mitigate for the overall impact to water quality. Water quality protection measures that would be followed are described in the following documents:

- Reducing Nonpoint Source Water Pollution by Preventing Soil Erosion and Controlling Sediment on Construction Sites (Smoot et al., 1992);
- FHWA BMPs for Erosion and Sediment Control (FHWA, 2007).

Examples of stream protection measures that may be used include the following:

- When possible, streamside and in-stream construction activities would be performed during dry periods, when stream flow is at a minimum.
- The unnecessary removal of existing vegetation would be avoided as much as possible. Canopy removal along all working or staging areas would be limited to the extent practicable.
- Where removal of vegetation is necessary, bank stabilization and sediment control measures would be employed immediately at the start of construction. Bank stabilization measures would include seeding with native species and placing of silt fences or rip-rap.
- Control structures would be inspected and properly maintained throughout the life of the project.

Specific mitigation measures for this project would be developed during the permit acquisition process once final design plans have been developed, but prior to any construction activities. All construction activities and associated mitigation requirements would need to be approved by the appropriate agencies responsible for protecting water resources in the project area. Continued coordination with appropriate regulatory agencies would occur during final planning and construction of the project and extend through required monitoring periods that may be established during the initial permit acquisition process.

An NPDES permit would be required for all construction activities and would also be required for the future facilities whose operations include discharges. In addition, an SPCC plan would be developed for both the construction process and for operations of the facilities after construction.

Design features of barges, such as double-hulls and navigational aids, help reduce the frequency of accidents. All new inland tank barges carrying liquid cargo now have an inner and outer hull. The USCG regulates the design and construction of these vessels and equipment as well as qualifications of the personnel manning them. The USCG inspects the vessels annually to ensure compliance (USDOT, 1994). Therefore, promoting the use of barge transportation would not be considered a major threat to water quality due to spills from barges.

4.10.2.3 Potential Water Quality Consequences of the Red Alternative

The Red Alternative directly borders the Arkansas River along approximately 6,250 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. The Red Alternative would have construction activities and facilities along the south and east banks of Whig Creek. Currently, the area on the east bank of Whig Creek is not in agricultural production and is serving as a riparian buffer. This riparian buffer would be impacted if the Red Alternative is implemented. The Red Alternative would also remove several wetlands that drain directly into Whig Creek. These wetlands are serving as filters of surface water that drain into the creek from upstream areas and as wildlife habitat.

Impacts from implementation of the Red Alternative would be similar to those listed for the Green (Preferred) Alternative. However, the potential for water quality impacts to the tributary to Whig Creek, the tributary to Flagg Lake, and Whig Creek would be slightly greater under the Red Alternative. A railroad bridge would be constructed across Whig Creek under the Red Alternative that could cause short-term construction activity-related adverse impacts to the creek. Adverse impacts related to the railroad bridge would be minimized using BMPs and would not be substantial. Direct impacts to Whig Creek would be minimal, because the project area occurs near the creek's confluence with the Arkansas River. The majority of Whig Creek lies upstream of the project area.

Potential channel modification would be required for the tributary to Whig Creek and the tributary to Flagg Lake in the northern portion of the Red Alternative. These

modifications could reduce water quality in those streams, and the streams and water bodies they flow into such as Whig Creek and Flagg Lake. In addition, implementation of this alternative would include building a levee along the Arkansas River bank with no riparian buffer, which could result in long-term impacts to the river.

Direct, indirect, and cumulative water quality impacts and mitigation measures under the Red Alternative are presented in detail in Section 4.10.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.10.2.4 Potential Water Quality Consequences of the Purple Alternative

The Purple Alternative directly borders the Arkansas River (Lake Dardanelle) along approximately 4,200 linear feet of riverbank. Implementation of the Purple Alternative would result in construction of an access road and railroad bridge across two unnamed tributaries. One of these tributaries drains into the Lake Dardanelle State Fish Hatchery, and the other tributary drains into a larger embayment on Lake Dardanelle that lies east of the Fish Hatchery. 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. Less than 4 acres of wetlands would be removed under the Purple Alternative.

Direct, indirect, and cumulative water quality impacts and mitigation measures under the Purple Alternative are presented in detail in Section 4.10.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.11 WETLANDS

4.11.1 Affected Environment

A description of wetlands for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.11.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.11.2 Consequences

4.11.2.1 Potential Wetlands Consequences of the No Action Alternative

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no impacts to wetlands. Direct, indirect, and cumulative wetland impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.11.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.11.2.2 Potential Wetland Consequences of the Green (Preferred) Alternative

4.11.2.2.1 Direct Impacts

Wetlands 1, 2, 7, 8, and 9 (see Section 4.11.1 of the SDEIS for a description of these wetlands) are located in the Green (Preferred) Alternative proposed project area. In total, these wetlands comprise 17.76 acres. With the exception of Wetland 1, it is likely that these wetlands would be regulated by the USACE. The hydrology for Wetland 1 is derived from unnatural sources and it would be considered atypical.

It is likely that unavoidable direct long-term adverse impacts would occur to wetlands during the construction phase of the proposed action. Removing wetlands from a watershed removes the wetland's ability to store floodwaters, provide wildlife habitat for aquatic flora and fauna, and filter storm water runoff. The total number of wetland acres adversely impacted by implementing the Green (Preferred) Alternative would be determined using the final site development plans. Table 4.1 shows the wetland impacts of the Green (Preferred) Alternative.

The Authority would complete all Section 404 and 401 permitting requirements in consultation with the ADEQ, USACE, and the USEPA in accordance with the CWA prior to construction of the intermodal facilities under the Green (Preferred) Alternative. As part of the Section 404 permitting process, attempts would be made to avoid, minimize, or mitigate impacts to wetlands. Proper mitigation would be developed in accordance with USACE permit requirements as described in Section 4.11.2.2.4.

Table 4.1. Wetland Impacts from the Green (Preferred) and Red Alternatives for the River Valley Intermodal Facilities EIS*				
Wetland#	Green (Preferred) Alternative		Red Alternative	
	Acres Directly Impacted	Acres Indirectly Impacted	Acres Directly Impacted	Acres Indirectly Impacted
1	0.83	0	0.83	0
2	0.06	0	0.06	0
3	0	0	1.92	0
4	0	0	0.91	0
5	0	0	4.84	0
6	0	0	6.13	0
7	1.46	0	1.46	0
8	0.60	0	0	0.60
9	14.81	0	4.47	10.34
Total Acres	17.76	0	20.62	10.94
<i>Source: Parsons, 2005 and Parsons, 2010.</i>				
*Complete wetland data for the Purple Alternative is not available due to property entry restrictions; however the total impact would be less than four acres.				

4.11.2.2.2 Indirect Impacts

Indirect short- and long-term adverse impacts from soil disturbance and surface runoff during construction of the Green (Preferred) Alternative intermodal facilities could occur to nearby wetlands. Increases to impervious surfaces associated with the proposed action would increase the opportunity for storm water runoff and soil erosion to have long-term impacts to the wetlands. To minimize short- and long-term impacts to surface water from storm water runoff and soil erosion, appropriate BMPs concerning sediment control would be applied.

4.11.2.2.3 Cumulative Impacts

Arkansas River Navigation Project

The MKARNS channel deepening or maintenance associated with the Arkansas River Navigation project would not measurably impact wetlands in the project area. Therefore, no cumulative impacts to wetlands are anticipated due to that project.

Industrial Development in the Arkansas River Bottoms near Russellville

It is unlikely that substantial industrial developments would occur outside of the proposed intermodal facilities boundaries within the reasonably foreseeable future. This is because the intermodal facilities project would attract new industries to lands within the boundaries first due to the infrastructure, utilities, levee protection, and transportation options provided in that area. Therefore, the potential for cumulative impacts to wetlands is low. If industrial growth does occur adjacent to the intermodal facilities in the future, there would be potential for adverse impacts to wetlands, especially the small scattered wetlands located in the existing floodplains surrounding the proposed project boundaries. It would be important for regulatory agencies to monitor the industrial growth in the area to make sure that all wetland impacts are identified and that all new developments comply with wetland regulations. USACE would likely have jurisdiction over those wetlands and would require Section 404 permits for impacts to them. If Section 404 permits are provided, it is likely that impacts would be mitigated properly and overall cumulative impacts to wetlands would be relatively minor.

Expansion of Soil and Gravel Excavation and Removal

Expansion of soil, sand, and gravel mining operations would have potential adverse cumulative impacts to wetlands. Mining operations can adversely impact hydrology for adjacent wetlands due to changes in groundwater and/or surface drainage as soils and other substrates are removed from an area. Excavated areas may be deeper than the water table and may therefore drain an area as water flows into the excavated area from surrounding land. If wetlands are present in those adjacent areas, the moisture needed to maintain hydric soil conditions and to support hydrophytic vegetation would be lost. Impacts to wetlands from mining operations would be cumulative to other wetland impacts that have resulted from impacts to wetlands associated with the intermodal facilities and other past, present, or reasonably foreseeable future projects or

activities. However, 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.

Continuation of Agricultural Land Use

Continuation of agricultural land uses in the project area is not likely to result in a substantial amount of additional wetland impacts beyond those past impacts that initially occurred when the lands were converted to such uses. It is likely that much more wetland habitat was present in the Arkansas River floodplain within the project area prior to the area being converted to farmland. Small pockets of wetlands remain scattered in swales running parallel to the Arkansas River within the floodplain areas. It is likely that those areas will remain as they provide drainage for the adjacent crop fields. Therefore, it is not anticipated that any new substantial wetland impacts would occur due to agricultural practices in the area.

Increase Existing Arkansas River Commerce

Increases in the amount of commerce along the Arkansas River could lead to additional infrastructure along the river to support increased barge traffic that would be transporting goods and materials. It is unlikely that developments would occur outside of the proposed intermodal facilities boundaries within the reasonably foreseeable future because the intermodal facilities project would attract new industries within the boundaries first due to the infrastructure, utilities, levee protection, and transportation options provided in that area. Therefore, the potential for cumulative impacts to wetlands is low. If infrastructure along the river does occur adjacent to the intermodal facilities in the future, there would be potential for adverse impacts to wetlands, especially the small scattered wetlands located in the existing floodplains surrounding the proposed project boundaries. It would be important for regulatory agencies to monitor the infrastructure growth in the area to make sure that all wetland impacts are identified and that all new developments comply with wetland regulations. USACE would likely have jurisdiction over those wetlands and would require Section 404 permits for impacts to them. If Section 404 permits are provided, it is likely that impacts would be mitigated properly and overall cumulative impacts to wetlands would be relatively minor.

4.11.2.2.4 Mitigation

Mitigation measures would be required to reduce impacts to wetlands in the event jurisdictional wetland avoidance is not possible. The Authority would complete all Section 404 and 401 permitting requirements in consultation with the ADEQ, USACE, and the USEPA in accordance with the CWA prior to construction of the intermodal facilities. As part of the Section 404 permitting process, attempts would be made to avoid, minimize, or mitigate impacts to wetlands. Proper mitigation would be developed in accordance with USACE permit requirements.

Avoiding Impacts

Avoidance of wetlands impacts would be applied to the greatest extent practicable. The potential for impacts to wetlands was one of the factors considered in the selection of the preferred alternative. Context sensitive design would be employed, where possible, to avoid jurisdictional wetlands. Proposed measures for avoiding impacts to wetlands include the following elements:

- Avoidance of riparian and wetland zones would be used to the fullest possible extent to prevent impacts to these resources by reconfiguring the facilities or selective routing around jurisdictional wetland areas.
- Scheduling of construction activities and grading, to the extent practicable, would coincide with dry periods or low-flow conditions.
- In order to avoid disturbance of wetland/riparian soils and vegetation outside of the alternative project area, wetland boundaries would not be crossed by vehicles or other equipment. A construction corridor through any wetland or riparian area would be temporarily fenced to prevent disturbances (including operation of equipment and trucks, storage of material, and other construction activities) outside of the corridor.
- Sediment traps (e.g., straw bales, filter fabric fences, and siltation berms) located down-gradient from construction areas can be used to intercept eroded soils and sediments transported toward adjacent streams, wetlands, and floodplains during storm events.
- Material stockpiles (sand, gravel, and other construction materials) would not be in unprotected floodplains and wetlands and, if necessary, would be contained or enclosed by berms to prevent transport of materials into streams and wetlands.

Minimizing Impacts

Where wetland impacts are unavoidable, impact minimization measures would be enacted to reduce the potential effects as much as possible. For high-value or unique wetlands, impact minimization would be particularly important. Some potential measures to minimize wetland impacts include:

- Employing construction practices that reduce soil erosion (such as sediment traps and scheduling constraints) and minimize vegetation losses.
- Existing drainage patterns within the project area would be maintained uninterrupted, to the extent practicable.
- The width of roads through wetland areas would be minimized as much as possible to reduce the overall extent of wetland damages.

-
- The amount of vegetation removal would be minimized in wetlands and riparian areas.
 - Disturbed areas in wetlands and riparian areas would be revegetated with native species or species similar to those that were present on the wetland before site alterations occurred.

Impact Compensations

A wetland mitigation and monitoring plan would be prepared to compensate for unavoidable wetland losses or damages. This plan would focus on wetland restoration and or creation off site or at the perimeter of the project. Minor impacts to wetlands may be mitigated on site.

The size, habitat type, and the functional value of each wetland was used to determine the mitigation feasibility for each wetland. The mitigation feasibility of each wetland present in the Green (Preferred), Red, and Purple Alternatives is shown in Table 4.10 of the SDEIS. For example, small wetlands with herbaceous vegetation and low functional values would be easier to mitigate than a large tract of mature bottomland hardwoods with high functional values. Small wetlands with low functional values tend to receive "High" Mitigation Feasibility scores while wetlands that are large and have high functional values receive "Low" scores. The following potential actions may be employed as compensation measures for wetland losses or impacts.

- The functions and values to be replicated would be coordinated with resource and permitting agencies. Specific functions to be enhanced or restored would be included in the Section 404 Permit.
- Restoration efforts would include revegetating areas denuded during construction with either seeding, sprigging, transplanting, or covering barren areas with wetland soils (natural seed bank) salvaged from wetlands filled elsewhere in the project area. The specific methods of site regeneration would vary according to site size and desired vegetation type.
- A wetland monitoring plan would be developed and implemented to insure the success of the wetland mitigation process and to confirm the accomplishment of intended goals.
- Permit conditions and mitigation plans would be coordinated with state and federal resource and permitting agencies.

4.11.2.3 Potential Wetland Consequences of the Red Alternative

The entirety of Wetlands 1, 2, 3, 4, 5, 6, and 7 and a portion of Wetland 9 are located in the Red Alternative proposed project area. In total, these wetlands comprise 20.62 acres. With the exception of Wetland 1, it is likely that these wetlands would be regulated by the USACE. The hydrology for Wetland 1 is derived from unnatural sources, and it would be considered atypical. Table 4.1 above shows the wetland impacts of the Red Alternative.

Direct, indirect, and cumulative wetland impacts and mitigation measures under the Red Alternative are similar to those under the Green (Preferred) Alternative and are presented in detail in Section 4.11.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.11.2.4 Potential Wetland Consequences of the Purple Alternative

The only wetland identified in the Purple Alternative was the wetland fringe 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 under the Purple Alternative. The total impact would be less than four acres. If other wetlands were found in the project area during a delineation, these wetlands could be directly impacted by the proposed action. Based upon field observations, it is likely that there are no seeps, springs, or other meaningful wetlands in the upland areas of the Purple Alternative.

Direct, indirect, and cumulative wetland impacts and mitigation measures under the Purple Alternative are similar to those under the Green (Preferred) Alternative and are presented in detail in Section 4.11.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.12 WATER BODY MODIFICATION, WILDLIFE, AND VEGETATION

4.12.1 Affected Environment

A description of water body modification, wildlife, and vegetation for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.12.1 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.12.2 Consequences

4.12.2.1 Potential Water Body, Wildlife, and Vegetation Consequences of the No Action Alternative

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no direct impacts to water bodies, wildlife, or vegetation under this alternative. Direct, indirect, and cumulative water body, wildlife, and vegetation impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.12.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.12.2.2 Potential Consequences of the Green (Preferred) Alternative on Water Bodies, Wildlife, and Vegetation

4.12.2.2.1 Direct Impacts

Impacts to riparian forests and wetlands would be reduced under the Green (Preferred) Alternative in comparison to the Red Alternative because the levee along the Arkansas River side of the intermodal facilities would be set back under the Green (Preferred)

Alternative in order to preserve the forested riparian buffer. In addition, the Green (Preferred) Alternative would not impact wetlands and riparian forests located near the confluence of the tributary to Whig Creek and Whig Creek. This overall reduction in loss of riparian forest and higher quality wetlands would substantially reduce the overall impacts to water bodies, wildlife, and vegetation. This protection of wetlands adjacent to streams and riparian corridors would continue to help provide natural water quality protection and wildlife habitat along Whig Creek, the tributary to Whig Creek, and the Arkansas River.

Direct long-term adverse impacts to wildlife would occur because of the permanent loss of old field, grassland, forest, wetlands, and cropland habitats. This habitat would be replaced primarily with non-vegetated surfaces that would provide little or no wildlife habitat.

Construction of the proposed intermodal facilities harbor and channel, along with subsequent maintenance dredging, would result in short-term increases in sedimentation in the Arkansas River. Impacts due to dredging activities are not expected to be substantial as only a minor amount of dredging would be required at this location due to the proximity of the harbor location to the main navigable channel of the river. Dredge disposal sites would be located in approved locations.

Barge fleeing operations may occur along the left descending bank of the Arkansas River upstream of the proposed harbor location. This would result in increased disturbance to wildlife along the shore 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.

Direct mortality may occur to wildlife during the construction phase of the project, especially in less mobile species, such as turtles, newly hatched birds, invertebrates, and various other species. Because much of the project area is actively farmed, direct mortality is expected to be minor because the majority of the land is in row-crops that are not used extensively by many species. Species that do tend to use crop fields are often more mobile species that would be capable of fleeing the area during construction. Removal of habitat during the winter months would be most beneficial to species protected under the MBTA.

There would be a long-term potential for minor releases of environmentally harmful substances, such as chemicals and fuels, because these substances would be transported through the intermodal facilities and could cause direct impacts to water bodies and wildlife if spilled near water. Such releases could result in short-term adverse impacts to fish and wildlife in the area and their habitats. All efforts would be made to ensure that safe handling of materials occurs within the intermodal facilities and that a quick clean-up response was achieved, if a release were to occur.

4.12.2.2.2 Indirect Impacts

Removal of riparian forests and wetlands during construction of the intermodal facilities could result in impaired water quality and decreased habitat quality for aquatic species.

Lower water quality could result from erosion, streambank instability, and loss of canopy cover over the streams. Removing canopy cover could result in localized increased water temperatures, thereby making the stream uninhabitable by some species. The loss of wetlands, which currently filter excess nutrients, sediments, and contaminants from the water, could also impair aquatic habitats adjacent to the area.

During construction of the proposed intermodal facilities harbor and channel, short-term adverse impacts from increased in sedimentation in the Arkansas River may occur. Maintenance dredging could result in repeated short-term increases in sedimentation in the Arkansas River. These impacts are not expected to be substantial as only a minor amount of dredging would be required at this location due to the proximity of the harbor location to the main navigable channel of the river. Dredge disposal sites would be located in approved locations where runoff and sedimentation are less likely to occur.

There would be a long-term potential for releases of environmentally harmful substances, such as chemicals and fuels, because they would potentially be transported through the intermodal facilities and could cause indirect impacts to water bodies and wildlife if spilled near water. Such releases could result in short-term adverse impacts to fish and wildlife in the area and their habitats. All efforts would be made to ensure that safe handling of materials occurs within the intermodal facilities and that a quick clean-up response was achieved, if a release were to occur.

4.12.2.2.3 Cumulative Impacts

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, 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, and reasonably foreseeable projects in the area. The main cumulative impacts would be due to the removal of riparian forests and wetlands associated with the existing water bodies causing decreased water quality and reduced stream bank integrity in those areas. The loss of riparian forest and wetlands would reduce wildlife habitat in the area. The loss of riparian forests and wetlands from project implementation would accumulate with past loss of riparian forest associated with agricultural practices and other activities that have occurred in the area.

The cumulative impacts to water bodies, wildlife, and vegetation under the Green (Preferred) Alternative would be substantially reduced compared to those under the Red Alternative because the Green (Preferred) Alternative would protect riparian forests and wetlands adjacent to the streams that would be impacted in the northern portion of the Red Alternative. Protection of these areas would allow them to continue to provide wildlife habitat and other natural values.

Arkansas River Navigation Project

Dredging and excavation operations are expected during construction of the intermodal facilities harbor and adjacent channel. Future maintenance dredging would frequently

occur for short durations. Impacts from these short-term operations could result in minor short-term cumulative impacts to water bodies and aquatic wildlife. The maintenance dredging operations for the intermodal facilities would combine with the long-term maintenance dredging in the Arkansas River as part of the Arkansas River Navigation project to result in slight increases in overall turbidity and sedimentation downstream of the site. These impacts would likely be temporary and occur primarily during and immediately following active dredging operations. Impacts would be more pronounced if dredging for the intermodal facilities is conducted at the same time as other dredging activities being conducted as part of the MKARNS maintenance dredging. Coordination of efforts between proponents of the dredging projects would help to minimize cumulative impacts associated with the separate projects. If possible dredging could be completed at different times to reduce the amount of sediments released into the water column at any one time.

Industrial Development in the Arkansas River Bottoms near Russellville

If the intermodal facilities are constructed, it is less likely that substantial industrial development would occur in the Arkansas River bottoms near Russellville outside of the intermodal facilities boundaries in the foreseeable future. Therefore, potential for cumulative impacts to water bodies, wildlife, and vegetation resources is considered low. However, if the lands in the project area are developed into an industrial site in the future it would likely be with local and/or private funding. NEPA documentation would not be required for that type of development to occur. Therefore, the land could be developed without a substantial study of the environmental consequences of the activities. This situation could elevate the probability that more substantial water body, wildlife, and/or vegetation impacts would occur due to less avoidance, minimization, or mitigation efforts. Regulatory agencies, such as the USACE, would require disclosure of impacts and permits for any construction that impacts waters of the U.S. including streams and jurisdictional wetlands. Therefore, it is not anticipated that substantial cumulative impacts to water bodies, wildlife, or vegetation would occur with development in the area, unless development was somehow completed without compliance with environmental regulations and no mitigation occurred. If stream corridors and higher quality wetlands are avoided by industrial developments, fish and wildlife species using those habitats would also be protected.

Expansion of Soil and Gravel Excavation and Removal

The expansion of soil, sand, and gravel operations in the project area would result in some additional cumulative impacts to water bodies, wildlife, and vegetation resources, primarily due to erosion and sedimentation in nearby streams and/or wetlands. Erosion from the non-vegetated mining areas may result in sediments being carried into nearby streams and adversely impacting aquatic species. Sedimentation can reduce the quality of aquatic habitats making them less productive for aquatic organisms. Sediments can also cause reproduction failure for some aquatic species. Mining operations may also result in the loss of terrestrial habitats, such as old fields, grasslands, or forests that provide beneficial habitat for various wildlife species.

Continuation of Agricultural Land Use

The continuation of agricultural land uses in the project area would not result in major changes to water bodies, wildlife, or vegetation resources from baseline conditions. Therefore no substantial cumulative impacts would be anticipated. The agricultural land uses would continue to adversely impact aquatic habitats due to agricultural contaminants entering streams. The replacement of some of the agricultural lands by the intermodal facilities may reduce agricultural related contaminants in the project area. However, new contaminants could potentially be introduced to the area due to industrial uses. These impacts cannot be predicted at this time. It is likely that long-term cumulative impacts to water quality in the area would remain relatively neutral, as benefits achieved by reducing the agricultural contaminants would likely be offset by adverse impacts associated with industrial contaminants. Use of BMPs and compliance with environmental regulations would help reduce the chances of long-term adverse impacts to water quality and the resultant affects on fish and wildlife resources.

Continuation of row-crop farming practices would continue to provide only limited wildlife habitat in the areas adjacent to the intermodal facilities. Crop fields would benefit a small suite of species, primarily game species such as deer, turkey, doves, and geese. Maintaining scattered old fields, fence rows, and the small forested or shrub-scrub wetlands scattered in between the crop fields would help maintain habitat for several other species in the project vicinity. It is likely that at least some wildlife habitats would be maintained within the boundaries of the intermodal facilities that would provide at additional, but likely lower quality habitat for some species.

Increase Existing Arkansas River Commerce

Increases in existing Arkansas River commerce would lead to increases in barge traffic on the river, which would have minor long-term adverse impacts to water bodies, wildlife, and vegetation, but these impacts would not be substantial. Infrastructure to support this increase in barge traffic would be necessary. If the intermodal facilities are constructed, it is less likely that substantial infrastructure development to support barge traffic would occur in the Arkansas River bottoms near Russellville outside of the intermodal facilities boundaries in the foreseeable future. Therefore, potential for cumulative impacts to water bodies, wildlife, and vegetation resources is considered low. Regulatory agencies, such as the USACE, would require disclosure of impacts and permits for any construction that impacts waters of the U.S. including streams and jurisdictional wetlands. Therefore, it is not anticipated that substantial cumulative impacts to water bodies, wildlife, or vegetation would occur with development along the Arkansas River, unless development was somehow completed without compliance with environmental regulations and no mitigation occurred. If stream corridors and higher quality wetlands are avoided by developments, fish and wildlife species using those habitats would also be protected.

4.12.2.2.4 Mitigation

The impacts discussed in this FEIS presume that all resources within the intermodal facilities boundaries would be lost or impacted (worst-case scenario). Where possible,

efforts would be made to preserve the most sensitive habitats, such as the higher quality wetlands and stream corridors during final design of the intermodal facilities. Whenever possible, impacts to water bodies, wildlife, and vegetation would be avoided and minimized.

It is expected that the combined use of water quality protection measures during construction and appropriate mitigation measures would result in a reduction in potential impacts to water bodies, wildlife, and vegetation. Although short-term and long-term adverse impacts would be anticipated, BMPs would be followed to mitigate for the overall impact to water bodies, wildlife, and vegetation. When possible, streamside and in-stream construction activities would be performed during dry periods, when stream flow is at a minimum. The removal of existing vegetation would be avoided as much as possible and would occur in winter months to avoid impacts to migratory bird species. Canopy removal along all working or staging areas would be limited to the extent practicable. Where removal of vegetation is necessary, bank stabilization and sediment control measures would be employed immediately at the start of construction. Bank stabilization measures would include seeding with native species and placing of silt fences or rip-rap. Control structures would be inspected and properly maintained throughout the life of the project. An SPCC plan would be developed for both the construction process and for operations of the facilities after construction.

The RVIF at the Green (Preferred) Alternative location would be constructed away from the riparian zone along the Arkansas River. The levee for the Green (Preferred) Alternative would be located away from the river and would not disturb trees and other vegetation along the river. The Green (Preferred) Alternative would also avoid disturbing the higher quality riparian wetlands along a tributary to Whig Creek and a tributary to Flagg Lake.

4.12.2.3 Potential Consequences of the Red Alternative on Water Bodies, Wildlife, and Vegetation

The impacts to water bodies, wildlife, and vegetation due to construction of the intermodal facilities under the Red Alternative would be similar to those under the Green (Preferred) Alternative. However, impacts to riparian forests and wetlands would be increased under the Red Alternative. Riparian forests would also be removed along the Arkansas River due to levee construction adjacent to the river bank. This would result in exposure of portions of the river bank, which would adversely impact the bank's integrity, especially near the Whig Creek and Arkansas River confluence. The riparian forests and wetlands along the Arkansas River, Whig Creek, and the tributary to Whig Creek would be almost entirely removed resulting in a loss of habitats considered highly beneficial to several species of wildlife.

Direct, indirect, and cumulative water body, wildlife, and vegetation impacts and mitigation measures under the Red Alternative are presented in detail in Section 4.12.2 of the SDEIS. The SDEIS can be found online at the following location:
<http://www.rivervalleyintermodal.org/deis.htm>.

4.12.2.4 Potential Consequences of the Purple Alternative on Water Bodies, Wildlife, and Vegetation

Adverse impacts to Lake Dardanelle, an embayment, intermittent streams, and several ponds are anticipated due to construction activities associated with the Purple Alternative. Construction of the harbor and intermodal facilities would cross two intermittent streams and remove a portion of the intermittent stream channel and several ponds. Portions of the forested areas in the southern part of the project would be removed along the shoreline of Lake Dardanelle resulting in long-term habitat loss and expose of shoreline. Long-term adverse impacts to wildlife would occur due to the permanent loss of pasture and forested habitats. Construction of the proposed intermodal facilities harbor and channel, along with subsequent maintenance dredging, would result in short-term increases in sedimentation in Lake Dardanelle.

Direct, indirect, and cumulative water body, wildlife, and vegetation impacts and mitigation measures under the Purple Alternative are presented in detail in Section 4.12.2 of the SDEIS. The SDEIS can be found online at the following location: <http://www.rivervalleyintermodal.org/deis.htm>.

4.13 FLOODPLAINS

4.13.1 Affected Environment

The USACE Little Rock District conducted a floodplain analysis for the Red and Green (Preferred) Alternatives to determine if flood impacts would occur (USACE, 2005a). The study took the proposed levee system into account for the Red and Green (Preferred) Alternatives. Existing hydrology for the Arkansas River was used in this study. The Arkansas River discharges were determined in a discharge-frequency study for the "Arkansas River Land Impact Study," by Little Rock District, USACE. The entire USACE floodplain study report is contained in Appendix B of this FEIS.

Please note that the floodplain study information contained in Appendix B is based on the best available data at the time of the study and that data differs from previous studies completed. For instance, there are differences in the base flood elevations for adjacent areas along the Arkansas River where the Yell County and Pope County Flood Insurance Rate Maps (FIRM) meet. The FIRM update for Yell County, effective in March 2002, based its mapping information along the Arkansas River through the project area based on the original study of the City of Dardanelle. It included analyses for the Arkansas River and Smiley Bayou, which were performed by the USACE Little Rock District, in 1969. The Pope County FIRM update, effective March 2010, used this information as well; however, Pope County also incorporated the more current "U.S. Department of the Army, Corps of Engineers, Restudy of Arkansas River: Navigation Pool 9 and Dardanelle Reservoir, 1986 (unpublished)." These models and hydrology for the 1% annual chance flood event have been approved by the USACE Southwestern Division. In addition, FEMA approved all of the models when requested by the National Flood Insurance Program participating communities. The base flood elevations differ due to changes in the channel geometry, more detailed topographic

information, and the development of more accurate computer modeling software and data.

The United States Geological Survey (USGS) actively maintains a gauge at the Highway 7 Bridge. The USGS fact sheet states that the flow (Q100) for the 1% annual chance flood event is 696,000 cubic feet per second (cfs). The USGS Q100 data was most likely developed prior to any major upstream flood control projects in Oklahoma being constructed as it compares favorably to USACE's 1960 unregulated Q100 of 760,000 cfs and USACE's 1972 unregulated Q100 of 700,000 cfs. The USACE Flood Plain Analysis Report in Appendix B of this FEIS indicates that the Q100 is 485,000 cfs. This is consistent with the Pope County FIRM update of 2010. The elevations from the Yell County FIRM should not be compared, because it is not based on the best and most recent information.

The "Notes to Users" portion of the March 4, 2002 FIRM map states, "Users should be aware the Base Flood Elevations shown on the FIRM represent rounded whole-foot elevations. These Base Flood Elevations are intended for flood insurance rating purposes only and should not be used as sole source of flood elevation information." The USACE elevation measurements in the Floodplain Analysis Report are more accurate than those provided on FIRM maps and use the latest floodplain data and modeling. FHWA hydraulic engineers have reviewed the USACE Report and HEC-RAS modeling. The Flood Plain Analysis Report mapping is based on Light Detection and Ranging (LiDAR) information generated in 2000-2001, using a contour interval of 2 feet (precision ± 1 foot).

A more detailed description of floodplains for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.13.1 of the SDEIS. The SDEIS can be found online at the following location:
(<http://www.rivervalleyintermodal.org/deis.htm>).

4.13.2 Consequences

4.13.2.1 Potential Consequences of the No Action Alternative to Floodplains

Because no activities related to the proposed intermodal facilities would occur under the No Action Alternative, there would be no impacts to floodplains. Direct, indirect, and cumulative floodplain impacts and mitigation measures under the No Action Alternative are presented in detail in Section 4.13.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.13.2.2 Potential Consequences of the Green (Preferred) Alternative to Floodplains

4.13.2.2.1 Direct Impacts

The computer program HEC-RAS, version 3.1.3 (May 2005), 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 River Valley 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 44 CFR Section 60.3(c) and satisfies the requirements of Federal Emergency Management Agency (FEMA) for good floodplain management. Refer to Table 4.14 of the SDEIS for the results of the 10-, 50-, 100-, and 500-year floodplain analysis of the Green (Preferred) Alternative. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>). The Green (Preferred) Alternative would have less impact than the Red Alternative for the 10-, 50-, 100-, and 500-year flood events due primarily to the offset levee.

A direct loss of 886 acres of the 100-year floodplain would result from the construction of the intermodal facilities under this alternative. The construction of the slackwater harbor would add a minor amount of flood storage capacity, however these benefits are minimal.

The proposed project will have negligible impacts to the river training dikes in the area.

4.13.2.2.2 Indirect Impacts

There would be no indirect impacts to floodplains associated with the Green (Preferred) Alternative because there are no known plans to extend any of the levees associated with the Green (Preferred) Alternative to protect additional floodplain areas. Any private secondary developments outside the levee-protected areas of the proposed intermodal facilities would likely be constructed on adjacent upland areas due to the costs associated with building and maintaining levees.

4.13.2.2.3 Cumulative Impacts

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 under the Green (Preferred) Alternative.

4.13.2.2.4 Mitigation

Mitigation is not necessary as minimal floodplain impacts are anticipated. The levee for the Green (Preferred) Alternative will be set back further from the river channel than under the Red Alternative. Also, the construction of the slackwater harbor would add a minor amount of flood storage capacity, however these benefits are minimal.

4.13.2.3 Potential Consequences of the Red Alternative to Floodplains

Floodplain impacts of the Red Alternative would be similar to those of the Green (Preferred) Alternative. However, HEC-RAS analysis shows the proposed River Valley Intermodal Facilities will increase 100-year floodplain water surface elevations by a maximum of 0.12 feet for the Red Alternative. Refer to Table 4.13 of the SDEIS for the results of the 10-, 50-, 100-, and 500-year floodplain analysis of the Red Alternative.

A direct loss of approximately 797 acres of the 100-year floodplain will result from the construction of the intermodal facilities under this alternative. The construction of the slackwater harbor would add a minor amount of flood storage capacity, however these benefits are minimal.

Direct, indirect, and cumulative floodplain impacts and mitigation measures under the Red Alternative are presented in detail in Section 4.13.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.13.2.4 Potential Consequences of the Purple Alternative on Floodplains

The Purple Alternative is consistent with EO 11988 and 44 CFR Section 60.3(c) 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. Lake Dardanelle and its flowage easement in are classified as Zone A (100-year floodplain) by FEMA. Although portions of the Purple Alternative are within the flowage easement of the lake, and therefore the Arkansas River floodplain, negligible floodplain would be removed as a result of this alternative. Riparian buffer areas would preserve the majority of the flowage easement along Lake Dardanelle. Creation of the slackwater harbor under the Purple Alternative will enlarge an existing cove located on Lake Dardanelle, and would minimally increase the water storage capacity of the lake.

Direct, indirect, and cumulative floodplain impacts and mitigation measures under the Purple Alternative are presented in detail in Section 4.13.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.14 COMMERCIAL NAVIGATION

4.14.1 Affected Environment

A detailed description of commercial navigation on the MKARNS for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.14.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.14.2 Consequences

4.14.2.1 Potential Consequences of the No Action Alternative on Navigation

There would be no realization of the region's potential for greatly expanded intermodal transportation opportunities under the No Action Alternative. Direct, indirect, and cumulative commercial navigation impacts under the No Action Alternative are presented in detail in Section 4.14.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.14.2.2 Potential Consequences of the Green (Preferred) Alternative on Navigation

4.14.2.2.1 Direct Impacts

Substantial long-term beneficial impacts to commercial navigation would be incurred under the Green (Preferred) Alternative due to economic benefits in the form of savings in transportation costs from the construction of the proposed intermodal facilities. Other beneficial impacts include the employment, personal income, and additional business revenue directly related to the intermodal facilities activities.

Implementation of the public intermodal facilities would provide access to transportation for waterborne commerce. A study by AHTD (AHTD, 1998) revealed that the ARV has the potential to become a major center for freight consolidation and distribution because of its favorable central geographic location to the nation's markets. In addition, the presence of the other major elements (interstate highways, railroads) of the nation's transportation system further contributes to the region's market potential.

A study by the USACE (USACE, 2002) projected waterborne cargo flows within the six-county region "with" project and "without" project. A survey of existing businesses and industries indicated that potential waterborne commerce movements through the proposed intermodal facilities would be 166,000 tons during the first year of operation, and over 350,000 tons by the end of the study period under "with" project conditions. These tonnage volumes, respectively, represent a 38 percent and a 150 percent increase over "without" project tonnage. Projections indicated that by the year 2022 over 35 percent of the total regional cargo could consist of waterborne transport under the "with" project versus only 14 percent under the "without" project. The majority of this increase in waterborne traffic would be the result of a shift in transportation modes for commodity movement. Annual potential savings or benefits over a 50-year period for the "with" project condition is projected to exceed \$400,000. These project benefits are based on the reduction in transportation costs between the "with" and "without" project (USACE, 2001).

4.14.2.2.2 Indirect Impacts

Additional secondary employment, personal income, and business volume would occur as a result of the direct employment related to the commercial navigation industry. A study on the impact of waterways in Arkansas (Nachtmann, 2002) estimated that the indirect impacts on job creation and personal income are equal to, or greater than, the direct impacts on employment and income. In addition, the intermodal facilities would provide a catalyst for the expansion of existing industry and attraction of new industry into the region.

4.14.2.2.3 Cumulative Impacts

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 system would provide cumulative benefits to the regional economic and social environments.

Arkansas River Navigation Project

The presence of intermodal facilities and improvements to the MKARNS through the Arkansas River Navigation Project would provide long-term beneficial impacts to commercial navigation throughout the ARV. By deepening the commercial navigation channel of the Arkansas River, barges would be able to carry heavier loads and increase the productivity and utility of the intermodal facilities and the MKARNS transportation options. The new transportation capabilities would promote economic growth and provide social benefits for the ARV region.

Industrial Development in the Arkansas River Bottoms near Russellville

If the intermodal facilities project is constructed, it is unlikely that a substantial amount of industrial development would occur outside of the proposed project boundaries in the reasonably foreseeable future. This is because the intermodal facilities would be constructed on a large enough tract of land to support industrial developments and the infrastructure and equipment needed to provide the intermodal connections between road, rail, and river transportation options. Therefore, the potential for industrial development in the Russellville bottoms adjacent to the intermodal facilities is not expected to provide noticeable impacts for commercial navigation. If substantial industrial growth were to occur in adjacent areas that would also want to utilize the commercial navigation system, long-term beneficial impacts would occur. These commercial navigation benefits would be due to increase jobs and revenue provided for the region to support the increased commercial navigation industry.

Expansion of Soil and Gravel Excavation and Removal

The expansion of soil, sand, and gravel mining operations in areas adjacent to the intermodal facilities could potentially provide additional use of the available commercial navigation system provided on the MKARNS. The intermodal facilities could potentially promote expansion of those mining operations especially in adjacent areas that would have convenient access to the intermodal connections provided at the facilities. Transportation of sand, soil, and/or gravel by barge from the intermodal facilities would provide cumulative benefits to the commercial navigation industry and therefore provide potential additional economic and social benefits for the region. At this time it is not known if any expansion of mining operations would occur or if the intermodal facilities would be used to transport the materials to other areas. Therefore, it is difficult to determine what if any impacts from such operations would occur.

Continuation of Agricultural Land Use

The continuation of agricultural land uses in areas adjacent to the intermodal facilities could potentially provide additional use of the available commercial navigation system provided on the MKARNS. The intermodal facilities could potentially promote continuation or additional agriculture in the adjacent areas that would have convenient

access to the intermodal connections provided at the facilities. Transportation of agricultural products such as grain, fertilizer, or hay by barge from the intermodal facilities would provide cumulative benefits to the commercial navigation industry and therefore provide potential additional economic and social benefits for the region. At this time it is not known what if any agricultural products would be shipped to and from the intermodal facilities; therefore it is difficult to determine what if any impacts from such uses would occur. The existing Port of Dardanelle would continue to provide shipping and storage capabilities to support local agricultural land uses as well.

Increase Existing Arkansas River Commerce

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

4.14.2.2.4 Mitigation

Since no adverse impacts to commercial navigation are expected under the Green (Preferred) Alternative, mitigation measures would not be necessary. Beneficial impacts to commercial navigation would be expected.

4.14.2.3 Potential Consequences of the Red Alternative on Navigation

The impacts to commercial navigation under the Red Alternative would be similar to those of the Green (Preferred) Alternative. Direct, indirect, and cumulative commercial navigation impacts and mitigation measures under the Red Alternative are presented in detail in Section 4.14.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.14.2.4 Potential Consequences of the Purple Alternative on Navigation

The impacts to commercial navigation under the Purple Alternative would be similar to those of the Green (Preferred) Alternative. Direct, indirect, and cumulative commercial navigation impacts and mitigation measures under the Purple Alternative are presented in detail in Section 4.14.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.15 THREATENED AND ENDANGERED SPECIES

4.15.1 Affected Environment

A detailed description of threatened and endangered (T & E) species potentially occurring in the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.15.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.15.2 Consequences

4.15.2.1 Potential Consequences of the No Action Alternative on Threatened and Endangered Species

There would be no impact to T&E species under the No Action Alternative. Direct, indirect, and cumulative commercial navigation impacts under the No Action Alternative are presented in detail in Section 4.15.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.15.2.2 Potential Consequences of the Green (Preferred) Alternative on Threatened and Endangered Species

4.15.2.2.1 Direct Impacts

There would be no measurable direct impacts to federally listed T&E species because sensitive habitat required for federally listed species known to occur in Pope County does not exist within the project area. However, if any federally listed T&E species are detected within the proposed project during any phase of the project, the USFWS would be contacted immediately for further consultation.

The Arkansas Natural Heritage Commission (ANHC) reviewed their files for records indicating the occurrence of rare plants and animals, outstanding natural resource communities, natural or scenic rivers, or other elements of special concern within or near the area of potential effect for the proposed RVIF. They found no records present. Because of this finding, the project is not expected to have an impact on any Arkansas state-listed resources.

A full discussion of the direct, indirect, and cumulative impacts to T & E species under the Green (Preferred) Alternative are presented in Section 4.15.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.15.2.2.2 Indirect Impacts

Proper BMPs and mitigation measures would be employed to minimize disturbance within the project area during construction. There would be no indirect adverse impacts to gray bats. Minimal adverse indirect impacts may affect, but are not likely to adversely affect interior least tern assuming an increase in barge traffic on the Arkansas River occurs from the proposed action. Increased barge traffic could potentially disturb interior least terns and sand bars where least tern may feed or nest.

Secondary developments in the immediate project area are not anticipated to impact T&E species because no critical habitats were identified in the immediate vicinity.

4.15.2.2.3 Cumulative Impacts

Arkansas River Navigation Project

As part of the Arkansas River Navigation Project, the USACE is proposing to construct a sandbar for use by the least tern in every pool along the length of the MKARNS. It is unknown if one of those sandbars would be constructed in proximity to the Green (Preferred) Alternative. Increased barge traffic using the Arkansas River due to the proposed action and the Arkansas River Navigation Project could have negligible cumulative adverse impacts on the interior least tern. Increased barge traffic could potentially disturb interior least terns and sand bars where least tern may feed or nest. The impacts would not be substantial or measurable.

Industrial Development in the Arkansas River Bottoms near Russellville

No cumulative impacts to T&E species are expected from potential industrial development in the Arkansas River bottoms near Russellville because no critical habitats were identified in this area.

Expansion of Soil and Gravel Excavation and Removal

No cumulative impacts to T&E species are expected due to the expansion of sand, soil, and gravel mining operations in the adjacent areas because no critical habitats were identified in the soil and gravel excavation areas.

Continuation of Agricultural Land Use

No cumulative impacts to T&E species are expected from the continuation of agricultural land uses on the lands adjacent to the intermodal facilities project area because no critical habitats were identified in these areas.

Increase Existing Arkansas River Commerce

Construction of the proposed intermodal facilities will enhance commerce along the Arkansas River. Enhanced commerce on the river would mean an increased amount of barge traffic. 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. Increased barge traffic could potentially disturb interior least terns and sand bars where least tern may feed or nest, but the impacts would not be substantial or measurable.

4.15.2.2.4 Mitigation

Mitigation is not required for minimal impacts to T&E species. Therefore, no mitigation is needed to reduce impacts to T&E species under the Green (Preferred) Alternative.

The preservation of the forested riparian corridor along the Arkansas River would provide marginal roosting/perching habitat for bald eagles.

4.15.2.3 Potential Consequences of the Red Alternative on Threatened and Endangered Species

The impacts to T & E species under the Red Alternative would be similar to those of the Green (Preferred) Alternative. However, impacts to bald eagle habitat would be higher under the Red Alternative, because more of the forested riparian corridor along the Arkansas River would be removed. Approximately 6,265 linear feet of riverbank would be converted to industrial use under the Red Alternative. Much of this length of riverbank supports large trees suitable as perch locations for foraging eagles. All of these trees would be lost if the Red Alternative were implemented.

Direct, indirect, and cumulative T & E species impacts and mitigation measures under the Red Alternative are presented in detail in Section 4.15.2 of the SDEIS. The SDEIS can be found online at the following location:

(<http://www.rivervalleyintermodal.org/deis.htm>).

4.15.2.4 Potential Consequences of the Purple Alternative on Threatened and Endangered Species

The impacts to T & E species under the Purple Alternative would be similar to those of the Green (Preferred) Alternative. Direct, indirect, and cumulative T & E species impacts and mitigation measures under the Purple Alternative are presented in detail in Section 4.15.2 of the SDEIS. The SDEIS can be found online at the following location:

(<http://www.rivervalleyintermodal.org/deis.htm>).

4.16 CULTURAL RESOURCES

Cultural resources are prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for traditional, religious, scientific, or any other reason. Cultural resources are discussed in terms of archaeological sites, which include both prehistoric and historical occupations either submerged or on land, architectural resources, and locations of concern to Native American groups including Traditional Cultural Properties (TCPs). Archaeological sites can become submerged when they are inundated following impoundment of rivers. TCPs may consist of archaeological sites, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the continuance of cultures.

A detailed description of cultural resources potentially occurring in the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.16 of the SDEIS. The SDEIS can be found online at the following location:

(<http://www.rivervalleyintermodal.org/deis.htm>).

4.16.1 Affected Environment

This section presents information on archaeological, architectural, and Native American resources located in the project area. The discussion includes a description of regulatory requirements and the number and types of archaeological, architectural, and Native American resources known or expected to occur within the project area.

Procedures for the identification, evaluation, and treatment of cultural resources are contained in a series of federal and state laws and regulations and agency guidelines. Archaeological, architectural, and Native American resources are protected by a variety of laws and their implementing regulations including: the National Historic Preservation Act (NHPA) of 1966, as amended in 2006; the Archeological and Historic Preservation Act of 1974; the Archaeological Resources Protection Act of 1979; the American Indian Religious Freedom Act of 1978; and the Native American Graves Protection and Repatriation Act of 1990.

Section 106 of the NHPA, as amended (16 USC 470), governs Federal actions that could affect NRHP eligible properties. Section 106 requires Federal agencies to take into account the effects of their undertakings, including licensing and approvals, on NRHP eligible properties and to afford the Advisory Council on Historic Preservation (ACHP) and other interested parties a reasonable opportunity to comment. The ACHP further guides treatment of cultural resources through the implementing regulations for Section 106, Protection of Historic Properties (36 CFR 800). Section 101(b)(4) of NEPA requires Federal agencies to coordinate and plan their actions so as to preserve important historic, cultural, and natural aspects of the country's national heritage.

Historic properties, as defined by the NHPA, represent the subset of cultural resources listed on, or are eligible for, inclusion on the NRHP. Properties that qualify for inclusion in the NRHP must meet at least one of the following four criteria:

- Criterion A: be associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion B: be associated with the lives of persons of significance in our past;
- Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components could lack individual distinction; or
- Criterion D: have yielded, or could be likely to yield, information important in prehistory or history (36 CFR 60.4).

Properties that qualify for the NRHP also must possess integrity, defined by the following seven aspects: location, design, setting, materials, workmanship, feeling, and association. The term “eligible for inclusion in the NRHP” includes properties formally designated as eligible and all other properties determined to meet NRHP criteria. Normally, NRHP eligibility requires a property to be at least 50 years of age. Resources less than 50 years of age that are highly significant and meet the “special criteria

considerations” as outlined in the regulations (36 CFR 60.4) also may be eligible for the NRHP.

The Area of Potential Effect (APE) for cultural resources was defined as the proposed alternative areas. The proposed project boundaries for the Green and Red Alternatives were submitted to the Arkansas Historic Preservation Program [State Historic Preservation Office (SHPO)] for review and concurrence. The SHPO concurred with the proposed APE to consist of the combined area of the proposed Red and Green (Preferred) alternatives in a letter dated April 2005. The proposed Purple alternative project area was added in 2009; the APE also consists of the entire alternative area.

Cultural resources investigations were conducted to identify archaeological and architectural resources in the proposed Red, Green (Preferred), and Purple alternative project areas (Buchner et al., 2012; Lafferty et al., 2005; Lafferty and Hess, 2005; Leonard, 2010). Native American consultation was also conducted to identify locations and resources of religious or cultural significance in the project areas.

4.16.1.1 Archaeological Resources

Mid-Continental Research Associates, Inc. conducted archaeological investigations of the proposed Red and Green (Preferred) Alternative areas from November 2004 to August 2005 (Lafferty et al., 2005). The investigations included a comprehensive records review and a pedestrian archaeological survey. The records review indicated the presence of seven previously recorded archaeological sites within the project area. No archaeological properties were previously listed on the NRHP; however, site, 3PP449/611, was previously tested and recommended as eligible for listing on the NRHP (Lafferty et al., 2005).

Approximately 728 acres were intensively surveyed for archaeological resources. An additional 240 acres had been destroyed by borrow pits and sand quarries. These destroyed areas were mapped and exposed profiles were inspected for buried deposits. Another 140 acres were not surveyed; 50 acres, because no permission could be secured from the landowner; 35 acres were wetlands; and 55 acres were inaccessible at the time of the survey. Approximately 56 percent of the APE had excellent to good surface visibility with freshly disked and rain-washed surfaces. Just under 6 percent of the area with pine trees and pasture covering the surface, was shovel tested.

Seventy-six archaeological sites and four isolated finds were documented during this survey including seven previously recorded sites which were revisited. Surface artifacts were flagged, mapped, and collected. One or more screened shovel tests were excavated on each site. The sites range from Early Archaic lithic scatters to mid-20th century farmsteads. The most substantial components represented were Late Archaic, Woodland, and Caddoan occupations. Stratified deposits were found at four sites and buried A horizon soils were found at many locations, indicating the potential presence of substantial buried deposits within the APE, which is typical for archaeological sites in alluvial floodplains. Forty-nine sites were recommended for additional testing to determine eligibility for listing on the NRHP. No further work was recommended for twenty-seven sites including two designated as destroyed. The archaeological survey

report was submitted to the SHPO on December 15, 2005 for review and concurrence. The SHPO concurred with the findings of this report in March 2006.

Panamerican Consultants, Inc. conducted a Phase I/Phase II cultural resources survey of the proposed Purple Alternative area in November 2009 and February 2010 (Leonard, 2010). The investigation included archival and records searches, pedestrian survey and systematic shovel testing of accessible onshore portions of the project area and development of a predictive model for the presence of cultural resources in portions of the project area that were not accessible for survey. The records review indicated no previously recorded archaeological sites within the project area.

The Purple Alternative project area covers approximately 741.5 acres, including onshore and offshore areas, but difficulties in obtaining landowner permission prevented survey in approximately 60 percent (444.9 acres) of the onshore project area. The accessible portions of the project area were surveyed by placing shovel tests at 30 m intervals along parallel transects spaced 30 m apart. In the southwestern, northwestern, and north-central parts of the project area, transects were oriented north-south. In the northeastern part, transects were oriented east-west. In the access corridor, the survey was conducted parallel to the centerline of the corridor alignment.

A total of 435 shovel test locations were laid out in the project area; however, due to varying conditions including steep slopes, standing water, and pavement, only 267 shovel tests were excavated. Of these, only 28 were positive for cultural material.

The survey resulted in the identification of two archaeological sites – 3JO715, a prehistoric campsite and 3JO716, the remains of an historic cabin - and an isolated find, consisting of a single lithic tool fragment. The NRHP eligibility of Site 3JO715 could not be determined during the Phase I investigation. Site 3JO716 is not considered eligible for inclusion on the NRHP. The isolated find is not eligible for the NRHP.

The predictive model for inaccessible portions of the project area suggests that the highest probability for the presence of prehistoric archaeological resources is in the southernmost portion of the project area along the river, both onshore and offshore. In addition, a somewhat higher likelihood for historic archaeological resources exists for the northeastern segment of the access corridor nearest the town of Knoxville. However, a low likelihood for archaeological resources, especially small prehistoric artifact scatters, exists for the entire project area (Leonard, 2010).

The Phase I report for the Purple Alternative was reviewed by the Arkansas SHPO and concurrence with the report findings is pending completion of an additional survey once landowner access is obtained (see Appendix A).

Panamerican Consultants, Inc. conducted Phase II testing of 29 sites located in the overlap area of the proposed Red/Green Alternative and one site located in the the proposed Purple Alternative area between October 3, 2011 and January 27, 2012 (Buchner et al., 2012). The investigation included the development of an explicit Work Plan and research themes, the excavation of 2,247 shovel tests and 62 1-x-2-m test

units, geophysical survey of one site (3PP449/3PP611), and the analysis of the recovered assemblage of 18,553 artifacts. Two additional sites could not be tested because access was denied (3PP722 and 3PP743).

The testing results revealed that eight sites are eligible for the National Register of Historic Places under Criterion d, or information potential. They include seven sites in the overlap area of the proposed Red/Green Alternative (3PP449/3PP611, 3PP610, 3PP681, 3PP682, 3PP729, 3PP733, and 3PP740), and one site located in the Purple Alternative (3JO715). Testing results at the remaining sites reveal that the 21 sites are not eligible for NRHP nomination (3PP612, 3PP692, 3PP693, 3PP694, 3PP695, 3PP697, 3PP699, 3PP700, 3PP701, 3PP703, 3PP709, 3PP710, 3PP712, 3PP727, 3PP730, 3PP731, 3PP732, 3PP734, 3PP736, 3PP737, and 3PP741). One site (3PP725) was found to be destroyed by a sand pit (i.e., borrow pit), and its National Register of Historic Places status is not eligible. The SHPO concurred with the NRHP eligibility recommendations of this report on July 25, 2012.

Green (Preferred) Alternative

Based on the archaeological survey results, seventy-two archaeological sites are located within the proposed boundaries for the Green (Preferred) Alternative (Lafferty et al. 2005). Based on the Phase II testing results, seven sites, including site 3PP449/611, are considered eligible for the NRHP, and twenty additional sites are considered potentially eligible for the NRHP pending further Phase II testing (Buchner et al., 2012). Forty-four sites are not considered eligible and one site has been destroyed; no further work at these locations is required (Buchner et al., 2012).

Red Alternative

Based on the archaeological survey results, forty-nine archaeological sites are located within the proposed boundaries for the Red Alternative (Lafferty et al., 2005). Based on the Phase II testing results, seven sites, including site 3PP449/611, are considered eligible for the NRHP and two sites are considered potentially eligible, pending further Phase II testing (Buchner et al., 2012). Thirty-nine sites are not considered eligible and one site has been destroyed; no further work at these locations is required (Buchner et al., 2012).

Purple Alternative

Based on the archaeological survey results, two archaeological sites and one isolated find are located within the proposed boundaries for the Purple Alternative (Leonard, 2010). Based on the Phase II testing results, one site, 31JO715, is considered eligible for the NRHP (Buchner et al., 2012). One site, 31JO716, and the isolated find are not considered eligible and no further work at these locations is required.

The predictive model indicated a high potential for additional archaeological resources to occur in the southern and northeastern areas of the unsurveyed portions of the Purple Alternative project area. However, a low likelihood for cultural resources exists

for the entire project area (Leonard, 2010). Some of these archaeological sites are likely to be considered eligible for the NRHP.

4.16.1.2 Architectural Resources

Mid-Continental Research Associates, Inc. conducted an architectural survey and viewshed analysis of the proposed Red and Green (Preferred) Alternatives on April 18 and 19, 2005 (Lafferty and Hess, 2005). The survey of the combined proposed Red and Green (Preferred) Alternatives was conducted systematically around. Observations were recorded from public rights-of-way associated with lanes and side roads; private property was not accessed for this survey. Most of the standing architecture is located in the upland area on the northern fringe of the project area. Very few structures occur in the lowlands, most of which are within the 100 year floodplain of the Arkansas River. The 1936 highway map shows many more structures than are currently present in the project area. The architecture in this area primarily consists of manufactured homes and house trailers. Most of these structures have been altered from their original condition and such modifications include vinyl siding, aluminum windows, and fiberglass porches (Lafferty and Hess, 2005). None of the structures within the proposed Red and Green (Preferred) Alternatives are considered potentially eligible for the NRHP.

In addition, a viewshed analysis was conducted within a one mile radius of the proposed project area including both the east and west banks of the Arkansas River. On the east bank, photographs toward the APE were taken from selected modern or modified structures. No NRHP-eligible architectural resources occur or were identified on the east bank of the Arkansas River (Lafferty and Hess, 2005). From the west bank, photographs were taken from all structures listed on the NRHP, as well as systematically down each street in the City of Dardanelle toward the APE. Eight NRHP listed architectural resources: the Thomas James Cotton House, Dardanelle Agricultural and Post Office, Dardanelle Confederate Monument, First Presbyterian Church, the Berry House associated with the First Presbyterian Church, the Methodist Episcopal Church, the Steamboat House, and the Yell County Courthouse, served a viewshed points of reference.

The architectural survey report and viewshed analysis was submitted to the SHPO for review and concurrence, and the SHPO concurred with the findings of the report that none of the standing structures within the APE were eligible for nomination to the NHRP.

Panamerican Consultants, Inc. conducted a Phase I cultural resources survey of the proposed Purple alternative area in November 2009 and February 2010 (Leonard, 2010). The investigation included archival and records searches as well as survey of accessible portions of the project area. The records review indicated no previously recorded architectural resources within the project area. Although structures, such as houses, poultry sheds, and farm outbuildings were identified in the project area, none of these resources are likely more than 50 years of age and were not documented or evaluated for NRHP eligibility.

The Phase I report for the Purple Alternative, including information on standing structures, was reviewed by the Arkansas SHPO and concurrence with the report findings is pending completion of an additional archaeological survey once landowner access is obtained (see Appendix A).

Green (Preferred) Alternative

No architectural resources eligible for listing on the NRHP were identified in this proposed alternative area.

Red Alternative

No architectural resources eligible for listing on the NRHP were identified in this proposed alternative area.

Purple Alternative

No architectural resources eligible for listing on the NRHP were identified in this proposed alternative area.

4.16.1.3 Native American Resources

Native American resources are sites, areas, and materials important to Native Americans for religious or heritage reasons. Resources may include prehistoric sites and artifacts, historic sites, and artifacts (such as Native American farmsteads), cemeteries and burial locations, contemporary sacred areas, traditional use areas (e.g., native plant or animal habitat), sources used in the production of sacred objects and traditional implements, or TCPs. Sacred places important to religion may also be present and include mountain peaks, springs, and burial sites. Traditional rituals may prescribe the use of particular native plants, animals, or minerals from specific places. Therefore, activities that may affect sacred areas, their accessibility, or the availability of materials used in traditional practices may be of concern.

Fourteen Native American groups that may have historical ties to the project area were identified in consultation with the SHPO and include the Alabama-Quassarte Tribal Town of the Creek Nation of Indians, Oklahoma; Caddo Nation of Oklahoma; Cherokee Nation of Oklahoma; Chickasaw Nation of Oklahoma; Choctaw Nation of Oklahoma; Eastern Band of the Cherokee Indian Nation, North Carolina; Kialegee Tribal Town, Oklahoma; Jena Band of the Choctaw Indians, Louisiana; Mississippi Band of the Choctaw Indians, Mississippi; Osage Tribal Council, Oklahoma; Poarch Band of Creek Indians, Alabama; Quapaw Tribal Business Committee, Oklahoma; Thlopthlocco Tribal Town of the Creek Indian Nation of Oklahoma; and United Keetoowah Band of Cherokee Indians. The FHWA initiated consultation with these Native American groups on January 11, 2005 and asked for assistance in identifying whether locations of religious or cultural significance could occur in the proposed project area.

Responses were received from the Cherokee Nation and the Quapaw Tribal Business Committee, who both expressed an interest in the project.

The FHWA conducted a tribal scoping meeting in Russellville, Arkansas on June 2, 2005. Project information provided included a summary of the site records search and a tour of the project area. Mr. Robert Cast and Mr. Bobby Gonzales of the Caddo Nation of Oklahoma attended the meeting. No other tribal representatives were in attendance. A written summary of previous archaeological work in the area was later provided to the Cherokee Nation and the Quapaw Tribal Business Committee. Consultation with Native American groups will continue throughout the decision-making process for this project.

Copies of the Phase II testing report, prepared by Panamerican Consultants, Inc., were provided to the fourteen Native American groups for review and comment in August 2012. Responses were received from the Osage Nation and the United Keetoowah Band of Cherokee Indians, and they requested to be participants in the development of the PA to resolve adverse effects (Appendix C). Consultation with all Native American groups will continue in the development of the PA.

Green (Preferred) Alternative

Based on the archaeological survey results, thirteen Native American farmsteads, including site 3PP449/611, are located within the proposed boundaries for the Green (Preferred) Alternative (Lafferty et al. 2005). Based on the Phase II testing results, three Native American farmsteads are considered eligible and five sites are considered potentially eligible for the NRHP, pending further Phase II testing (Buchner et al., 2012). Five Native American farmsteads are not considered eligible and no further work at these locations is required.

Red Alternative

Based on the archaeological survey results, nine Native American farmsteads, including site 3PP449/611, are located within the proposed boundaries for the Red Alternative (Lafferty et al., 2005). Based on the Phase II testing results, three Native American farmsteads are considered eligible and one site is considered potentially eligible for the NRHP, pending further Phase II testing (Buchner et al., 2012). Five Native American farmsteads are not considered eligible and no further work at these locations is required.

Purple Alternative

Based on the archaeological survey results, no Native American farmsteads were identified (Leonard, 2010).

4.16.2 Consequences

Impacts to cultural resources were determined using the criteria established for the NHPA. An undertaking is considered to have an effect on a historic property when the undertaking may alter characteristics of the property that may qualify it for inclusion in the NRHP. An effect is considered adverse when it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Adverse effects as defined by Section 106 of the NHPA under 36 CFR 800.5(a)(2)(i) through (vii) include, but are not limited to:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease, or sale of the property.

For the purposes of this SDEIS, a significant impact under NEPA is defined as an unresolvable "adverse effect" under Section 106 of the NHPA. Because cultural resources are nonrenewable, all adverse effects on NRHP-eligible cultural resources in the RVIF, as addressed in this SDEIS would be long term.

Indirect Impacts are the result of future projects such as residential, school, and infrastructure development created by the proposed action. Some types of development (such as new roads, trails, etc.) could facilitate access to sensitive cultural resources. This could result in increased vandalism and damage to resources.

4.16.2.1 Potential Consequences of the No Action Alternative on Cultural Resources

4.16.2.1.1 Direct Impacts

Because no activities related to the construction of the proposed intermodal facilities would occur under the No Action Alternative, there would be no direct impacts to cultural resources. Existing ground disturbing activities, such as agricultural use and gravel mining, and natural degradation of archaeological resources from increased flooding and erosion potential along the Arkansas River floodplain would continue. The No Build Alternative would avoid additional impacts to NRHP-eligible cultural resources.

4.16.2.1.2 Indirect Impacts

Because no activities related to the construction of the proposed intermodal facilities would occur under the No Action Alternative, there would be no additional indirect impacts to any NRHP-eligible cultural resources.

4.16.2.1.3 Cumulative Impacts

Because no activities related to the construction of the proposed intermodal facilities would occur under the No Action Alternative, no direct 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.

Arkansas River Navigation Project

Potential impacts to cultural resources associated with the Arkansas River Navigation project may include physical disturbance through channel deepening and dredging operations, and construction and/or modification of dikes and revetments within the river channel and on adjacent shorelines. River bottom dredging is unlikely to encounter intact cultural resources. Construction and/or modification of dikes may adversely affect submerged archaeological sites. Construction and/or modification of revetments and increased access to shoreline areas may adversely affect both submerged and terrestrial archaeological sites. As this project is a Federal undertaking, compliance with Section 106 of the NHPA is required. All known NRHP-eligible cultural resources have been and would continue to be assessed by the Arkansas SHPO and appropriate actions taken to resolve adverse effects to any NRHP-eligible or listed resources.

Industrial Development in the Arkansas River Bottoms near Russellville

The City of Russellville has purchased some of the land within the Red/Green (Preferred) Alternative project area to provide a future industrial development area. It is possible that at least some of the land would still be developed in the reasonably foreseeable future regardless of whether the intermodal facilities are built. If the City of Russellville properties are developed using only local and/or private funding, it is possible that NRHP-eligible cultural resources identified through technical studies and coordination efforts associated with this NEPA study, could be impacted without efforts to preserve, document, or recover those important resources as mandated under Section 106 of the NHPA.

Expansion of Soil and Gravel Excavation and Removal

If the intermodal facilities are not constructed on the proposed project area, it is likely that the current soil and gravel excavation operations would continue to expand in the area. This would likely result in a greater impacts to cultural resources within the APE, because any unknown NRHP-eligible cultural resources that may be buried in the soils would be permanently destroyed and transported off of the site to unknown areas. Whereas with construction of the intermodal facilities, no soils or gravel that could contain potential cultural resources are expected to be transported off-site. The potential for impacts to cultural resources is likely higher from sand, soil, and gravel mining operations than any other activity or project anticipated to occur on the proposed project area. With the expansion of privately owned soil and gravel excavations, it is likely that NRHP-eligible cultural resources identified through technical studies and coordination efforts associated with this NEPA study would be impacted without efforts to preserve, document, or recover those important resources as mandated under Section 106 of the NHPA. Impacts to cultural resources from such operations would be cumulative to other past, present, and reasonably foreseeable projects and/or activities in the area.

Expansion of Agricultural Land Use

The expansion of agricultural land uses in the project area would result in potential adverse impacts to previously undisturbed NRHP-eligible cultural resources. Most of those impacts would be due to plowing and disking of the soils which could damage cultural resources contained in the upper layers of the soils. Cultural resources impacts would occur on newly converted areas that had previously not been plowed or not plowed as deep as modern equipment permits. With the expansion of privately owned agricultural fields, it is likely that NRHP-eligible cultural resources identified through technical studies and coordination efforts associated with this NEPA study, would be impacted without efforts to preserve, document, or recover those important resources as mandated under Section 106 of the NHPA. Any impacts to cultural resources would be cumulative to other past, present, and reasonably foreseeable projects and/or activities in the area.

Increase Existing Arkansas River Commerce

There would be no measurable cumulative impacts for the No Action Alternative when combined with the anticipated increase in existing Arkansas River Commerce.

4.16.2.1.4 Mitigation

Because no activities related to the construction of the proposed intermodal facilities would occur under the No Action Alternative, no NRHP-eligible cultural resources would be adversely affected. No mitigation measures are required.

4.16.2.2 Potential Consequences of the Green (Preferred) Alternative on Cultural Resources

4.16.2.2.1 Direct Impacts

Direct impacts to archaeological sites include physical disturbance through surface grading, building excavation and construction, road construction, utility line trenching, use of staging areas for heavy equipment and supplies, borrow pit excavations, and vandalism of archaeological materials. Any ground-disturbing action in the area of an NRHP-eligible or potentially eligible archaeological site, or modification to such a site, can affect the physical integrity of that cultural resource, resulting in alteration or destruction of those characteristics or qualities, which make it potentially eligible for inclusion in the NRHP and thus, would be an adverse effect under Section 106 of the NHPA.

Implementation of the Green (Preferred) Alternative would disturb or destroy twenty-seven 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.

Direct impacts to architectural resources include demolition, alteration of architectural traits, structural instability through vibration, short-term audio intrusions during construction, and visual intrusions to historic settings and cultural landscapes. Any visual or audio intrusions to the setting or demolition or alteration of architectural traits,

can affect the integrity of an NRHP-eligible or potentially eligible architectural resource, resulting in alteration or destruction of those characteristics or qualities that make it potentially eligible for inclusion in the NRHP and thus, would be an adverse effect under Section 106 of the NHPA.

No NRHP-eligible architectural resources are located within the APE for the Green (Preferred) Alternative. The proposed Green (Preferred) Alternative area is located on the opposite bank of the Arkansas River from NRHP-listed architectural resources in the City of Dardanelle. The construction activities associated with the Green (Preferred) Alternative would result in leaving a tree-lined riparian zone along the bank of the Arkansas River, except, of course, at the entrance to the slackwater harbor. The character of the buildings and other facilities expected to be built on the intermodal facilities project area would be of similar scale and types as are currently at the Port of Dardanelle. The distance from the proposed area and the presence of vegetation and other intrusions will shield any visual impacts of the RVIF to these NRHP-eligible resources. No visual impact to NRHP-listed architectural resources will occur as a result of implementation of the Green (Preferred) Alternative.

Direct impacts to Native American resources include destruction of traditional resources, burials, and sacred sites, and plant or animal habitat through ground-disturbing activities and construction of buildings and roads. Audio and visual intrusion may adversely affect the visual and audio landscape or the viewshed of these resources. These types of physical disturbance may disturb or destroy unidentified Native American resources and thus, would be an adverse effect under Section 106 of the NHPA.

Implementation of the Green (Preferred) Alternative would disturb or destroy eight Native American farmsteads that are considered eligible or potentially eligible for the NRHP (pending further Phase II testing) resulting in an adverse effect to Native American resources.

Based on the Phase II testing, seven NRHP-eligible archaeological sites and twenty unevaluated sites are located within the Green (Preferred) Alternative. Additional cultural resources Phase II investigations would be required for the 20 archaeological sites to determine NRHP eligibility in accordance with the approved PA that was developed for the FEIS. A copy of the approved PA and associated Work Plan are contained in Appendix C. The NRHP-eligible sites would be protected or mitigated in accordance with the procedures outlined in the approved PA. Such steps would include, but not be limited to, avoiding NRHP-eligible resources through project redesign, minimizing impacts if avoidance is not possible, and mitigating impacts to all NRHP-eligible sites that would be partially or entirely affected by the project, through the implementation of Phase III data recovery efforts, as described in Section 4.16.2.2.4.

4.16.2.2.2 Indirect Impacts

Secondary development in the area surrounding the proposed intermodal facilities could result in additional impacts to unknown or undiscovered NRHP-eligible cultural resources in the area. Secondary development may be privately funded and

compliance with federal and state laws on historic preservation would not be required. NRHP-eligible cultural resources would be impacted without efforts to preserve, document, or recover those important resources as mandated under Section 106 of the NHPA. Disturbance or destruction through secondary development would create an adverse effect.

4.16.2.2.3 Cumulative Impacts

Under the Green (Preferred) Alternative, 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 landscape.

Arkansas River Navigation Project

Potential impacts to cultural resources associated with the Arkansas River Navigation project may include physical disturbance through channel deepening and dredging operations, and construction and/or modification of dikes and revetments within the river channel and on adjacent shorelines. River bottom dredging is unlikely to encounter intact cultural resources. Construction and/or modification of dikes may adversely affect submerged archaeological sites. Construction and/or modification of revetments and increased access to shoreline areas may adversely affect both submerged and terrestrial archaeological sites. The intermodal facilities, which would also 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. As this project is a Federal undertaking, compliance with Section 106 of the NHPA would be required. All known cultural resources within both project areas have been and will continue to be assessed by the Arkansas SHPO and appropriate actions would be taken to resolve adverse effects to any NRHP-eligible or listed resources.

Industrial Development in the Arkansas River Bottoms near Russellville

The City of Russellville has purchased some of the land within the Red/Green (Preferred) Alternative project area to provide a future industrial development area. It is possible that at least some of the land would still be developed in the reasonably foreseeable future regardless of whether the intermodal facilities are built. If the City of Russellville properties are developed using only local and/or private funding, it is possible that NRHP-eligible cultural resources identified through technical studies and coordination efforts associated with this NEPA study, could be impacted without efforts to preserve, document, or recover those important resources as mandated under Section 106 of the NHPA.

Expansion of Soil and Gravel Excavation and Removal

It is likely that soil, sand, and gravel mining operations would continue to expand in the area. This would likely result in additional impacts to NRHP-eligible cultural resources, because any unknown cultural resources that may be buried in the soils would be permanently destroyed and transported off of the site to unknown areas. With construction of the intermodal facilities, no soils or gravel that could contain potential cultural resources are expected to be transported off-site. The potential for impacts to cultural resources is likely higher from sand, soil, and gravel mining operations than any other activity or project anticipated occurring in the project vicinity. With the expansion of privately owned soil and gravel excavations, it is likely that NRHP-eligible cultural resources identified through technical studies and coordination efforts associated with this NEPA study, would be impacted without efforts to preserve, document, or recover those important resources as mandated under Section 106 of the NHPA. Impacts to cultural resources from such operations would be cumulative to other past, present, and reasonably foreseeable projects and/or activities in the area.

Expansion of Agricultural Land Use

The expansion of agricultural land uses in the project area would continue to result in potential adverse impacts to NRHP-eligible cultural resources. Most of those impacts would be due to plowing and disking of the soils which could damage cultural resources contained in the upper layers of the soils. Cultural resources impacts would occur on newly converted areas that had previously not been plowed or not plowed as deep as modern equipment permits. With the expansion of privately owned agricultural fields, it is likely that NRHP-eligible cultural resources identified through technical studies and coordination efforts associated with this NEPA study, would be impacted without efforts to preserve, document, or recover those important resources as mandated under Section 106 of the NHPA. Any impacts to cultural resources would be cumulative to other past, present, and reasonably foreseeable projects and/or activities in the area.

Increase Existing Arkansas River Commerce

There would be no measurable cumulative impacts for the Green (Preferred) Alternative when combined with the anticipated increase in existing Arkansas River Commerce.

4.16.2.2.4 Mitigation

Mitigation measures resolve adverse effects on cultural resources. The preferred mitigation is avoidance. Avoidance preserves the integrity of cultural resources and protects their research potential (i.e., their NRHP eligibility). Avoidance also eliminates the costs and potential construction delays associated with data recovery.

Should avoidance not be possible, resolution of potential adverse effects to NRHP-eligible or listed resources will be achieved through execution of a PA as required under 36 CFR 800.6. The PA is signed by the FHWA, AHTD, USACE, the Authority, and the tribes to address the future testing requirements and resolution of adverse effects to

NRHP-eligible resources and sensitive Native American resources for the preferred alternative. A copy of the PA and associated Work Plan are contained in Appendix C.

If project excavation (e.g. building construction and utility lines) or staging areas should occur in areas with intact NRHP-eligible archaeological resources as determined by the Phase II investigations and these resources cannot be avoided, mitigation measures would be developed in consultation with the Arkansas SHPO and all consulting parties. Traditionally, data recovery of archaeological sites through professional techniques such as surface collection, mapping, photography, subsurface excavation, technical report preparation and dissemination, has been the standard mitigation measure. Data recovery is labor intensive (*i.e.*, costly) but may be necessary if NRHP-eligible sites cannot be avoided. Data recovery of archaeological information is now considered, in and of itself, an adverse effect under the revised Section 106 regulations (36 CFR800.5(a)(2)(i)).

If additional cultural resources are discovered during construction activities, work would cease until those cultural resources could be assessed and evaluated by the Arkansas SHPO. Through coordination and consultation with federal, state, and local agencies, it was determined that the Green (Preferred) Alternative project area contains Section 4(f) protected properties. If, during the preparation of the FEIS, any additional Section 4(f) properties are discovered on the proposed project area, appropriate agencies would be contacted immediately for further consultation and appropriate actions would be taken to avoid, minimize, and/or mitigate the impacts.

With a signed and executed PA, there would be no significant impacts to cultural resources as define under NEPA. In addition, the execution of the PA concludes the Section 106 process under the NHPA.

4.16.2.3 Potential Consequences of the Red Alternative on Cultural Resources

4.16.2.3.1 Direct Impacts

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.

No NRHP-eligible architectural resources are located within the APE for the Red Alternative. However, the proposed Red Alternative is located on the opposite bank of the Arkansas River from NRHP-listed architectural resources in the City of Dardanelle. The construction activities associated with the Red Alternative would result in the removal of trees and construction of a levee along the bank of the Arkansas River, making the port facilities visible from Front Street in Dardanelle. The character of the buildings and other facilities expected to be built on the intermodal facilities project area would be of similar scale and types as are currently at the Port of Dardanelle. The distance from the proposed area and the presence of other intrusions would minimize any visual impacts of the RVIF to these NRHP-eligible resources. No visual impacts to

NRHP-listed architectural resources will occur as a result of implementation of the Red Alternative.

Implementation of the Red Alternative would disturb or destroy four Native American farmsteads that are considered eligible or potentially eligible for the NRHP (pending further Phase II testing) resulting in an adverse effect to Native American resources.

Based on the Phase II testing, seven NRHP-eligible archaeological sites and two unevaluated sites are located within the Red Alternative. Additional cultural resources Phase II investigations would be required for the two archaeological sites to determine NRHP eligibility in accordance with the approved PA that was developed for the FEIS. The NRHP-eligible sites would be protected or mitigated in accordance with the procedures outlined in the approved PA. Such steps would include, but not be limited to, avoiding NRHP-eligible resources through project redesign, minimizing impacts if avoidance is not possible, and mitigating impacts to all NRHP-eligible sites that would be partially or entirely affected by the project, through the implementation of Phase III data recovery efforts, as described in Section 4.16.2.2.4.

4.16.2.3.2 Indirect Impacts

Indirect impacts associated with the Red Alternative would be similar to those discussed under the Green (Preferred) Alternative above.

4.16.2.3.3 Cumulative Impacts

Cumulative impacts associated with the Red Alternative would be similar to those discussed under the Green (Preferred) Alternative above.

Arkansas River Navigation Project

Cultural resources cumulative impacts in combination with the Arkansas River Navigation Project in the area for the Red Alternative would be similar to those described under the Green (Preferred) Alternative.

Industrial Development in the Arkansas River Bottoms near Russellville

Cultural resources cumulative impacts in combination with industrial development in the Arkansas River bottoms near Russellville for the Red Alternative would be similar to those described under the Green (Preferred) Alternative.

Expansion of Soil and Gravel Excavation and Removal

Cultural resources cumulative impacts in combination with the expansion of soil and gravel excavation and removal in the area for the Red Alternative would be similar to those described under the Green (Preferred) Alternative.

Expansion of Agricultural Land Use

Cultural resources cumulative impacts in combination with the continuation of agricultural land use for the Red Alternative would be similar to those described under the Green (Preferred) Alternative.

Increase Existing Arkansas River Commerce

There would be no measurable cumulative impacts for the Red Alternative when combined with the anticipated increase in existing Arkansas River Commerce.

4.16.2.3.4 Mitigation

Mitigation measures associated with the Red Alternative would be similar to those discussed under the Green (Preferred) Alternative above.

4.16.2.4 Potential Consequences of the Purple Alternative on Cultural Resources

4.16.2.4.1 Direct Impacts

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.

No NRHP-eligible architectural resources are located within the APE for the Purple Alternative. The proposed Purple Alternative area is located on the bank of the Arkansas River. No NRHP-eligible or listed architectural resources are located within the viewshed for the Purple Alternative. No visual impact to NRHP-listed architectural resources will occur as a result of implementation of the Purple Alternative.

Pending further consultation, no Native American resources have been identified in the APE for the Purple Alternative. At this time, it is assumed that no Native American resources will be adversely affected.

4.16.2.4.2 Indirect Impacts

Indirect impacts associated with the Purple Alternative would be similar to those discussed under the Green (Preferred) Alternative above.

4.16.2.4.3 Cumulative Impacts

Arkansas River Navigation Project

Cultural resources cumulative impacts in combination with the Arkansas River Navigation Project in the area for the Purple Alternative would be similar to those described under the Green (Preferred) Alternative.

Continuation of Agricultural Land Use

Cultural resources cumulative impacts in combination with the continuation of agricultural land use for the Purple Alternative would be similar to those described under the Green (Preferred) Alternative.

Increase Arkansas River Commerce

The increase of current Arkansas River commerce would not affect NRHP-eligible cultural resources. No river bottom dredging or shoreline modification which could adversely affect NRHP-eligible cultural resources would occur with an increase in commerce.

4.16.2.4.4 Mitigation

Mitigation measures associated with the Purple Alternative would be similar to those discussed under the Green (Preferred) Alternative above.

4.17 HAZARDOUS WASTE SITES

4.17.1 Affected Environment

Detailed information regarding hazardous waste sites for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.17.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.17.2 Consequences

4.17.2.1 Potential Consequences of the No Action Alternative on Hazardous Waste Sites

There would be no impacts to hazardous waste sites under the No Action Alternative. Direct, indirect, and cumulative hazardous waste impacts under the No Action Alternative are presented in detail in Section 4.17.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.17.2.2 Potential Consequences of the Green (Preferred) Alternative on Hazardous Waste Sites

4.17.2.2.1 Direct Impacts

Because no hazardous waste sites exist in the project area according to the EDR Report, direct impacts associated with existing hazardous waste sites would not occur at this site.

If this alternative is selected, hazardous materials could be used, stored, and transported throughout the intermodal facilities. With this possible introduction of hazardous materials, hazardous waste sites may need to be designated in the future.

Examples of probable hazardous materials include gasoline, oil, degreasers, and other materials used for general equipment maintenance. Although the exact industries that would use the intermodal facilities are unknown, it is anticipated that a mixture of industrial, commercial, and warehousing activities will occur at the intermodal facilities. Potential adverse impacts associated with hazardous materials or hazardous wastes would be regulated by state and Federal regulatory agencies, such as the USEPA, that regulate and monitor those industries. Consequently adverse impacts, if any, would be expected to be minor.

A long-term potential for short duration impacts exists due to direct releases of hazardous materials from trains, trucks, and other operating equipment throughout the intermodal facilities. Generation and management of hazardous waste would be addressed via the RCRA permitting process.

4.17.2.2.2 Indirect Impacts

Because no hazardous waste sites exist, indirect impacts associated with existing hazardous waste sites would not occur at this site. Construction of the intermodal facilities may result in increased transportation of hazardous materials to and from the general project area or region. This could increase the potential for accidental spills or releases, not only in the immediate project vicinity, but in areas beyond the immediate project vicinity as those materials are transported to and from the area. It is not known what, if any, hazardous materials would be transported to and from the intermodal facilities at this time so it is not possible to determine what the potential indirect impacts would be. All materials would be transported to and from the site in approved containers.

4.17.2.2.3 Cumulative Impacts

Arkansas River Navigation Project

Improvements to the commercial navigation channel of the MKARNS would combine with the recent improvements to Highway 247 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 the usage of these areas for hazardous materials and wastes would increase the possibility that these would

materials could be accidentally released. Therefore, there is a long-term potential for short-term impacts to occur. It is not known what, if any, hazardous materials would be transported through the area at this time. Therefore, it is not possible to determine the potential impacts at this time. Potential impacts to water quality due to accidental spills or small incremental releases of contaminants or potentially hazardous materials were discussed in more detail above.

Although there is a risk that hazardous materials could be released into the MKARNS posing threats to human and natural environments, the Arkansas River Navigation project in combination with the intermodal facilities project, could provide some benefits in terms of reducing potential risks in other areas. Providing more river navigation capabilities and intermodal connection options would allow more of those hazardous materials to be transported by river rather than have those same materials be transported by multiple trucks or rail cars through more densely populated areas. Contrary to the beliefs of many people, environmental safety may be better when materials are shipped via waterways because truck and rail spills occur more often than barge spills (USDOT, 1994). Design features of barges, such as double-hulls and navigational aids, help reduce the frequency of accidents. All new inland tank barges carrying liquid cargo now have an inner and outer hull. The USCG regulates the design and construction of these vessels and equipment as well as qualifications of the personnel manning them. The USCG inspects the vessels annually to ensure compliance (USDOT, 1994). Therefore, promoting the use of barge transportation would not be considered a major threat to water quality due to spills from barges. Risks associated with highway and rail transportation may be higher as those systems tend to require transportation of hazardous materials closer to populated areas, especially residential areas. Potential for accidents on highways and rails may also be higher due to the number of trucks and rail cars that would be required to transport large quantities of materials compared to the same amount in a barge. If barges were used to transport those same materials, it would remove those materials from highways or rails and reduce risks in more heavily populated areas.

Industrial Development in the Arkansas River Bottoms near Russellville

Industrial development in the Arkansas River bottoms near Russellville is not expected to be substantial outside of the boundaries of the intermodal facilities. However, any development that occurs in the adjacent areas would increase potential risks associated with hazardous materials that could be used as part of the industrial uses. Those increased uses would increase risks to the local environment in cases of accidental spills or releases of those materials. Those risks would be cumulative to risks associated with increased truck transportation along the improved Highway 247, increased barge traffic due to the Arkansas River Navigation project, and potential increased transportation, storage, production, or use of hazardous materials at the intermodal facilities. It is not known what materials would be transported through the area by truck or barge, or what if any hazardous materials would be used, produced, or stored at the industrial developments within the intermodal facilities. Therefore, it is not possible to determine the severity of the potential impacts at this time. Regulatory agencies would likely monitor all transport of hazardous materials as well as potential

risks to humans that may occur with industrial developments. Generation and management of hazardous waste would be addressed via the RCRA permitting process.

Expansion of Soil and Gravel Excavation and Removal

Expansion of the soil, sand, and gravel mining operations in the areas adjacent to the intermodal facilities would not pose substantial risks due to hazardous materials. Fuels and other chemicals used for mining equipment would be the primary materials of concern. It is not expected that substantial amounts of any of those chemicals would be used for the mining operations. Therefore, potential for cumulative impacts would be low.

Continuation of Agricultural Land Use

Continuation of agricultural land uses in the areas adjacent to the intermodal facilities would pose some potential for risks due to hazardous materials. Fuels and other chemicals used for farm equipment operation would be some of the materials of concern. The primary hazardous materials of concern would be pesticides and herbicides used for agricultural production in the area. It is not expected that use of hazardous materials would increase substantially from baseline conditions. In fact, the removal of some agricultural land uses due to the intermodal facilities development would likely reduce overall agricultural land uses and associated hazardous materials use or storage. There are not expected to be substantial cumulative impacts associated with continuation of agricultural land uses in the area.

Increase Existing Arkansas River Commerce

There would be no cumulative impacts associated with hazardous waste sites in combination with the increase in existing Arkansas River commerce. Any increase in commerce that accompanies the proposed intermodal facilities would not be impeded by hazardous waste sites, since none occur in the cumulative impact geographic area of analysis.

4.17.2.2.4 Mitigation

Since there are currently no hazardous waste sites in the project area, mitigation would not be necessary to remediate or avoid such sites. However, appropriate BMPs would be used to ensure safe handling of any hazardous materials and wastes associated with the operation of the proposed intermodal facilities. Appropriate BMPs would include the use of SPCC plans for operations that utilize hazardous materials and wastes and utilizing NPDES permits for discharges to surrounding waters where appropriate.

Federal and state regulatory agencies (e.g., USEPA and ADEQ) would likely monitor all transport, storage, production, and use of hazardous materials as well as potential risks to humans and the environment that may occur with development of the intermodal facilities and associated industrial developments. All ASTs and USTs would be properly

documented and regulated by ADEQ. Generation and management of hazardous waste would be addressed via the RCRA permitting process.

The continued use of new inland tank barges that have an inner and outer hull would reduce the likelihood of spills from barges containing hazardous materials. The use of BMPs as well as regulations set forth in environmental permits would help protect water resources in the area. Any accidental releases of contaminants on the site would be contained and remediated immediately.

4.17.2.3 Potential Consequences of the Red Alternative on Hazardous Waste Sites

The impacts to hazardous waste sites under the Red Alternative would be similar to those of the Green (Preferred) Alternative. Direct, indirect, and cumulative hazardous waste impacts and mitigation measures under the Red Alternative are presented in detail in Section 4.17.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.17.2.4 Potential Consequences of the Purple Alternative on Hazardous Waste Sites

The impacts to hazardous waste sites under the Purple Alternative would be similar to those of the Green (Preferred) Alternative. Direct, indirect, and cumulative hazardous waste impacts and mitigation measures under the Purple Alternative are presented in detail in Section 4.17.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.18 VISUAL IMPACTS

4.18.1 Affected Environment

Detailed information regarding visual quality for the No Action, Green (Preferred), Red, and Purple Alternative project areas can be found in Section 4.18.1 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.18.2 Consequences

4.18.2.1 Potential Visual Impact Consequences of the No Action Alternative

There would be no impacts to visual quality under the No Action Alternative. Direct, indirect, and cumulative visual quality impacts under the No Action Alternative are presented in detail in Section 4.18.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.18.2.2 Potential Visual Impact Consequences of the Green (Preferred) Alternative

4.18.2.2.1 Direct Impacts

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 impacts in terms of loss of forested areas when compared to the Red Alternative. During construction, there will be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.

4.18.2.2.2 Indirect Impacts

Construction of the intermodal facilities may induce adjacent land use changes (e.g., commercial development and new housing), which could generate visual impacts away from the project area. Again, depending on the perception of the residents in the area, these impacts may or may not be viewed as negative. In some instances residents may prefer the view of newly developed and well-maintained areas rather than rundown areas, mined areas, or exposed soils in crop fields.

4.18.2.2.3 Cumulative Impacts

Arkansas River Navigation Project

No substantial cumulative visual impacts are anticipated in the project vicinity due to the Arkansas River Navigation project. The dredging disposal sites and construction of, or modification of, river training structures would provide a minor, short-term decrease in aesthetics along the MKARNS. However, those areas would likely transition into vegetated areas in the future. Therefore, no substantial long-term visual impacts are anticipated.

Industrial Development in the Arkansas River Bottoms near Russellville

It is not likely that substantial industrial development would occur in the Arkansas River bottom near Russellville in the reasonably foreseeable future if the intermodal facilities are developed, because most of the development would occur within the boundaries of the project area. However, if industrial development does occur outside the boundaries of the intermodal facilities it would have slightly adverse visual impacts in the immediate area, due to construction of industrial land uses in place of more rural views of vegetation and agricultural areas. However, some people may perceive the industrial developments positively, especially if high quality developments are constructed and landscaping or other beneficial characteristics are included with those developments. Therefore, cumulative visual impacts are not expected to be either strongly adverse or positive.

Expansion of Soil and Gravel Excavation and Removal

The expansion of soil, sand, and gravel mining operations would result in adverse visual impacts due to removal of vegetation and due to the condition the mined lands are often left in based on past and current mining operations in the area. Due to the small, private nature of many of the mining operations in the area, there does not appear to be substantial efforts made to reclaim the mined areas by regrading and/or revegetating the areas. It appeared that several mined areas were left as large holes in the floodplain floor that had eroded walls and were being used as unapproved dumps for trash, old appliances, and other waste materials from nearby residences or businesses. As a result of the scattered nature of these areas and the low human use of these areas for recreational purposes, the overall adverse visual impacts would not be considered substantial. If such areas occurred in proximity to more highly populated or viewed areas, the impacts would be worse.

There is some potential that construction of the intermodal facilities could replace and repair past and present mining areas. This could result in slight visual improvements in the area.

Continuation of Agricultural Land Use

The continuation of agricultural land uses in the area would not result in substantial changes from baseline conditions. Therefore, no cumulative visual impacts are anticipated.

Increase Existing Arkansas River Commerce

The increase in existing Arkansas River commerce and the Intermodal Facilities projects would combine to promote increased use of barge transportation in the region. When viewed cumulatively, increased use of river transportation via barges would result in minor visual impacts for the entire region.

4.18.2.2.4 Mitigation

Mitigation measures, as defined by the CEQ (40 CFR 1508.20), include avoiding impacts, minimizing impacts, rectifying impacts, reducing or eliminating the impact over time, and compensating for the impact. Potential mitigation measures for visual impacts would include, but should not be limited to:

- Consideration of post-project aesthetic appeal during the project's functional design, surveying, and clearing;
- Preparation of areas within the project area to permit successful revegetation programs that accommodate, preserve, and capitalize on mature and semi-mature stands of vegetation;
- Care in establishment of native vegetation through natural revegetation or planned seeding; and

-
- Establishment of visual easements along the project area to preserve prominent vistas and views of desirable open space, agricultural land, and forests.

4.18.2.3 Potential Visual Impact Consequences of the Red Alternative

Direct impacts due to the implementation of the Red Alternative would be similar to those listed for the Green (Preferred) Alternative. However, the view of the project area under the Red Alternative from Dardanelle will be considered more of a negative impact by some due to the removal of the riparian forest and the creation of a grass levee to protect the facilities. However, as discussed in Section 4.16.3 of the SDEIS, because the intermodal facilities would be a continuation of the river transportation tradition of Dardanelle, the visual impacts would not be perceived as a severe impact by others in the area.

The need for impact mitigation for the Red Alternative would be higher due to the fact that the forested riparian buffer would be substantially removed between the intermodal facilities and the City of Dardanelle.

Direct, indirect, and cumulative visual impacts and mitigation measures under the Red Alternative are presented in detail in Section 4.18.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

4.18.2.4 Potential Visual Impact Consequences of the Purple Alternative

The impacts to visual quality under the Purple Alternative would be similar to those of the Green (Preferred) Alternative. Direct, indirect, and cumulative visual impacts and mitigation measures under the Purple Alternative are presented in detail in Section 4.18.2 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

Since the Purple Alternative consists of the conversion of the embayment into a slackwater harbor on Lake Dardanelle, the visual quality of the recreational opportunities on the lake may be adversely impacted.

A forested riparian buffer between Lake Dardanelle and the intermodal facilities would reduce the need for visual mitigation measures for the Purple Alternative.

4.19 SUMMARY OF ENVIRONMENTAL IMPACTS

Detailed information regarding direct, indirect, and cumulative impacts associated with the Green (Preferred) Alternative are discussed in Sections 4.2 through 4.18 of this FEIS. Detailed discussions of impacts for all alternatives, including the No Action, Green (Preferred), Red, and Purple Alternative, are discussed in detail in Sections 4.2 through 4.18 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

Table 4.2 contains a summary of the direct impacts associated with each of the alternatives studied in the EIS.

Table 4.2. 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.

Table 4.2. Summary of Direct Impacts of the No Action, Green (Preferred), Red, and Purple Alternatives				
	No Action Alternative	Green (Preferred) Alternative	Red Alternative	Purple Alternative
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.
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 4.2. 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	<p>There would be no impacts to water quality.</p>	<p>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.</p> <p>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.</p> <p>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.</p>	<p>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.</p> <p>Short-term adverse impacts to Whig Creek could occur from a railroad bridge required to cross the creek.</p> <p>Water quality could be reduced by potential channel modifications for the tributary to Whig Creek and the tributary to Flagg Lake.</p> <p>Construction of a levee on the bank of the Arkansas River would adversely impact the river due to sedimentation during construction.</p>	<p>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.</p> <p>Water quality could be reduced by potential channel modifications to the tributary to the embayment that would be converted into a slackwater harbor.</p> <p>Excavation and maintenance dredging of the harbor would cause some sediment to be released into the reservoir.</p> <p>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.</p>

Table 4.2. 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	<p>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.</p> <p>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.</p>	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.	<p>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.</p> <p>Long-term adverse impacts to wildlife would occur due to the permanent loss of pasture and forested habitats.</p> <p>Other impacts to water bodies, wildlife, and vegetation would be similar to those of the Green (Preferred) Alternative.</p>

Table 4.2. 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 4.2. 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 4.2. 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.	<p>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.</p> <p>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.</p> <p>During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.</p>	<p>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.</p> <p>During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.</p>	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.

5.0 CUMULATIVE IMPACT SUMMARY

5.1 INTRODUCTION

A cumulative impact occurs due to a change in the environment that results from the incremental impact of the project 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.

The primary past, present, and reasonably foreseeable future actions that have occurred both within and adjacent to the project areas that have been considered in the analysis of cumulative impacts were identified in Section 4.1.3.3 of the SDEIS. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

The SDEIS considered the Highway 247 improvement project as a reasonably foreseeable future project that could have cumulative impacts when combined with the intermodal project. Since the SDEIS was written, the Highway 247 project was completed and is now considered as part of the present condition. It has been removed from the reasonably foreseeable future projects in the cumulative impact analysis for future projects, but is still considered in the overall analysis of the cumulative project impacts.

5.2 SUMMARY OF CUMULATIVE IMPACTS

The impact of the reasonably foreseeable future actions combined with the impact of the implementation of each of the proposed alternatives is identified for each resource category in Sections 4.2 through 4.18 of this FEIS. More details regarding cumulative impacts of each of the alternatives were discussed in Section 6 of the SDEIS, which can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

There were meaningful long-term beneficial cumulative economic impacts identified during the analysis. There were no substantial adverse cumulative impacts identified in the cumulative impact analysis. A summary of cumulative impacts for each alternative is described below, with a focus on the Green (Preferred) Alternative. Table 5.1 at the end of this section contains a side-by-side comparison of the cumulative impacts of each alternative.

5.2.1 Arkansas River Navigation Project

5.2.1.1 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.

5.2.1.2 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. By deepening the commercial navigation channel of the Arkansas River, barges would be able to carry heavier loads and increase the productivity and utility of the intermodal facilities and the Arkansas River transportation options. The 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. Increased river navigation capabilities and intermodal connection options would allow more of those hazardous materials to be transported by river, and environmentally safer alternative, rather than have those same materials be transported by multiple trucks or rail cars through more densely populated areas.

5.2.1.3 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.

5.2.1.4 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 and potential facilities users in the area, when compared to the Green (Preferred) and Red Alternatives.

5.2.2 Industrial Development in the Arkansas River Bottoms Near Russellville

5.2.2.1 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. 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.

Development of the Arkansas River Bottoms near Russellville as an industrial site would occur without the intermodal facilities would likely not involve federal funding and NEPA documentation would not be required. Therefore, it is likely that adverse impacts to resources in the project area would be more severe, because the public and agency coordination process would be avoided and mitigation for known adverse impacts to resources would likely be avoided as well with the result being additional long-term adverse impacts that may have otherwise been avoided, minimized, or mitigated.

5.2.2.2 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 and would likely be further in the future once the intermodal facilities property has reached capacity to support new developments.

5.2.2.3 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.

5.2.2.4 Purple Alternative

Impacts associated with the industrial development in the Arkansas River Bottoms near Russellville would occur outside of the cumulative impact geographic area of analysis 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.

5.2.3 Expansion of Soil and Gravel Excavation and Removal

5.2.3.1 No Action Alternative

It is possible that the expansion of soil and gravel operations in the region would likely result in long-term adverse impacts to economic resources, because once those lands are mined they provide 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.

5.2.3.2 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. However, the expansion of soil and gravel excavation operations is not expected to result in major land use changes at any given location as these operations would likely continue to be small, scattered operations most likely impacting lands not currently being used for other more productive uses. There could be some cumulative loss of agricultural land uses in the areas where the soil and gravel operations relocate as good farmland soils are excavated and transported to areas outside the project vicinity for use as topsoil for lawns, landscaping, or other purposes. Conversely, if land outside the boundaries of the Red Alternative eventually converts to industrial or commercial land uses, the potential for long-term adverse impacts is less than what would occur under the No Action Alternative which may result in the current soil, sand, and gravel excavations to continue to somewhat randomly expand on those lands. This is because most of the underlying soils, sand, and gravel would remain in place or onsite if it were used for industrial purposes and could potentially be converted back to productive agricultural land uses in the future.

The expansion of soil, sand, and gravel operations in the project area would result in some additional cumulative impacts to water bodies, wildlife, and vegetation resources, primarily due to erosion and sedimentation in nearby streams and/or wetlands. Sedimentation can reduce the quality of aquatic habitats making them less productive for aquatic organisms. Mining operations may also result in the loss of terrestrial habitats, such as old fields, grasslands, or forests that provide beneficial habitat for various wildlife species, and can directly impact cultural sites.

5.2.3.3 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.

5.2.3.4 Purple Alternative

Impacts associated with the expansion of soil and gravel excavation would occur outside of the cumulative impact geographic area of analysis 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.

5.2.4 Continuation of Agricultural Land Use

5.2.4.1 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. Agricultural land uses within and adjacent to the proposed project area boundaries would likely remain under the No Action Alternative. This would create a minor beneficial impact to farmland and soils resources in general; however, no additional benefits in terms of improving regional economic growth would be realized.

5.2.4.2 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.

5.2.4.3 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.

5.2.4.4 Purple Alternative

Cumulative impacts of implementation of 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.

5.2.5 Increase Existing Arkansas River Commerce

5.2.5.1 No Action Alternative

No adverse or beneficial cumulative impacts associated with construction of the intermodal facilities would occur under the No Action Alternative. Commerce along the Arkansas River would likely remain at current levels. The Arkansas River would remain an underutilized resource for commerce in the State of Arkansas.

5.2.5.2 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.

5.2.5.3 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.

5.2.5.4 Purple Alternative

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

5.2.6 Summary

Cumulative impacts are the result of combining the potential effects of the project with other planned developments, as well as foreseeable development projects. The semi-rural nature of the areas surrounding the project alternatives contributed to the number of identifiable reasonably foreseeable future projects in the region. Although the cumulative impacts of each of the alternatives differ in some ways, implementation of any of the alternatives in association with any of the reasonably foreseeable future actions foreseen in the area, will result in long-term beneficial economic impacts and will not result in a significant adverse cumulative impact to the physical, social, or cultural resources in the region. Table 5.1 contains a side-by-side comparison of the cumulative impacts associated with each alternative.

Table 5.1. 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 5.1. 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 5.1. 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.	<p>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.</p> <p>Potential cumulative impacts include the expansion or establishment of existing and new market areas.</p> <p>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.</p>	Alternative, except for there would be less farmland revenue lost under the Red Alternative due to less farmland being impacted.	<p>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.</p> <p>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.</p>
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 5.1. 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 5.1. 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.	<p>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.</p> <p>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.</p>	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 5.1. 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 5.1. 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 5.1. 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.

6.0 MITIGATION SUMMARY

6.1 INTRODUCTION

Mitigation measures would be implemented to eliminate or reduce the impact of 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 this FEIS, the Authority would use a wide range of ongoing environmental management programs, BMPs, Standard Operating Procedures (SOPs), monitoring programs, and permit compliance procedures to lessen the type and magnitude of adverse impacts. The Authority would adhere to all permit conditions in effect at the time the action occurs, under any circumstance.

6.2 MITIGATION SUMMARY OF THE NO ACTION ALTERNATIVE

Adverse impacts associated with not constructing the intermodal facilities have been described in the consequences section under the appropriate resource categories. However, no mitigation measures have been listed under the No Action Alternative as no practicable measures have been identified. Therefore, if the No Action Alternative is selected, no mitigation measures would be developed to reduce the impacts of this decision.

6.3 MITIGATION SUMMARY OF THE GREEN (PREFERRED) ALTERNATIVE

6.3.1 Land Use and Infrastructure

Adjacent land uses could be protected from construction and development activities of the intermodal facilities through good housekeeping practices and erosion and sedimentation BMPs. Signs and temporary fencing would delineate construction boundaries to minimize impacts to adjacent land uses. Construction and operations of the proposed intermodal facilities would comply with the respective regulations and avoid adverse impacts wherever possible. Appropriate marking of any existing utilities could reduce any interruptions in existing services and prevent any injuries and

damages. Proper coordination with the appropriate highway and railroad entities could reduce interruption in current service.

To help reduce overall cumulative impacts associated with shifts in the excavation operations caused by the intermodal facilities and other foreseeable future projects, local planners, resource agencies, and local landowners should help identify areas where such operations would be less detrimental or would have less long-term impacts to existing or adjacent resources and land uses.

6.3.2 Farmland

To reduce impacts of soil disturbance an SECP would be implemented, and the appropriate BMPs concerning sediment control would be applied. BMPs would be used to protect surface and groundwater resources in the project area. Any accidental contamination of such resources would be remediated immediately.

6.3.3 Social Environment

Relocation assistance would be in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Act of 1970* (Public Law 91-646). It is policy of AHTD that no person shall be displaced unless and until comparable replacement housing has been provided.

6.3.4 Relocation

Relocation assistance would be in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Act* as amended by the *Surface Transportation and Uniform Relocation Act of 1987*. Comparable replacement housing would be provided for all displaced households under the provisions of the above laws. AHTD relocation policy also includes construction of HLR if comparable, decent, safe, and sanitary replacement housing is not available in the local housing market.

6.3.5 Economic

The overall economic benefits the intermodal facilities would provide to the local and regional economies would mitigate potential adverse impacts due to losses of current revenues generated in the proposed project area. Potential long-term adverse impacts to the Port of Dardanelle can be minimized by developing mutually beneficial relationships and possibly developing cooperative agreements between the Port and the Authority.

6.3.6 Pedestrian and Bicyclist Consideration

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, and therefore, no mitigation would be needed to reduce adverse impacts.

6.3.7 Air Quality

No violations of the NAAQS are projected for this project. Therefore, no air quality mitigation measures are required for the project improvements.

All bituminous and Portland cement concrete proportioning plants and crushers would meet the requirements of AHTD. For any portable bituminous or concrete plant or crusher, the contractor must apply for a permit-to-install from AHTD.

During construction the contractor must comply with all federal, state, and local laws and regulations governing the control of air pollution. Adequate dust-control measures would be maintained so as not to cause detriment to the safety, health, welfare, or comfort of any person or cause any damage to any property or business.

Dust and airborne dirt generated by construction activities would be controlled through dust control procedures or a specific dust control plan, when warranted. The contractor and the Authority would meet to review the nature and extent of dust-generating activities and would cooperatively develop specific types of control techniques appropriate to the specific situation. Techniques that may warrant consideration include measures such as minimizing track-out of soil onto nearby publicly-traveled roads, reducing speed on unpaved roads, covering haul vehicles, and applying chemical dust suppressants or water to exposed surfaces, particularly those on which construction vehicles travel. Paving access roads and other roads within the intermodal facilities would reduce overall dust emissions from within the project area.

6.3.8 Noise

Although projected noise levels at certain receptors exceed the FHWA criteria for the Build alternatives in the year 2025, no noise mitigation is proposed for this project.

Construction noise impacts were also considered. Construction noise would be minimized by the use of mufflers on construction equipment. Air compressors would meet federal noise level standards and would, if possible, be located away from or shielded from residences and other sensitive noise receptors. To minimize or eliminate the effects of construction noise on adjacent sensitive receptors, mitigation measures meeting state requirements should be incorporated into the standard specifications for this project.

Where pavement must be fractured or structures must be removed, care will be taken to prevent vibration damage to adjacent structures. In areas where construction-related vibration is anticipated, basement surveys could be conducted before construction begins to document any damage caused by facilities construction.

6.3.9 Water Quality

It is expected that the combined use of water quality protection measures during construction and appropriate mitigation measures would result in no overall reduction in the long-term water quality. Although short-term and long-term adverse impacts would

be anticipated, BMPs would be followed to reduce or mitigate for the overall impact to water quality.

Examples of stream protection measures that may be used include the following:

- When possible, streamside and in-stream construction activities would be performed during dry periods, when stream flow is at a minimum.
- The unnecessary removal of existing vegetation would be avoided as much as possible. Canopy removal along all working or staging areas would be limited to the extent practicable.
- Where removal of vegetation is necessary, bank stabilization and sediment control measures would be employed immediately at the start of construction. Bank stabilization measures would include seeding with native species and placing of silt fences or rip-rap.
- Control structures would be inspected and properly maintained throughout the life of the project.

Specific mitigation measures for this project would be developed during the permit acquisition process once final design plans have been developed, but prior to any construction activities. All construction activities and associated mitigation requirements would need to be approved by the appropriate agencies responsible for protecting water resources in the project area. Continued coordination with appropriate regulatory agencies would occur during final planning and construction of the project and extend through required monitoring periods that may be established during the initial permit acquisition process.

An NPDES permit would be required for all construction activities and would also be required for the future facilities whose operations include discharges. In addition, an SPCC plan would be developed for both the construction process and for operations of the facilities after construction.

6.3.10 Wetlands

Mitigation measures would be required to reduce impacts to wetlands in the event jurisdictional wetland avoidance is not possible. The Authority would complete all Section 404 and 401 permitting requirements in consultation with the U.S. Army Corp of Engineers (USACE) and the USEPA in accordance with the CWA prior to construction of the intermodal facilities.

Proposed measures for avoiding impacts to wetlands include the following elements:

- Avoidance of riparian and wetland zones would be used to the fullest possible extent to prevent impacts to these resources by reconfiguring the facilities or selective routing around jurisdictional wetland areas.
- Scheduling of construction activities and grading, to the extent practicable, would coincide with dry periods or low-flow conditions.

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- In order to avoid disturbance of wetland/riparian soils and vegetation outside of the alternative project area, wetland boundaries would not be crossed by vehicles or other equipment. A construction corridor through any wetland or riparian area would be temporarily fenced to prevent disturbances (including operation of equipment and trucks, storage of material, and other construction activities) outside of the corridor.
 - Sediment traps (e.g., straw bales, filter fabric fences, and siltation berms) located down-gradient from construction areas can be used to intercept eroded soils and sediments transported toward adjacent streams, wetlands, and floodplains during storm events.
 - Material stockpiles (sand, gravel, and other construction materials) would not be in unprotected floodplains and wetlands and, if necessary, would be contained or enclosed by berms to prevent transport of materials into streams and wetlands.

Some potential measures to minimize wetland impacts include:

- Employing construction practices that reduce soil erosion (such as sediment traps and scheduling constraints) and minimize vegetation losses.
- Existing drainage patterns within the project area would be maintained uninterrupted, to the extent practicable.
- The width of roads through wetland areas would be minimized as much as possible to reduce the overall extent of wetland damages.
- The amount of vegetation removal would be minimized in wetlands and riparian areas.
- Disturbed areas in wetlands and riparian areas would be revegetated with native species or species similar to those that were present on the wetland before site alterations occurred.

A wetland mitigation and monitoring plan would be prepared to compensate for unavoidable wetland losses or damages. This plan would focus on wetland restoration and or creation off site or at the perimeter of the project. The following potential actions may be employed as compensation measures for wetland losses or impacts.

- The functions and values to be replicated would be coordinated with resource and permitting agencies. Specific functions to be enhanced or restored would be included in the Section 404 Permit.
- Restoration efforts would include revegetating areas denuded during construction either with seeding, sprigging, transplanting, or covering barren areas with wetland soils (natural seed bank) salvaged from wetlands filled elsewhere in the project area. The specific methods of site regeneration would vary according to site size and desired vegetation type.
- A wetland monitoring plan would be developed and implemented to insure the success of the wetland mitigation process and to confirm the accomplishment of intended goals.

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- Permit conditions and mitigation plans would be coordinated with state and federal resource and permitting agencies.

6.3.11 Water Body Modification, Wildlife, and Vegetation

Where possible, efforts would be made to avoid and preserve the most sensitive habitats such as the higher quality wetlands and stream corridors during final design of the intermodal facilities. Whenever possible, impacts to water bodies, wildlife, and vegetation would be avoided and minimized.

Appropriate BMPs would be followed to mitigate for the overall impact to water bodies, wildlife, and vegetation. When possible, streamside and in-stream construction activities would be performed during dry periods, when stream flow is at a minimum. The removal of existing vegetation would be avoided as much as possible and would occur in winter months to avoid impacts to migratory bird species. Canopy removal along all working or staging areas would be limited to the extent practicable. Where removal of vegetation is necessary, bank stabilization and sediment control measures would be employed immediately at the start of construction. Bank stabilization measures would include seeding with native species and placing of silt fences or rip-rap. Control structures would be inspected and properly maintained throughout the life of the project. An SPCC plan would be developed for both the construction process and for operations of the facilities after construction.

6.3.12 Floodplains

Mitigation is not necessary as negligible floodplain impacts are anticipated based on the USACE floodplain analysis.

6.3.13 Commercial Navigation

Since no adverse impacts to commercial navigation are expected under the Green Alternative, mitigation measures would not be necessary.

6.3.14 Threatened and Endangered Species

Mitigation is not required for minimal impacts to T&E species. Therefore, no mitigation is needed to reduce impacts to T&E species under the Green alternative.

6.3.15 Cultural Resources

The preferred mitigation for Cultural Resources is avoidance. Avoidance preserves the integrity of cultural resources and protects their research potential (i.e., their NRHP eligibility). Avoidance also eliminates the costs and potential construction delays associated with data recovery.

Should avoidance not be possible, resolution of potential adverse effects to historic properties will be achieved through execution of a PA between the FHWA, AHTD, USACE, the Authority, and appropriate Native American tribes. If Native American resources are identified through project consultation, specific mitigation measures will be developed in further consultation with the appropriate tribes.

If project excavation or staging areas occur in areas with intact NRHP-eligible archaeological resources, mitigation measures would be developed in consultation with the Arkansas SHPO. Traditionally, data recovery of archaeological sites has been the standard mitigation measure. Data recovery of archaeological information is now considered, in and of itself, an adverse effect under the revised Section 106 regulations (36 CFR 800.5(a)(2)(i)).

If additional cultural resources are discovered during construction activities, work would cease until those cultural resources could be assessed and evaluated by the Arkansas SHPO.

6.3.16 Hazardous Waste Sites

Since there are currently no hazardous waste sites in the project area, mitigation would not be necessary. Regulatory agencies would likely monitor all transport, storage, production, and use of hazardous materials as well as potential risks to humans that may occur with development of the intermodal facilities and associated industrial developments. Generation and management of hazardous waste would be addressed via the RCRA permitting process.

6.3.17 Visual Impacts

Potential mitigation measures for visual impacts would include, but not be limited to, those listed for the Red Alternative. The need for impact mitigation for the Green Alternative would be lessened due to the fact that a forested riparian buffer would remain between the intermodal facilities and the City of Dardanelle.

6.4 MITIGATION SUMMARY OF THE RED AND PURPLE ALTERNATIVES

Mitigation requirements for the Red and Purple Alternatives would be similar to the Green (Preferred) Alternative for most resources. There would be some variation to the type and level of mitigation effort required depending on the level of impacts for individual resources. Section 7 of the SDEIS discussed the mitigation requirements of each of the Red and Purple Alternatives in more detail. The SDEIS can be found online at the following location: (<http://www.rivervalleyintermodal.org/deis.htm>).

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7.0 REQUIRED PERMITS

Environmental Permits/certifications that may need to be obtained during the project development phase include: USACE Section 10 and Section 404 permits, an NPDES permit, and a state Section 401 water quality certification.

Potential business or industrial development within the intermodal facilities would be regulated by Federal, state, and municipal laws and regulations. The Authority will be responsible for insuring that all intermodal facilities developments are in accordance with applicable laws and regulations, and they will maintain a database of required permits.

Private industries most likely to have substantial impacts to the environment that choose to locate at the intermodal facilities would be required to disclose information regarding the types of activities they propose to conduct at the site in an appropriate, legal manner as part of the environmental and/or other regulatory permit application processes typically required of them.

Such tenants of the intermodal facilities would be required to conform to environmental laws set forth by Federal, state, and local regulatory agencies such as the USEPA, USACE, OSHA, USFWS, ADEQ and others. The ADEQ website contains information regarding many of the primary environmental laws these agencies are responsible for which may apply to the various types of industries potentially wanting to utilize the proposed intermodal facilities (http://www.adeq.state.ar.us/regs/fed_regs.htm and http://www.adeq.state.ar.us/regs/ar_env_laws.htm). Such private industries are typically aware of their responsibilities under such laws and regulations and typically have their own staff available or they hire consultants to ensure they comply with all legal requirements. It would not be beneficial for such businesses to not comply with environmental regulations due to the serious penalties and financial implications that could occur if they do not comply.

Therefore, even though it is not possible to fully assess all potential environmental impacts that could occur under the various scenarios of development that may occur at the intermodal facilities, it is expected that any substantial impacts would be identified and regulated by appropriate regulatory agencies which would help protect the local and regional human and natural environments. Reasonable options to avoid, minimize, and/or mitigate for any adverse impacts would be identified and enforced by the responsible regulatory agency or agencies during the permit application phase of those developments. Permits required for development of the initial intermodal facilities infrastructure such as levees, roads, rail access, the slackwater harbor, and any utilities would be the responsibility of the Authority and would be obtained prior to construction of the project.

There would be minor differences between the build alternatives for necessary permits. Impacts to Waters of the U.S., primarily impacts to jurisdictional wetlands, would be greater under the Red Alternative than the Green (Preferred) Alternative or the Purple Alternative. Additionally, the Purple Alternative would require a USACE Shoreline Use

Permit for any shoreline vegetation modification on Lake Dardanelle and a USACE Real Estate Instrument for activities not covered under the Shoreline Use Permit and that involve grade, cut, or fill and construction of structures (<http://www.swl.usace.army.mil/parks/dardanelle/shoreline.htm#>).

8.0 RELATION OF SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The local short-term impacts of the proposed action and the use of resources for it are consistent with the maintenance and enhancement of long-term productivity for the region. Creation of the project 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 transfer efficiency and interrelationships by providing more shipping capabilities and capacity.

The level of development anticipated provides the basis for improved delivery of services and goods to and from the region. It should enhance the quality of life by reducing highway congestion, improving air quality due to fewer pollutants associated with trucks, preventing fewer accidents, and consuming lower amounts of fuel. These would be achieved through connectivity with waterway and rail transportation and a subsequent reduction in reliance on the truck mode as the primary method of transportation. There would be no discernable difference between the three proposed Alternatives.

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9.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible commitment of resources occurs when there is destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments result when there is a loss in value of a resource that cannot be restored. Most of the resource commitments for the proposed intermodal facilities are short-term or temporary. Those resources that may have irreversible or irretrievable commitments are discussed in detail below.

The proposed action would require the expenditure of human and fiscal resources and the potential modification of natural resources. Land and materials utilized in the construction of the project are considered an irreversible commitment.

Resources affected by construction of the project may be irreversibly altered. The proposed project would result in the commitment of between 740 and 860 acres of land most of which would be occupied by intermodal facilities. This commitment would be long-term although if a greater need arises for the use of the land, the facilities could be demolished and converted or altered for another use. At present, there are no reasonably foreseeable reasons to believe such a conversion would ever be necessary or desirable.

Construction would require the expenditure of materials that are generally not retrievable. Considerable amounts of fossil fuels, labor, and construction materials such as cement, aggregate, iron, and gravel would be expended and large amounts of labor and natural resources are necessary in the fabrication and preparation of construction materials. However, although these materials are generally not retrievable, they are not in short supply and their use would not have an adverse effect upon continued availability of these resources. In addition, construction would also require large, one-time investment of both state and federal funds that are not retrievable.

The commitment of these resources is based on the concept that residents both within the project area, as well as the region, would benefit by improvements in the quality of the local and regional intermodal transportation systems. The facilities would improve the highway, railway, and shipping capabilities of the region by substantially enhancing accessibility and saving time. The facilities should provide a positive influence on the economy of the region and the livelihood of its citizens.

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10.0 CONSTRUCTION IMPACTS

Adverse impacts from construction are primarily short-term in duration (i.e. they exist only during construction periods). Some construction inconveniences such as noise, dust, traffic conflicts, etc. are unavoidable.

In order to minimize possible detrimental effects due to siltation, soil erosion, or possible pollution of area watercourses, the construction contractors will be required to comply with the special provisions of the Standard Specifications for Road and Bridge Construction as issued by AHTD and as amended by the most recent applicable supplements. These provisions implement the requirements of the FHWA's Federal-Aid Policy Guide, Subchapter G part 650b. Contractors will be required to conduct and schedule operations according to these provisions.

Construction procedures will also be governed by Section 107.01 of the Standard Specifications to observe any noise ordinance in effect within the project limits. Detoured traffic will be routed during construction so as to cause the least practicable noise impact upon residential and noise sensitive areas.

In addition, disruption to utility services will be minimized since it is the standard policy of the FHWA, AHTD, and the USACE to coordinate all utility relocations with the affected utility companies. Furthermore, the Authority will coordinate with AHTD and local governments during the construction phase to minimize disruption of communities resulting from any required detouring of traffic.

Any action taken on open burning will be in accordance with ADPCE Regulations, and specifications regarding air pollution control will be followed. The regulations on fugitive dust will also be in accordance with state laws. The general contractor and all asphalt plants, quarry operations, etc. associated with the project will be required to have a valid operation permit from the state.

Solid waste generated by construction activities will be disposed of in accordance with all state rules and regulations concerning solid waste management. Where possible, land debris will be disposed of in a registered sanitary landfill site. If the use of a registered landfill is not possible, the contractor will dispose of the solid waste in a manner that will not create a hazard to public health or become a public nuisance.

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11.0 ACRONYMS

Acronyms that were used during the development of the RVIF EIS include the following:

A		CR	County Road
ACHP	Advisory Council on Historic Preservation	CWA	Clean Water Act
B		D	
BMPs	Best Management Practices	dBA	Decibel A-Weighted Scale
C		DEIS	Draft Environmental Impact Statement
CAA	Clean Air Act	DOI	U.S. Department of the Interior
CAAA	Clean Air Act Amendments	DRRR	Dardanelle Russellville Railroad
CEQ	Council on Environmental Quality	E	
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System	EA	Environmental Assessment
CFR	Code of Federal Regulations	EDR	Environmental Data Resources, Inc.
CO	Carbon Monoxide	EIS	Environmental Impact Statement
CORRACTS	Corrective Action Activity	EMS	Emergency Medical Services
		EO	Executive Order
		EPCRA	Emergency Planning and Community Right-to-Know Act
		ERNS	Emergency Response Notification System
		ESA	Endangered Species Act
		F	
		FAF	Freight Analysis Framework
		FEMA	Federal Emergency Management Agency
		FHWA	Federal Highway Administration
		FEIS	Final Environmental Impact Statement
		FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act

FINDS	Facility Index System	NAFTA	North American Free Trade Agreement
FIRMS	National Flood Insurance Rate Maps	NEPA	National Environmental Policy Act
FONSI	Finding of No Significant Impact	NFRAP	No Further Remedial Action Planned
FPPA	Farmland Protection Policy Act	NHPA	National Historic Preservation Act
FRA	Federal Railroad Administration	NOA	Notice of Availability
FTTS	FIFRA/TSCA Tracking System	NPDES	National Pollutant Discharge Elimination System
G		NPL	National Priority List
H		NRCS	Natural Resources Conservation Service
HLR	Housing of Last Resort	NRHP	National Register of Historic Places
HSWA	Hazardous and Solid Waste Amendments	NMFS	National Marine Fisheries Service
I		NWI	National Wetlands Inventory
I-40	Interstate 40	NWR	National Wildlife Refuge
J		O	
K		OSHA	Occupational Safety and Health Administration
L		P	
Leq	Equivalent Sound Level	PA	Programmatic Agreement
Leq(h)	Hourly Equivalent Sound Level	ppm	parts per million
LOS	Level of Service	R	
LQG	Large Quantity Generators	RCRA	Resources Conservation and Recovery Act
LUST	Leaking Underground Storage Tank	ROD	Record of Decision
M		RVIF	River Valley Intermodal Facilities
MBTA	Migratory Bird Treaty Act	S	
MKARNS	McClellan-Kerr Arkansas River Navigation System	SARA	Superfund Amendments and Reauthorization Act
MCL	Maximum Contaminant Levels	SDEIS	Supplemental Draft Environmental Impact Statement
Mil	millage		
MINES	Mines Master Index File		
N			
NAAQS	National Ambient Air Quality Standards		

SECP	Sediment and Erosion Control Plan	TSDf	Treatment, Storage, or Disposal Facility
SHPO	State Historic Preservation Office	U	
SPCC	Spill, Prevention, Control and Countermeasures	UPRR	Union Pacific Railroad
SQG	Small Quantity Generators	U.S.	United States
SWF/LF	Solid Waste Facility/Land Fill	USACE	United States Army Corps of Engineers
SWRCY	Solid Waste Recycling	USCG	United States Coast Guard
T		USDOT	United States Department of Transportation
TCP	Traditional Cultural Properties	USEPA	United States Environmental Protection Agency
T&E	Threatened and Endangered	USFWS	United States Fish and Wildlife Service
TDS	Total Dissolved Solids	USGS	U.S. Geological Survey
TMDL	Total Maximum Daily Load	UST	Underground Storage Tank
TRIS	Toxic Chemical Release Inventory System	V	
TSCA	Toxic Substances Control Act	VOC	Volatile Organic Compounds
		VPD	Vehicles Per Day

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12.0 REFERENCES

References that were used during the development of the RVIF EIS include the following:

Reference	Description
ADPCE, 1997	Arkansas Department of Pollution Control and Ecology.. 1997. TMDL Investigation of Water Quality Impairments to Whig Creek, Pope County, Arkansas. ADEQ Water Division, 1997, 24 p
ADWS, 2010	Arkansas Department of Workforce Services, Discover Arkansas Website, Civilian Labor Force, Employment, and Unemployment Rates, 1995-2010 Data, http://www.discoverarkansas.net/ and http://www.state.ar.us/esd/
AGC, 2003	Arkansas Geological Commission, A Model for Groundwater Flow in the Alluvial Aquifer of the Arkansas River at Dardanelle, Arkansas, Water Resources Circular 18, Arkansas Geological Commission, 2003
AHD, 2010	Data Accessed at URL: www.ahd.com . American Hospital Directory. Accessed February 8, 2010.
AHTD, 1998	Arkansas Highway and Transportation Department, Planning and Research Division, Intermodal Transportation Needs/Economic Development Study- Summary Report and Appendices, August 1998.
AHTD, 2002	Arkansas Highway and Transportation Department, Planning and Research Division, Freight Component, Arkansas Statewide Long-Range Intermodal Transportation Plan, May 2002
AHTD, 2004	Arkansas Highway and Transportation Department and Federal Highway Administration, Environmental Assessment, Job Number 080198, Russellville Bypass (Highway 247) Pope County, Arkansas, January 2004.
AHTD, 2005	Arkansas Highway and Transportation Department, Planning and Research Division, Arkansas State Public Riverport Study and Needs Assessment, March 2005.
AHTD, 2007a	Arkansas Highway and Transportation Department, Planning and Research Division, Arkansas Statewide Long-Range Intermodal Transportation Plan, 2007 Update.
AHTD, 2007b	Environmental Assessment Addendum AHTD, Job Number 080198, Russellville Bypass (Highway 247) Pope County, Arkansas, January 2007.
ARC, 2004	Appalachian Regional Commission, Meeting the Transportation Challenges of the 21st Century: Intermodal Opportunities in the Appalachian Region Intermodal Case Studies Prepared by Rahall Transportation Institute, Marshall

Reference	Description
AVAED, 2007	University, and Wilbur Smith Associates, December 2004. Arkansas Valley Alliance for Economic Development Memorandum: Available Industrial Sites in Russellville, Arkansas, Jeff Pipkin, Director, January 2007.
Buchner, C. Andrew, Eric S. Albertson, Karla Oesch, and Chester P. Walker, 2012	Phase II Testing of Archaeological Sites at the River Valley Intermodal Facility Alternatives, Johnson and Pope Counties Arkansas. Prepared by Panamerican Consultants, Inc., Memphis, Tennessee.
Burnham Group, 2000	Burnham Group, 2020 Comprehensive Development Plan for the City of Russellville, 2000.
CARIA, 2007	Coosa-Alabama River Improvement Association, Waterway Facts, http://www.caria.org/waterway_facts.html#anchor178439 .
Center for Ports and Waterways Texas Transportation Institute, 2009	Center for Ports and Waterways Texas Transportation Institute, U.S. Department of transportation Maritime Administration and National Waterways Foundation, A Modal Comparison of Domestic Freight Transportation Effects on the General Public. December 2007, Amended March 2009.
Cowardin et.al, 1979	Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm (Version 04DEC98).
EDR, 2005	Environmental Data Resources, Inc. Radius Map™ Report with GeoCheck® for the Russellville Intermodal Facilities (Red and Green Alternative). May 24, 2005.
EDR, 2010	Environmental Data Resources, Inc. Radius Map™ Report with GeoCheck® for the Russellville Intermodal Facilities (Purple Alternative). February 11, 2010.
Ellis, 2010	Personal Communication between Luke Eggering (Parsons) and Jim Ellis, U.S. Army Corps of Engineers, Little Rock District Planning Branch, via telephone on January 22, 2010.
Environmental Laboratory, 1987	Environmental Laboratory. Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.
FHWA, 2006	Federal Highway Administration, NEPA and Transportation Decisionmaking, 2006, http://www.environment.fhwa.dot.gov/projdev/pd3tdm.asp .
FHWA, 2010	Federal Highway Administration, Freight Analysis Framework. http://ops.fhwa.dot.gov/freight/freight_analysis/faf/ . Webpage accessed January 20, 2010.

Reference	Description
FRA, 2007	Federal Railroad Administration, Office of Safety, Safety Statistics and Information, http://www.fra.dot.gov/us/content/3 , 2007
FTN, 2002	FTN Associates, River Valley Regional Intermodal Facilities Authority Project, Environmental Assessment, November 2002.
Garver Engineers, 2002	Garver Engineers, Masterplan and Feasibility Study for the Arkansas River Valley Regional Intermodal Facility, September 2002.
Hamilton et al., 2002	G. Hamilton, A. Vibhakar, and J. Shelnut, Economic Feasibility and Debt Capacity of the Russellville River Port Project, September 2002.
Harris Infosource, 2008	Harris Arkansas Manufacturers Directory. 2008. Harris Infosource, a D&B Company, Twinsburg, Ohio.
IDOT, 2008	Iowa Department of Transportation. Website http://www.dot.state.ia.us/compare.pdf . March 2008. Web page accessed January 20, 2010.
Lafferty and Hess, 2005	Lafferty, Robert H. III, and Kathleen Hess. An Architectural Survey of the River Valley Regional Intermodal Facility, Pope County, Arkansas, 2005. Prepared by Mid-Continental Research Associates, Inc., Springdale Arkansas.
Lafferty et al., 2005	Lafferty, Cande, and Sierzchula, Cultural Resources Investigations of the Proposed River Valley Intermodal Facility in the New Hope Bottom in Pope County, Arkansas, 2005.
Latture, 2010	Personal Communication between Amanda Molsberry (Parsons) and Paul Latture, Executive Director of the Little Rock Port Authority, via email on January 15, 2010.
Leonard, 2010	Leonard, Banks L., <i>Draft Phase I Cultural Resources Survey of the Bend (Purple) Alternative, River Valley Intermodal Facility, Johnson County Arkansas</i> . Prepared by Panamerican Consultants, Inc., Memphis, Tennessee.
Lyons, 2010	Personal communication between Parsons personnel and Vicki Lyons, Executive Director of the Clarksville-Johnson County Chamber of Commerce. February 2, 2010.
Merewether, 1971	Merewether, E.A., <i>Geology of the Knoxville and Delaware Quadrangles, Johnson and Logan Counties and Vicinity, Arkansas Geological Survey Professional Paper 657-B</i> , United States Geological Survey, 1971.
MNDOT, 1997	Minnesota Department of Transportation, Ports and Waterways Section, Monetary Cost of a Modal Shift, 1997.
Nachtmann, 2002	H. Nachtmann, Department of Industrial Engineering, University of Arkansas, <i>Economic Evaluation of the Impact of Waterways on the State of Arkansas</i> , 2002.

Reference

NRCS, 2007

Description

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey, Available online at <http://websoilsurvey.nrcs.usda.gov/>, accessed August 2007.

NRCS, 2010

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey, Available online at <http://websoilsurvey.nrcs.usda.gov/>, accessed January 2010.

Personal Communications,
2010

- Personal Communication between Molly Salmieri (Parsons) and Gerry Bisailon, General Director Premium Operations for the Union Pacific Railroad, via telephone on January 8, 2010 at 2:30 p.m.
- Personal Communication between Molly Salmieri (Parsons) and Greg Dennis, Operations Manager of Pine Bluff Sand and Gravel, via telephone on February 2, 2010 at 8:30 a.m.
- Personal Communication between Molly Salmieri (Parsons) and Keith Garrison, Arkansas Waterway Commission, via telephone on January 12, 2010 at 10:00 a.m.
- Personal Communication between Molly Salmieri (Parsons) and Duane Hawkins, Logistics Services, Inc., via telephone on January 12, 2010 at 9:00 a.m.
- Personal Communication between Molly Salmieri (Parsons) and Steve Jones, Arkansas Economic Development Commission, via telephone on January 6, 2010 at 1:30 p.m.
- Personal Communication between Molly Salmieri (Parsons) and Paul Latture, Executive Director of the Little Rock Port Authority, via telephone on January 6, 2010 at 9:30 a.m.
- Personal Communication between Molly Salmieri (Parsons) and Marie McDermott, COO and Business Development for Economic Alliance Houston Port Region, via telephone on January 6, 2010 at 3:30 p.m.
- Personal Communication between Molly Salmieri (Parsons) and Cliff McKinney, Intermodal Transportation Planner for Arkansas Highway and Transportation Department, via telephone on January 6, 2010 at 3:30 p.m.
- Personal Communication between Molly Salmieri (Parsons) and Jeff Pipkin, Arkansas River Valley Alliance for Economic Development, via telephone on January 5, 2010 at 8:00 a.m.

Reference	Description
Robison and Buchanan, 1988	Robison H.W., Buchanan T.M. 1988. Fishes of Arkansas. The University of Arkansas Press. Fayetteville: pp.535
State of Arkansas, 2009	State of Arkansas Assessment Coordination Department, 2009. www.arkansas.gov/acd/
RSMeans 2010	RSMeans Engineering. <u>Building Construction Cost Data</u> . Massachusetts: R.S. Means Company, 2010.
Smoot et. al., 1992	Smoot, J.L., Moore, T.D., Deatherage, J.H., and Tschantz, B.A., "Reducing Nonpoint Source Water Pollution by Preventing Soil Erosion and Controlling Sediment on Construction Sites, Technical Report #R01-2512-39-001-92, Transportation Center, University of Tennessee, Knoxville, TN, 173 p.
SWCB, 2002.	Sam M. Walton College of Business, Center for Business and Economic Research, An Economic Analysis of Pope County in Northwest Arkansas, August 2002.
UALR, 2008	University of Arkansas, Demographic Research Division, Little Rock, Arkansas, Time Series Extrapolations of Population Projections, 2008.
USACE, 1977	U.S. Army Corps of Engineers, Little Rock District, Arkansas River Watershed Dardanelle Dam and Lake Design Memorandum NO. 13-4, Updated Master Plan for Development and Management of Lake Dardanelle, September 1977.
USACE, 1997	U.S. Army Corps of Engineers, Tulsa and Little Rock Districts, McClellan-Kerr Arkansas River Navigation System, Navigation Charts, Catoosa, Oklahoma to Mouth of the White River, 1997.
USACE, 2000	U.S. Army Corps of Engineers, Little Rock District, Russellville Slack Water Harbor Arkansas River, Arkansas Final Environmental Assessment, January 2000.
USACE, 2000a	U.S. Army Corps of Engineers, Engineering and Construction Division, Technical Instructions (TI 850-02), Railroad Design and Rehabilitation, March 1, 2000.
USACE, 2001	U.S. Army Corps of Engineers, Little Rock District, Slack Water Harbor Arkansas River, Russellville, Detailed Project Report and Environmental Assessment, 2001.
USACE, 2002	U.S. Army Corps of Engineers, Institute for Water Resources, Waterborne Commerce of the United States, Part 2, Historic and Projected Traffic on MKARNS, 2002.
USACE, 2005	U.S. Army Corps of Engineers, Little Rock and Tulsa Districts, Arkansas River Navigation Study, Final Environmental Impact Statement, August 2005.
USACE, 2005a	U.S. Army Corps of Engineers, Little Rock District, River Valley Intermodal Facilities Flood Plain Analysis, 2005.

Reference	Description
USBLS, 2008	U.S. Bureau of Labor Statistics , U.S. Labor Statistics Data, 2008, http://www.bls.gov/
USDA, 2005	U.S. Department of Agriculture, National Agricultural Statistics Service, Arkansas Statistical Office, Five-Year Crop Yields/Prices, 2005.
USDOC, 1990	U.S. Department of Commerce, U.S. Census Bureau, U.S. Census of Population and Housing, 1990.
USDOC, 2000	U.S. Department of Commerce, U.S. Census Bureau, U.S. Census of Population and Housing, 2000.
USDOC, 2006-2010	U.S. Department of Commerce, U.S. Census Bureau, American Community Survey,2006-2010.
USDOC, 2010	U.S. Department of Commerce, U.S. Census Bureau, U.S. Census of Population and Housing, 2010.
USDOT, 1994	US Department of Transportation, Maritime Administration, Environmental Advantages of Inland Barge Transportation, Final Report, Prepared by the Office of Market Promotion, August 1994.
USDOT, 1996	US Department of Transportation, Federal Highway Administration, Productivity and the Highway Network, A Look at the Economic Benefits to Industry from Investment in the Highway Network, Publication No. FHWA-PL-96-016, 1996.
USDOT, 2006	U.S. Department of Transportation, Office of the Secretary of Transportation, Guide to Quantifying the Economic Impacts of Federal Investments in Large-Scale Freight Transportation Projects, August 2006.
USEPA, 2003	U.S. Environmental Protection Agency, TMDL Report, Whig Creek Basin TMDL for Copper, September 2003.
USEPA, 2010	U.S. Environmental Protection Agency Surf Your Watershed. Web page accessed February 3, 2010. http://cfpub.epa.gov/surf/locate/index.cfm
USFWS, 1982	U.S. Fish and Wildlife Service. 1982. Gray Bat Recovery Plan. Twin Cities, MN.
Yevdokimov, 2000	Yuri Yevdokimov, Measuring Economic Benefits of Intermodal Transportation, Transportation Law Journal, Volume 27, Number 3, Summer 2000.

13.0 PREPARERS

Personnel involved in the development of the RVIF EIS include the following:

Name	Education and Experience	Primary Responsibilities
Luke Eggering Parsons	B.S., Fish and Wildlife Management; M.S., Biology; 21 years experience in wetland management; wildlife, fisheries and endangered species management; preparation of environmental documents.	Project Manager/Project Scientist; data collection and key participant in description of proposed action, alternatives formulation, and related environmental analyses.
Don Beisel Parsons	B.S. Geography; M.A. Geography; 30 years of experience in community/urban planning, environmental planning, and socioeconomic studies.	Senior Project Planner/Economist; data collection and preparation of socioeconomic analysis and related text sections for the Draft EIS.
Karen Boulware Parsons	B.S. Geology; M.S. Resource Planning. 18 years experience in environmental assessment impact studies and planning.	Environmental Scientist/Urban Planner; data collection, analysis, and key participant in preparation of environmental impact statement text and supporting sections.
Joel Budnik Parsons	B.S. Fisheries and Wildlife Management, Minor in Biology; M.S. Fisheries and Wildlife Sciences; 16 years experience in natural resource management; biological surveys, wetland determinations; environmental impact assessment; and preparation of environmental documents.	Senior Environmental Scientist/Biologist; key participant in data collection, environmental impact analysis, and preparation of the environmental impact statement.
Edward Cain Parsons	B.S. Civil Engineering; 40 years experience in the planning and design of major transportation facilities and preparation of environmental documents.	Senior Transportation Engineer/Planner; oversight on traffic issues, site development, and air and noise analyses for the Draft EIS.
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Name	Education and Experience	Primary Responsibilities
Robert Ernst Parsons	BS Geography/Geology, MA Geography, PhD Geography/Urban Analysis; 38 years experience in urban planning, economic development, market analysis, and environmental planning projects.	Senior Land Use Planner/Land Economist; participant in preparation of environmental impact statement and supporting sections for the Draft EIS.
Jason Farmer Parsons	B.S. Biology; M.S. Biology; 14 years experience in biological surveys, natural resource management, ecological restoration, and environmental impact assessment.	Senior Environmental Scientist/Wetland Ecologist; analysis and key participant in preparation of environmental impact statement text, GIS, and supporting sections for the Draft EIS.
Virginia Flynn Parsons	B.S. Horticulture, M.S. Plant Biology. 16 years of experience in environmental assessment and impact studies, biological community investigations and ecosystem restoration.	Senior Environmental Scientist/Botanist; data collection, analysis and participant in preparation of environmental impact statement text and supporting sections.
Lee Gorday Parsons	B.A., Geology; M.A. Geology; 23 years of experience in hydrogeologic systems and groundwater contamination.	Senior Hydrogeologist/Hazardous Materials Specialist; data collection and preparation of groundwater, geology, and soils elements .
Rich Hall Parsons	B.S. Environmental Biology, M.S. Zoology, 29 years of experience in environmental assessment and impact studies, biological community investigations and ecosystem restoration.	Principal Environmental Scientist, technical review, editing, and quality assurance of environmental impact statement.
Mike Kulik Parsons	B.S. Environmental Biology, M.S. Environmental Science, Masters of Public Affairs, LEED AP®. 8 years experience in biological surveys and hazardous materials assessment and remediation.	Environmental Scientist/Biologist; key participant in data collection, environmental impact analysis, and preparation of the environmental impact statement.
Janet Lewandowski Parsons	A.A.S., Technical Illustration, 28 years of experience in AutoCad and MicroStation, 8 years experience in ArcView and 5 years experience in ArcGIS.	CAD/GIS Specialist responsible for generating graphics and maps.
Darren Mitchell Parsons	B.S. Biology; M.S. Biology; 9 years experience in fish and wildlife biology and management, and aquatic entomology and ecology.	Environmental Scientist/Biologist; data collection, analysis and key participant in preparation of environmental impact statement text and supporting sections.

Name	Education and Experience	Primary Responsibilities
Amanda Molsberry	B.A. Geography; M.S. Environmental Science and Policy. 9 years experience in conservation design, environmental planning, and socioeconomic analysis.	Scientist/Economist, socioeconomic and relocation analysis and key participant in preparation of GIS figures for the Purple Alternative.
Randy Norris Parsons	B.S. Plant and Soil Science; Master of Urban Planning/Environmental Planning; 20 years experience in environmental impact assessment, environmental management and planning.	Environmental Planner/Scientist; technical review, data collection, assisted in land use, noise, hazardous/toxic materials, and alternatives analysis.
Anthony Pakeltis Parsons	B.S. Environmental Design; B.U.P. Urban Planning and Development; MUPP Urban Planning and Policy (Transportation); 19 years experience in environmental assessment and impact studies, including air quality, noise, socioeconomic, and traffic analysis.	Air Quality and Noise Analyst; reviewed air quality and noise analysis results for the Draft EIS.
Rebecca Porath Parsons	B.S. Fisheries and Wildlife Management; M.S. Zoology; Certified Wildlife Biologist®. 15 years experience in plant and wildlife surveys and management, ecological restoration, and environmental impact assessment.	Environmental Scientist/Biologist; data analysis and assisted in preparation and formatting of the EIS.
Molly Salmieri	B.S. Community and Regional Planning. M.B.A. 12 years experience in environmental impact assessment and planning.	Planner; key participant in data collection, environmental impact analysis, and preparation of the EIS.
Matt Schulte Parsons	B.A. English Lit & Writing; M.S. Geographical Studies, emphasis in Spatial analysis and Geo-Information Technologies, Thesis only - in progress; 17 years experience in GIS and Environmental Planning.	GIS Analyst/Planner; coordinated GIS data acquisition and processing, checked data accuracy and consistency, and produced maps for various project uses.
Tim Selover Parsons	B.S.C.E., Civil Engineering; Certificate, Metropolitan Planning & Development; M.B.A. Business Administration; 13 years experience in environmental assessment and impact studies, including air quality and noise analysis.	Air Quality and Noise Analyst; responsible for air quality and noise data collection and analysis, prepared air quality and noise sections of environmental impact statement for the Draft EIS.

Name	Education and Experience	Primary Responsibilities
Enid Staten Parsons	B.S. Biology; Master of Environmental Management; 7 years of experience environmental impact assessment, environmental management and planning.	Environmental Scientist/Biologist, assisted in coordination of public meetings, and participant in preparation of environmental impact statement text and supporting sections for the Draft EIS.

APPENDIX A – SDEIS PUBLIC HEARING SUMMARY AND RESPONSE TO COMMENTS RECEIVED DURING THE FORMAL SDEIS PUBLIC REVIEW PERIOD

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This Appendix A contains details regarding agency coordination and public involvement that occurred during the public review period for the August 2010 River Valley Intermodal Facilities Supplemental Draft Environmental Impact Statement (SDEIS). Section A.1 contains a summary of the SDEIS Public Hearing that was held on September 16, 2010. Section A.2 contains a summary of the comments and letters received during the official public review period for the SDEIS and includes FHWA's official response to those comments. Section A.3 contains copies of each of the letters and comment cards received during the official public review period for the SDEIS.

Earlier agency coordination and public involvement efforts for this project were documented and summarized in Appendix A of both the March 2006 DEIS and August 2010 SDEIS. Initial coordination was conducted for the project at the beginning of the EIS process to obtain comments and concerns from Federal, State, and local planning/resource management agencies, Native American Nations/Tribes, and private groups. In addition, an agency coordination meeting was held on January 26, 2005. Public involvement meetings were held on March 15, 2005, starting with a public officials meeting followed by a general public involvement open house presentation. Responses to the initial coordination process and comments received following the March 15, 2005 public involvement meetings were documented in the March 2006 DEIS. Copies of letters and comments received during the initial coordination and early public involvement meetings were also contained in the March 2006 DEIS.

A public hearing was held on April 18, 2006 to allow the general public to comment on the impacts discussed in the March 2006 DEIS. Appendix A of the August 2010 SDEIS contained a summary of comments and an FHWA response to comments received during the formal DEIS public review period. Copies of the original comment cards and letters associated with the public review of the March 2006 DEIS were also included in Appendix A of the August 2010 SDEIS.

A.1 SDEIS PUBLIC HEARING SUMMARY

A public hearing was held on September 16, 2010 to allow the general public to comment on the impacts discussed in the August 2010 SDEIS and other concerns they had regarding this proposed project. The public hearing was held at the London Elementary Multi-Purpose Building at 154 School Street, London, Arkansas. A total of 31 persons signed in at the public hearing. Copies of the original hearing sign-in sheets are contained on the following pages.

A handout that contained a description of the project purpose and need; maps and descriptions of the alternatives being considered in the SDEIS; a summary of pertinent information about the subject project, including the potential project benefits and adverse effects; and a blank comment card was distributed at the public hearing. An informational slide presentation was given to provide an overview of the project, the current status of the project, and general guidelines on the format of the public hearing process. Several poster boards were available for viewing that showed additional project details and maps of the various alternatives being considered. A court reporter was present and a comment card depository was available to allow further public input on issues pertaining to the proposed project and information contained in the SDEIS.

Project Name: River Valley Intermodal Facilities EIS

PARSONS

Project Number: 744286-10000

Date: September 16, 2010

Meeting Type: Public Hearing

Name (Please Print)	Address and Organization (if applicable)	Email (optional)
Jim Ellis	USACOE, Little Rock Dist.	jim.d.ellis@usace.army.mil
Kevin Abal	Parsons	
Luke Eggering	Parsons	luke.eggering@parsons.com
Tami Chandler	Russellville Schools	+
Steve Chaulker	112 London Cove Dr London AR	cchandel@entergy.com
Chas. Halbert	Intermodal Board	chas.halbert@suddenlink.com
Gerhard LANGGUTH	Citizen witness	intermodal@gerhardlangguth.org
EARL SANDERSON	149 CR 1790 - London, AR 72847	
Wayne Brenda Warner	1180 CR 1660 Knoxville	wayne038@centurytel.net
Joe Mullens	250 S. Enid Russellville, AR 72801	bmullens@cei.net

Sign-in Sheet 1
River Valley Intermodal Facilities SDEIS - Public Hearing

Name (Please Print)	Address and Organization (if applicable)	Email (optional)
Matt Duffield		
Madelyn Ginsberg	Pope County Quorum Ct	madelynginsberg@suddenlink.net
Mike Ginsberg	DP Engineering, Ltd.	
Sid Brin	RURIFA	
Gene Higginbotham	Congressman Mike Ross	gene.higginbotham@usil.house.gov
Jerry Gardner	1320 CR 1631 Knox TN	
Tonia K. Ray	(Court Reporter) 2345 West 4th, RSVI, AR 72801	toniaray@suddenlink.net
Randal Looney	FHWA	vandal.looney@dot.gov
Tommy & Nora Hunt	415 Green St Dardanelle	CDITCH@yahoo.com
VIEWING		
Roy Reaves	1601 Center Valley Rd. - Rsvi, on River Valley Intermodal Facility	rreaves@mylibertybank.com
Carley Mc	City of Dardanelle	@Mcgee@dardanelle.com

Sign-in Sheet 2
River Valley Intermodal Facilities SDEIS - Public Hearing

Name (Please Print)	Address and Organization (if applicable)	Email (optional)
Don Nichols	AHT D	don.nichols@arkansashighways.com
Dennis Ward		
Jan Sahly	981 CR 1660	RVOP @ centittl.net
Becky Reeves	1601 Center Valley Rd, RSVL	rebecca.joyce98@hotmail.com
JIM WOOD	Yell County Wildlife Fed 56 DELAWARE Bay Rd, Dardanelle	
Doyle McEntyre	City of Dardanelle	—
LINDA Stumpff	Russellville School	
Yamete Hale	Popo B. Conservation District	
Sharon France	JP # 11	

Sign-in Sheet 3
River Valley Intermodal Facilities SDEIS – Public Hearing

A.2 SUMMARY OF COMMENTS AND RESPONSES TO COMMENTS RECEIVED DURING THE FORMAL SDEIS PUBLIC REVIEW PERIOD

Summaries of the comments received during the formal SDEIS public review period are included in subsections A.2.1 through A.2.4 below, followed by the FHWA response to each comment. Copies of the original comment cards and letters from which those summarized comments originated are contained in subsection A.3 of this appendix.

Overall there were 73 letters, comment cards, or emails received from public citizens and 13 local, state, and federal agency letters received during the formal public review period of the SDEIS, including those collected at the SDEIS public hearing. Therefore, a total of 86 citizens and agencies commented.

The following citizens and agencies sent letters containing their comments:

- Mr. Craig Weeks, U.S. Environmental Protection Agency, Region 6
- Ms. Myra G. Diaz, U.S. Department of Homeland Security, Federal Emergency Management Agency, Region VI, Mitigation Division
- Mr. Willie R. Taylor, U.S. Department of the Interior, Office of Environmental Policy and Compliance
- Ms. Francis McSwain, Arkansas Historic Preservation Program, The Department of Arkansas Heritage
- Mr. J. Randy Young, Arkansas Natural Resources Commission Technical Review Committee
- Mr. John Turner, Program Coordinator Arkansas Natural Resources Commission
- Arkansas Forestry Commission
- Mr. William Prior, Arkansas Geological Survey
- Mr. Craig K Uyeda, Arkansas Game and Fish Commission
- Mr. Bill Smith, City of Dardanelle, Floodplain Administrator
- Ms. Jeanette Hale, Pope County Conservation District and Floodplain Administrator
- Ms. Gloria Craig, Yell County Historical & Genealogical Association
- Mr. Jim Wood, Yell County Wildlife Federation and City of Dardanelle
- Mr. Paul Latture, Little Rock Port Authority
- Mr. Thomas C. Hunt
- Mr. Richard H. Mays
- Mr. Doyle McEnyre, City of Dardanelle Alderman
- Mr. Bobby L. Day, Russellville Regional Airport, Airport Manager

The following citizens commented via comment cards or e-mail:

- Ms. Ann Beavers
- Mr. Horace Beaver
- Mr. Charles Blachard
- Mr. Jim Bradley
- Mr. Sid Brain
- Mr. Dale Brown
- Ms. Nancy M. Canerday
- Ms. Amy Carpenter
- Mr. Kole Carpenter
- Ms. Brooke Chandler
- Mr. Tommy Chandler and Ms. Rita Chandler
- Mr. Richard Downes
- Mr. Jerry Duvall
- Mr. Lonnie Duvall
- Mr. Bill Eaton
- Ms. Sharron Eaton
- Ms. Becky Ellison
- Ms. Pam Ennis
- Mr. Jason Epperson
- Mr. David A. Freeman
- Ms. Donna Freeman
- Mr. Marvin Gerlach
- Mr. Jim Ed Gibson
- Mr. Sidney Gray
- Ms. Suzy Griffin
- Mr. Benny Harris
- Ms. Lavern Harris
- Ms. Debbie Hernandez
- Mr. Gerald Hook
- Ms. Rebecca Hopkins
- Mr. Marcus Huggard
- Mr. Paul Hull
- Mr. Kurt Jones
- Mr. Robert L. Laster
- Mr. Allen Laws
- Mr. Mike McCoy
- Ms. Laura McGuire
- Ms. Rhonda McKown
- Mr. Danny Minks
- Ms. Lisa M. Mize
- Mr. Johnny Morgan
- Ms. Debbie Motley
- Ms. Delores L. Motley
- Mr. Bert Mullens
- Mr. Charles W. Oates
- Ms. Stacy Pack
- Mr. Tommy Parker
- Mr. Jeff Pipkin
- Ms. Pamela Randle
- Ms. Rebecca Reaves
- Mr. Roy Reaves
- Ms. Joan Sadler
- Mr. Elner Shannon
- Mr. Bill Sorrells
- Mr. Steven Sparks
- Ms. Carmen Stump
- Ms. Fern Tucker
- Mr. Norman Watson
- Mr. Chad Wisler

- Ms. Hilda Wesley
- Ms. Hilery Wesley
- Mr. Matt White
- Ms. Annette Whittenburg
- Ms. Karen Whittenburg
- Mr. Robert D. Wiley
- Mr. Jared Wood
- Mr. Jeff Wright

Of the 86 individuals and agencies that commented, 73 supported the project and 4 were opposed to the project. Of those indicating support for the project, 67 expressed support for the Green Alternative, one supported the Red Alternative, and none expressed support for the Purple Alternative. Table A.1 contains a summary of the comments related to project support and what alternative those that supported the project selected as their preferred alternative.

Table A.1. Summary of Comments Related to Project Support and Alternatives.						
Project Support			Alternative Preferred by Those Supporting Project			
Supported	Opposed	No Preference	Green Alternative	Red Alternative	Purple Alternative	No Preference
73	4	8	67	1	0	5
<i>Source: Parsons, 2010</i>						

A.2.1 Federal Agencies

Mr. Craig Weeks, Acting Chief

U.S. Environmental Protection Agency

Region 6 Office, Office of Planning and Coordination (6EN-XP)

SUMMARY

“EPA rates the DEIS as “LO,” i.e., EPA has “Lack of Objections” to the proposed action as described in the SDEIS. However, we have enclosed some general comments for your consideration which we believe would strengthen the Supplemental Final EIS (SFEIS).”

RESPONSE

The EPA comments regarding the LO rating are noted. Reviewer’s comments have been evaluated; no change to the document is necessary.

SUMMARY

“Summary EJ Assessment: ...The SDEIS carefully analyzed the three alternate sites and the “No Action” Alternative, and it appears that environmental justice (EJ) considerations were taken into account in all the analyses and determinations. There is no indication in this SDEIS that low-income or minority communities would be impacted in a disproportionate or adverse manner as a result of the construction or maintenance of this project.”

RESPONSE

The EPA comments regarding Environmental Justice are noted. Reviewer’s comments have been evaluated; no change to the document is necessary.

SUMMARY

“EJ Implications: ...Mitigation measures are clearly laid out. Homeowners would receive replacement value for their properties, and although it is unfortunate that the residents would have to move, the whole region will benefit financially and the residents will be provided new homes if this project goes forward. There will be no disproportionate and adverse impact suffered by the low-income or minority residents impacted by this project as described in this SDEIS.”

RESPONSE

The EPA comments regarding Environmental Justice are noted. Reviewer’s comments have been evaluated; no change to the document is necessary.

SUMMARY

“one additional tribal nation should have been afforded an opportunity for consultation. The Wichita and Affiliated Tribes (Wichita Proper, Waco, Keechi, and Tawakoni) have occupied parts of western Arkansas and Eastern Oklahoma for many years prior to European contact. The Wichita people have also raised the issue of Spiro Mounds in eastern Oklahoma being related to the Keechi. Spiro is located east of the project area but still within the range of any aboriginal people living in the area. It seems the Arkansas SHPO should have advised the writers of the SDEIS to consult with the Wichita as well.

It appears that all other aspects of the consultation by the group is satisfactory...The SDEIS writers’ efforts have been satisfactory up to the date of the EIS.

...It appears that proper steps have been put in place to ensure that Tribal concerns are addressed in accordance with NEPA.”

RESPONSE

According to George McCluskey, Senior Archeologist and Section 106 Review Coordinator at the Arkansas Historic Preservation Program, the Wichita and Affiliated Tribes have only been concerned with the Fort Smith area. According to Mr. McCluskey, the Wichita may have had a larger presence in western Arkansas, but they have never expressed an interest to the SHPO for other areas in the state. The SHPO has no knowledge that they were ever in the Russellville area. Therefore, FHWA is relying on the SHPO's recommendation unless other tribes request to enter into consultation on the project.

Ms. Mayra G. Diaz, Natural Hazards Program Specialist
U.S. Department of Homeland Security, Federal Emergency Management Agency
Region VI, Mitigation Division

SUMMARY

We request that the counties floodplain administrators be contacted for the review and possible permit requirements for this project.

RESPONSE

The FEMA comments are noted. The SDEIS was sent to Mr. Bill Smith, Floodplain Administrator, City of Dardanelle and Ms. Jeanette Hale, CFM, Pope County Conservation District & Floodplain Administration. Their response letters are included in this appendix below.

Mr. Willie R. Taylor
U.S. Department of the Interior
Office of Environmental Policy and Compliance

SUMMARY

"The Department would concur with the determination by the Federal Highway Administration (FHWA) and the Arkansas Highway and Transportation Department (AHTD) that there are no properties eligible to be considered under Section 4(f) of the Department of Transportation Act of 1966 (48 U.S.C. 1653(f)) in the project area."

"...should the FHWA and the AHTD become aware of eligible properties as the study progresses, an evaluation will then be prepared."

RESPONSE

The U.S. Department of the Interior comment acknowledging that no Section 4(f) properties occur in the project area is noted. Reviewer's comments have been evaluated; no change to the document is necessary.

Should the status of any of the properties change to a status that makes them potentially eligible to be considered Section 4(f) properties, FHWA will prepare a Section 4(f) Evaluation and submit it to the U.S. Department of the Interior for review.

A.2.2 State Agencies

Ms. Francis McSwain

Arkansas Historic Preservation Program, Department of Arkansas Heritage

SUMMARY

“No preferred alternative is specifically identified in the EIS (although it seems apparent that either the North Dardanelle (Red) or the Russellville Bottoms (Green) are preferred) and the no action alternative did not receive serious consideration.”

RESPONSE

The preferred alternative will be presented in the final EIS and ROD, and the no action alternative was fully evaluated in the DEIS and SDEIS.

SUMMARY

“Most of the alternatives discussed have not been investigated for the presence of cultural resources, which makes comparison of the possible impacts of the alternatives difficult.”

RESPONSE

FHWA directed that cultural resources studies be conducted for the Red, Green, and Purple Alternatives and include the data from those surveys in the SDEIS. A lack of landowner ingress permission limited the amount of surveys possible for the purple alternative.

SUMMARY

“No archeologist participated in compiling the EIS, with the result that the potential commitment of time and resources for cultural resources investigations have been grossly understated. For example, at the Red and Green alternatives, the cost of test excavations alone could easily approach one million dollars and the cost of data recovery excavations could approach one million dollars per site.”

RESPONSE

Two Parsons cultural resources specialists with 10 years and 34 years of nationwide experience (including in Arkansas) prepared the cultural resources sections of the SDEIS. These specialists were inadvertently left out of the “List of Preparers.” They will be added to the “List of Preparers” for the Final Supplemental EIS. In addition, Mid-Continental Research Associates (MCRA) prepared the cultural report for the DEIS covering the Red and Green Alternatives, and Panamerican Consultants completed the

cultural report for the Purple Alternative. Parsons cultural staff summarized the results in the SDEIS. Cultural resources data was compiled from archaeological and architectural surveys, and Native American consultation conducted by qualified cultural resources subcontractors with project personnel that met or exceeded the Secretary of the Interior's Qualification Standards.

Costs are always subjective and may increase or decrease based on the extent of the archaeological deposits recovered during Phase II test excavations. The estimates for the Phase II testing were developed in coordination with Panamerican Consultants and reviewed by Parsons cultural resources staff. The SDEIS discussed the general unknown nature of the sites. Subsequent Phase II cultural surveys completed in 2011 and 2012 override the general concern expressed by the commenter.

Phase II Cultural Surveys were completed in 2011-2012 by Panamerican Consultants. Based upon the 2011-12 Phase II surveys, there are 7 NRHP-eligible archaeological sites located within the Green Alternative. Additional cultural resources Phase II investigations would be required for the 20 archeological sites that have not been evaluated to date. The 20 unevaluated sites would be tested to determine NRHP eligibility in accordance with the approved Programmatic Agreement (PA) that was developed for the FEIS. The SHPO has concurred with the PA and a copy of the approved PA and associated Work Plan are contained in Appendix C of the FEIS. The unevaluated sites are considered potentially eligible for the NRHP, pending further Phase II testing. The NRHP sites would be protected or mitigated in accordance with the procedures outlined in the approved PA. Such steps would include, but not be limited to, avoiding NRHP-eligible resources through project redesign, minimizing impacts if avoidance is not possible, and mitigating impacts to all NRHP-eligible sites that would be partially or entirely affected by the project, through the implementation of Phase III data recovery efforts. Please see the impacts summary for more detailed information on cultural resources.

Mr. J. Randy Young
Arkansas Natural Resources Commission
Technical Review Committee

SUMMARY

"The committee supports this project."

RESPONSE

FHWA has noted the support of the Arkansas Natural Resources Commission Technical Review Committee.

Mr. John Turner, Program Coordinator
Arkansas Natural Resources Commission

SUMMARY

No comments

RESPONSE

FHWA has noted Mr. Turner's review, and no response is necessary.

Arkansas Forestry Commission

SUMMARY

No comments

RESPONSE

FHWA has noted the Arkansas Forestry Commission's review, and no response is necessary.

William Prior

Arkansas Geological Survey

SUMMARY

Support. No comments.

RESPONSE

FHWA has noted the Arkansas Geological Survey's support, and no response is necessary.

Craig K. Uyeda

Arkansas Game and Fish Commission

SUMMARY

"Biologists from our agency have reviewed the River Valley Draft Supplemental Draft Environmental Impact Statement and recommend the proposed Green Alternative. This Alternative appears to lessen impacts to the shoreline of the Arkansas River and fish and wildlife resources."

RESPONSE

FHWA has noted the Arkansas Game and Fish Commission's support for the Green Alternative, and no response is necessary.

A.2.3 Local Agencies/Organizations

Mr. Bill Smith

City of Dardanelle Floodplain Administrator

SUMMARY

There is a discrepancy between the base flood elevations (BFE) for the city of Dardanelle on the Pope and Yale Counties' FIRMs.

Part of the study area is along the Dardanelle Levee System. In a letter to the chairman of the Carden Bottoms and Dardanelle Drainage Districts, Dated February 4, 1993, these levees were deemed unacceptable. In one instance, a portion of the levee had been restored to natural ground level. Was this taken into account when the floodplain analysis was conducted?

Any rise to the BFE will affect all areas within the floodplains of the areas between Dardanelle Lock and Dam and Morrilton Lock and Dam.

Historically, Dardanelle's flooding has been caused by a reduction of flood storage capacity in Smiley Bayou when the river level rises. Any increases to the BFE by the removal of 700 plus acres of floodplain would only serve to enhance flooding in Dardanelle. I feel that in the very least the area of study should have included the entire city of Dardanelle and the areas south of town up to and including where the bayou drains into the Arkansas River.

RESPONSE

There are differences in the base flood elevations for adjacent areas along the Arkansas River where the Yell County and Pope County Flood Insurance Rate Maps (FIRM) meet. The FIRM update for Yell County, effective in March 2002, based its mapping information along the Arkansas River through the project area based on the original study of the City of Dardanelle. It included analyses for the Arkansas River and Smiley Bayou, which were performed by the U.S. Army Corps of Engineers (USACE), Little Rock District, in 1969." The Pope County FIRM update, effective March 2010, used this information as well; however, Pope County also incorporated the more current "U.S. Department of the Army, Corps of Engineers, Restudy of Arkansas River: Navigation Pool 9 and Dardanelle Reservoir, 1986 (unpublished)." These models and hydrology for the 1% annual chance flood event have been approved by the USACE Southwestern Division. In addition, FEMA approved all of the models when requested by the National Flood Insurance Program participating communities. The base flood elevations differ due to changes in the channel geometry, more detailed topographic information, and the development of more accurate computer modeling software and data.

The Federal Highway Administration noted that the United States Geological Survey (USGS) actively maintains a gauge at the Highway 7 Bridge. The USGS fact sheet states that the flow (Q100) for the 1% annual chance flood event is 696,000 cubic feet per second (cfs). The USGS Q100 data was most likely developed prior to any major upstream flood control projects in Oklahoma being constructed as it compares favorably to USACE's 1960 unregulated Q100 of 760,000 cfs and USACE's 1972 unregulated Q100 of 700,000 cfs. The USACE Flood Plain Analysis Report in this EIS indicates that the Q100 is 485,000 cfs. This is consistent with the Pope County FIRM update of 2010.

The elevations from the Yell County FIRM should not be compared, because it is not based on the best and most recent information.

The base flood elevation of 321.98 feet at mile 202.09 is the elevation for existing conditions. This elevation does not include either the Red or Green alternatives. With the Red and Green alternatives, the Floodplain Analysis Report shows that the base flood elevations are raised by 0.06 feet and 0.03 feet respectively.

The “Notes to Users” portion of the March 4, 2002 FIRM map states, “Users should be aware the Base Flood Elevations shown on the FIRM represent rounded whole-foot elevations. These Base Flood Elevations are intended for flood insurance rating purposes only and should not be used as sole source of flood elevation information.” The USACE elevation measurements in the Floodplain Analysis Report are more accurate than those provided on FIRM maps and use the latest floodplain data and modeling. FHWA hydraulic engineers have reviewed the USACE Report and HEC-RAS modeling. The Flood Plain Analysis Report mapping is based on Light Detection and Ranging (LiDAR) information generated in 2000-2001, using a contour interval of 2 feet (precision ± 1 foot).

Ms. Jeanette Hale, CFM
Pope County Conservation District & Floodplain Administration

SUMMARY

“I have reviewed the various alternatives in the proposed Russellville Intermodal facility. Various alternatives in this project do impact floodplains. It appears that none of the area (green or red alternatives) are located within a “floodway.” They are located in zones AE and/or in A, so they do require a floodplain development permit from the County. It is important that the cumulative increases in flood levels be maintained for whichever alternative is chosen. Permits may be required for specific aspects of the project, for example, buildings, fill, road, etc.”

RESPONSE

FHWA has noted the Pope County Conservation District & Floodplain Administration comments related to floodplains and permits. Permits will be obtained as required.

Ms. Gloria Craig
Yell County Historical & Genealogical Association

SUMMARY

“Intensive research of these sites [Red and Green Alternatives] have been undertaken by AR Tech U, Dr. Skip Abernathy and others over the years, and reveal the richest treasure of early Indian occupation between Little Rock and Ft. Smith. Cherokee, and a mixture of other Native American tribes, have occupied this floodplain adjacent to the Trail of Tears, now a historical landmark. Many current residents of Yell and Pope County descend in some measure from these tribes and place great value on preserving their cultural heritage. The SDEIS fails the sufficiency test of site-specific grading these sites or considering alternatives that would avoid their destruction.”

RESPONSE

In the SDEIS, the locations of each of the NRHP-eligible archaeological sites as identified from cultural resources investigations were compared to the boundaries of the Red and Green Alternatives. A detailed spreadsheet for all archaeological sites within the Red/Green Alternatives, including information on site type and NRHP eligibility was prepared for internal impact analysis. Adverse effects under Section 106 /significant impacts under NEPA were identified for the two alternatives in the document, and mitigation measures were presented for each alternative. Site locations were not provided in the SDEIS in accordance with Section 304 of the National Historic Preservation Act (protection of archaeological site locations).

Phase II Cultural Surveys were completed in 2011-2012 by Panamerican Consultants. Based upon the 2011-12 Phase II surveys, there are 7 NRHP-eligible archaeological sites located within the Green Alternative. Additional cultural resources Phase II investigations would be required for the 20 archeological sites that have not been evaluated to date. The 20 unevaluated sites would be tested to determine NRHP eligibility in accordance with the approved Programmatic Agreement (PA) that was developed for the FEIS. The SHPO has concurred with the PA and a copy of the approved PA and associated Work Plan are contained in Appendix C of this FEIS. The unevaluated sites are considered potentially eligible for the NRHP, pending further Phase II testing. The NRHP sites would be protected or mitigated in accordance with the procedures outlined in the approved PA. Such steps would include, but not be limited to, avoiding NRHP-eligible resources through project redesign, minimizing impacts if avoidance is not possible, and mitigating impacts to all NRHP-eligible sites that would be partially or entirely affected by the project, through the implementation of Phase III data recovery efforts. Please see the impacts summary for more detailed information on cultural resources.

SUMMARY

“Many of these sites apparently qualify for protection under the National Historic Preservation Act for they meet Criteria A: B: C: and D: 4.16.1 Affected Environment, page 324.”

RESPONSE

Some archaeological sites located within the boundaries of the Red and Green Alternatives are considered eligible for the National Register of Historic Places (NRHP) under Criterion D. Because these sites are NRHP-eligible, Section 106 of the National Historic Preservation Act dictates the process for identification and resolution of any adverse effects.

Phase II Cultural Surveys were completed in 2011-2012 by Panamerican Consultants. Based upon the 2011-12 Phase II surveys, there are 7 NRHP-eligible archaeological sites located within the Green Alternative. Additional cultural resources Phase II investigations would be required for the 20 archeological sites that have not been

evaluated to date. The 20 unevaluated sites would be tested to determine NRHP eligibility in accordance with the approved Programmatic Agreement (PA) that was developed for the FEIS. The SHPO has concurred with the PA and a copy of the approved PA and associated Work Plan are contained in Appendix C of the FEIS. The unevaluated sites are considered potentially eligible for the NRHP, pending further Phase II testing. The NRHP sites would be protected or mitigated in accordance with the procedures outlined in the approved PA. Such steps would include, but not be limited to, avoiding NRHP-eligible resources through project redesign, minimizing impacts if avoidance is not possible, and mitigating impacts to all NRHP-eligible sites that would be partially or entirely affected by the project, through the implementation of Phase III data recovery efforts. Please see the impacts summary for more detailed information on cultural resources.

SUMMARY

“Project sponsor, Parsons, FTN Associates, Corps of Engineers and FHWA have failed over the past 10 years to adequately evaluate and identify impacts the green/red alternatives present to Cultural Resources.”

RESPONSE

In the SDEIS, the locations of each of the NRHP-eligible archaeological sites as identified from cultural resources investigations were compared to the boundaries of the Red and Green Alternatives. A detailed spreadsheet for all archaeological sites within the Red/Green Alternatives, including information on site type and NRHP eligibility was prepared for internal impact analysis. Adverse effects under Section 106 /significant impacts under NEPA were identified for the two alternatives in the document, and mitigation measures were presented for each alternative. Site locations were not provided in the SDEIS in accordance with Section 304 of the National Historic Preservation Act (protection of archaeological site locations).

Phase II Archaeological Investigations occurred in 2011-2012 with the following conclusions for the Red and Green Alternatives:

Red Alternative

- Archaeological resources located in the Red Alternative include 7 NRHP-eligible archaeological sites, 39 sites that are not eligible, 2 unevaluated sites (access denied), and 1 destroyed site (Total =49).
- The locations of the 7 NRHP-eligible sites are primarily in the southern and southeastern portion of the Red Alternative which may provide options for avoidance of these sites through project redesign. Site 3PP740 is located in the middle of the Red Alternative parcel and avoidance may be problematic.
- The locations of the two unevaluated archaeological sites are at the southern boundary (site 3PP722) and in the north central portion (3PP743) which may provide options for avoidance of these sites through project redesign.

-
- Follow-on cultural resources investigations, as identified and executed in a Programmatic Agreement, will consist of Phase II testing of the 2 unevaluated sites and Phase III data recovery of 7-9 known NRHP-eligible sites (one or both of the unevaluated sites could be recommended as eligible after Phase II testing).

Green Alternative

- Archaeological resources located in the Green Alternative include 7 NRHP-eligible archaeological sites (in the overlap area with the Red Alternative), 45 sites that are not eligible, 20 unevaluated sites, and 1 destroyed site (Total =73).
- The locations of the eligible and unevaluated archaeological sites (7 NRHP-eligible and 20 unevaluated sites) are primarily in the central and southeastern portion of the Green Alternative (which reflects the lack of Phase II investigations in Sections 3 and 4).
- Based on the Phase II results and pending SHPO concurrence, follow-on cultural resources investigations, as identified and executed in a Programmatic Agreement, may consist of Phase II testing of the 20 unevaluated sites and Phase III data recovery of 7 known NRHP-eligible sites (some of the unevaluated sites could be recommended as eligible after Phase II testing and also require data recovery if avoidance through project redesign is not possible).
- Based upon the 2011-12 Phase II surveys, there are 7 NRHP-eligible archaeological sites located within the Green Alternative. Additional cultural resources Phase II investigations would be required for the 20 archeological sites that have not been evaluated to date. The 20 unevaluated sites would be tested to determine NRHP eligibility in accordance with the approved Programmatic Agreement (PA) that was developed for the FEIS. The SHPO has concurred with the PA and a copy of the approved PA and associated Work Plan are contained in Appendix C of the FEIS. The unevaluated sites are considered potentially eligible for the NRHP, pending further Phase II testing. The NRHP sites would be protected or mitigated in accordance with the procedures outlined in the approved PA. Such steps would include, but not be limited to, avoiding NRHP-eligible resources through project redesign, minimizing impacts if avoidance is not possible, and mitigating impacts to all NRHP-eligible sites that would be partially or entirely affected by the project, through the implementation of Phase III data recovery efforts.

SUMMARY

“The Alternative screening process is notably fabricated to disqualify Alternatives that would protect Cultural Resources.”

RESPONSE

Numerous potential Build Alternatives were analyzed during the alternatives development and public scoping processes, but they were later determined not to be reasonable due to various reasons including cost, environmental impacts, and ability to meet the purpose and need of the overall project. To date, no other reasonable alternative locations have been identified by the FHWA, AHTD, other agencies, or the

public within the six-county project study area that would allow for the construction of the full intermodal facilities. To meet the purpose and need of this project, a site would need to provide reasonable access to the National Highway System (NHS), railroad, and the Arkansas River. Locating sites with enough contiguous developable land located within a reasonable distance to all three modes of transportation was a limiting factor throughout much of the project area as was the cost to develop those alternative sites. Table 3.1 in the SDEIS lists the 14 screening criteria and rationale that were utilized to evaluate the various alternatives developed for the project and to determine which of the alternatives should be evaluated in detail in the SDEIS.

SUMMARY

“To correct this bias, our organization respectfully requests Independent External Peer Review of impacts the green and red alternatives present to archeological resources.”

RESPONSE

According to Section 2034 of the Water Resources Development Act, a USACE project must meet one of the mandatory criteria for IEPR. These criteria are:

- 1) total cost more than \$45 million;
- 2) Governor of Arkansas requests an IEPR;
- 3) Chief of Engineers determines project is controversial based on factors described in Paragraph (4) in Section 2034. A project study is controversial if:
 - a) there is a significant public dispute as to the size, nature, or effects of the project; or
 - b) there is a significant public dispute as to the economic or environmental costs or benefits of the project.

Mr. Jim Wood (9-22-2010 and 10-16-2010)
Yell County Wildlife Federation and City of Dardanelle

SUMMARY

From 9-22-2010 Letter:

“Yell County Wildlife Federation formally requests IEPR [Independent External Peer Review] be applied by a National Academy of Scientist Panel to issues of disputed environmental effects, including threats to community safety...”

From 10-16-2010 Letter:

Your response to our 4-24-06 request for Peer Review of USACE’s hydraulic modeling is, “USACE is the acknowledged expert to floodplain determination and is routinely responsible for such determinations,” fails to answer our challenge to accounting accuracy we consider mandated by 1502.24, Methodology and Scientific accuracy. Moreover, when a Lead Agency relies upon data provided by other Agencies or sources, the Lead Agency is responsible for assuring accuracy of such information in

order to provide “supporting evidence that the Agency has made the necessary environmental analysis” 1502.1. SDEIS fails to assure USACE accounting accuracy.

RESPONSE

Since “accounting accuracy” is not a technical term identified or specifically defined by 1502.24, it is not possible to develop a response to this portion of the comment. However, according to Section 2034 of the Water Resources Development Act (121 STAT.1086, PL 110-114), a project must meet one of the mandatory criteria for IEPR. These criteria are:

- 1) total cost more than \$45 million;
- 2) Governor of Arkansas requests an IEPR;
- 3) Chief of Engineers determines project is controversial based on factors describe in Paragraph (4) in Section 2034. A project study is controversial if:
 - a) there is a significant public dispute as to the size, nature, or effects of the project; or
 - b) there is a significant public dispute as to the economic or environmental costs or benefits of the project.

In addition, under Section 2034 (33 U.S.C 2343), discretionary IEPR may be considered by Chief of Engineer if the need of a Federal or state agency “...determines that the project is likely to have a significant impact on environmental, cultural, or other resources under the jurisdiction of the agency....” No Federal or state agency has requested an IEPR. The USACE is a cooperating agency on this project, and FHWA is the lead agency. FHWA hydraulic engineers have reviewed and approve the flood study for this project.

SUMMARY

From 9-22-2010 Letter:

“We find SDEIS fails to meet the Data Quality Act of 2000 Guidelines which mandate, “In those situations involving dissemination of influential scientific, financial, or statistical information, a high degree of transparency of data and methods must be ensured to facilitate the reproducibility of such information by qualified third parties.” We find the SDEIS Appendix B Floodplain Analysis Report fails this test and also seems to notably fail NEPA’s Sec. 102(2) to the fullest extent possible test.

From 10-16-2010 Letter:

The SDEIS continues to fail the NEPA Section 102(2)(C) sufficiency test to “determine the environmental impacts of the proposed action” on the entire floodway and presents a document largely repeating promotional type general statements and assumptions, absent a supporting accounting analysis, relying largely on little more than imagination. Although declared to be a “stand alone” SDEIS, it is absent a “hard look” that “rigorously explore and objectively evaluate all reasonable alternatives.” Objectivity of the NEPA process is destroyed by an Alternative screening process that, except for the new Lake Dardanelle Purple Alternative, fails to consider project locations that avoid base

floodplain encroachment and AR River Floodway functions that provide existing flood reduction benefits to the City of Dardanelle and Yell County property owners.”

RESPONSE

The quote above is not from the Data Quality Act of 2000 (*i.e.*, Section 515 of the Consolidations Appropriations Act, 2001). The quote comes from a DoD document titled, “Ensuring the Quality of Information Disseminated to the Public by the Department of Defense.” The purpose of this document is to “prescribe policy and procedures and assign responsibilities for ensuring and maximizing the quality (objectivity, utility, and integrity) of information (hereafter referred to as “quality standards”) disseminated to the public by the Department of Defense” and to “Issue guidelines that include administrative mechanisms for affected persons to seek and obtain correction of information maintained and disseminated to the public by Department of Defense Components that does not comply with the quality standards in these guidelines as based on the OMB guidelines (Federal Register, February 22, 2002, Volume 67, Number 36, page 8452).” The Floodplain Analysis Report was provided by the USACE and was produced using the most recent best data available.

The Floodplain Analysis Report is a stand-alone USACE document that was included as an Appendix to the SDEIS. It is not a NEPA document, and therefore, is not subject to Section 102(2) of NEPA. Information provided by the USACE in the Floodplain Analysis Report was used to analyze impacts to floodplains. All section of the SDEIS, including Section 4.13 – Floodplains, were written utilizing a systematic, interdisciplinary approach to insure the integrated use of the natural and social sciences.

SUMMARY

From 9-22-2010 Letter:

“...given the Federal Emergency Management Agency oversight policy to provide a leadership floodplain regulatory role at 44 CFR 60 and 40 CFR 1501.6 “jurisdiction by law” we reaffirm our previous request that FEMA be included as a Cooperating Agency in this NEPA process.”

RESPONSE

40 CFR 1501.6 states, “Upon request of the lead agency, any other Federal agency which has jurisdiction by law shall be a cooperating agency. In addition any other Federal agency which has special expertise with respect to any environmental issue, which should be addressed in the statement, may be a cooperating agency upon request of the lead agency.” The FHWA, being the lead agency, has not requested FEMA to be a cooperating agency. FEMA has been sent a coordination letter and a copy of the SDEIS; and their comments are included above and are addressed in the Final EIS.

SUMMARY

From 9-22-2010 Letter:

“Loss of flood storage function [to] the approximately 800 acres of the shared base floodplain presents to City of Dardanelle and Yell County portion of the floodway and floodplain, and potential such floodway encroachment presents to delineation of floodplain boundaries on the Dardanelle side of the river. Quantify using transparent, accurate accounting methods to site-specific, reveal proposed project impacts to FEMA Flood Insurance Rate Map and Special Flood Hazard Areas and Dardanelle’s Federal Flood Insurance Program.”

From 10-16-2010 Letter:

The SDEIS fails to map the entire affected AR River floodway for the proposed Red and Green alternatives, and thus lacks sufficiency in identifying the pre project existing baseline floodway situation essential to comparing alternatives. It fails to “succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration” (1502.15), and fails to rigorously analyze the sphere of potential floodway encroachment impacts to Dardanelle and Yell County. Appendix B is a brief listing of figures, but fails to “explain methodologies of research and modeling” (CEQ 40 FAQ’s).

RESPONSE

Floodplain impacts have been defined in the SDEIS utilizing the information provided by Floodplain Analysis Report. It is outside the scope of NEPA to discuss changes to FIRMs, aspects of the FIRMs, or the program that defines the FIRMs. The USACE has confirmed that the Floodplain Analysis Report utilizes the best and most recent floodplain analysis data and will supersede the elevation data presented in the current FIRM.

The SDEIS and Appendix B have described the impacts to the floodplain downstream to the extent where the increase in surface water elevation is zero. It is important to note that the Green Alternative would have 739 acres within a protective levee, and the Red Alternative would have approximately 691 acres within the intermodal facilities levee and not 800 acres. In addition excavation of the harbor will add a minor amount of flood storage capacity.

SUMMARY

From 9-22-2010 Letter:

“Locate, identify and grade each archaeological and Native American Cultural Resource site and impacts proposed alternatives present to each...”

From 10-16-2010 Letter:

“SDEIS provides no quantifiable or definitive mapping information as to the 49 referenced archeological sites in the Red Alternative or the 72 sites in the Green Alternative. Neither are nearby sites east of the two Alternatives mentioned although they are a connected part of New Hope Bottoms cultural resources. This lack of

definitive information notably fails 1500.01 Purpose that information must be available 'before decisions are made and before actions are taken.' ”

From 10-16-2010 Letter:

“Cultural Resources: Since early Indian settlement of this area (see Nov. '02 Intermodal Env. Assessment 3.5 Cultural Resources and Local History) the Red and Green Alternative sites have been well known rich Cultural and Archeological resources. Yet with an immense information base of site specific data for these two sites as declared by AR Archeological Survey, the SDEIS fails to provide a mapping of these resources. Environmental Consequences (1502.16), direct and indirect effects upon Cultural Resources, would be to destroy the “regional archeological record decreasing its overall research contribution.” Without Mitigation that avoids destruction of these Cultural Resources by expanding Alternatives considered to non floodplain locations.”

From 10-16-2010 Letter:

“Regarding Cultural Resource data, 1502.22(a) provides guidance that “if the information is not known and overall cost to obtain it is not exorbitant, the agency shall include the information in the EIS.” SDEIS has notably fabricated an alternative screening process that allows destruction of cultural resource sites. In the above referenced '02 EA Response to Comments, Dr. Skip Stewart-Abernathy from AR Archeological Survey ATU Station, alerted the Lead Agency about potential major impacts to archeological resources, yet the SDEIS continues to lack sufficiency in determining how these historically significant sites will be mitigated. Producing a Record of Decision absent this information is disallowed by NEPA.”

From 10-16-2010 Letter:

[Concerning Cultural Resources] “Mitigation is declared at SDEIS 4.16.2.2.4 to be labor intensive and costly. Therefore, in order to meet NEPA’s “before decisions are made or actions taken” test, to the fullest extent, cost to protect these resources must be subjected to a cost accounting analysis.”

RESPONSE

Cultural resources have been identified for the Red and Green Alternatives and have been documented in the cultural resources report that was reviewed by the SHPO and the subsequent Phase II Report that was completed in June 2012. Archaeological site locations are excluded from the SDEIS in accordance with Section 304 of the National Historic Preservation Act (NHPA) to protect the integrity of the archaeological deposits. Maps included by the commenter have been omitted from this document to ensure compliance with Section 304 of the NHPA. Additional archaeological survey will be conducted as needed for the Purple Alternative and consultation with the Arkansas SHPO is ongoing. Consultation with fourteen Native American groups to identify and protect sensitive Native American sites and traditional cultural properties (TCPs) was initiated, comments have been received and this coordination is also ongoing. A Programmatic Agreement will be prepared in consultation with the Arkansas SHPO and the Native American groups to mitigate any adverse effects to these important cultural

resources. Also, please see response to Yell County Historical & Genealogical Association above related to cultural resources.

SUMMARY

From 9-22-2010 Letter:

“Flood induced impacts to Dardanelle Bottoms and Holla Bend National Wildlife Refuge resulting from removing 800 acres of floodplain functions the Green and Red Alternatives present to historically unstable flood blowout areas of the shared floodplain...”

From 10-16-2010 Letter:

AR River at mile 200 is recognized by USACE as a historically unstable blow out area where flood events have produced catastrophic damage to farmlands, a situation that will likely be exacerbated by removing the project area’s 886 acres of base floodplain surge area. There is a notable failure to discuss how this levee and floodplain modification negatively or positively affects flood water levels at this unstable location, but is recognized by USACE at their EP 1165-2-1. The proposed Project poses threat to shift blowouts from major flood events down through Dardanelle Bottoms and through Holla Bend National Wildlife Refuge. SDEIS also fails to discuss the direct and indirect effects this situation presents to Environmental Consequences 1502.16. It appears that this situation qualifies as a “takings” Issue under US Constitution Amendment 5.

RESPONSE

Using the Floodplain Analysis Report provided by the USACE, the SDEIS has documented the expected floodplain impacts for each alternative downstream from the proposed action area until the increase in water surface elevation is zero (i.e., River Mile 198.22). The locations mentioned in the comment above are further downstream from River Mile 198.22. According to the USACE, no impacts two miles downstream would be anticipated. It is important to note that the Green Alternative would have 739 acres within a protective levee, and the Red Alternative would have approximately 691 acres within the intermodal facilities levee and not 800 acres. In addition excavation of the harbor will add a minor amount of flood storage capacity.

SUMMARY

From 9-22-2010 Letter:

“Provide a transparent economic benefit/cost analysis in specific accounting detail for each studied Alternative, sufficient to meet NEPA Section 102(2) to the fullest extent possible test. Methodology to grade the proposed projects worthwhile test must evaluate and compare cumulative long term local tax and sphere of economic benefits that would be traded off by forcing private riverside ports and regional transportation systems either out of business or to unfairly compete with non taxpaying subsidized project systems...”

From 10-16-2010 Letter:

“Failure to provide Economic Analysis: we disagree with FHWA’s response at page 1-

124 “NEPA regulations do not require a benefit/cost analysis” which we find contrary to 1508.8(b) Effects – “Effects and impacts as used in these regulations are synonymous.” Effects include – aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. How can you reasonably account for Economic effects without meeting Judge Wilson’s quantifiable definitive information requirement? FHWA avoids an Economic Analysis on a flawed misplaced argument based on 1502.23 option to exclude requiring b/c ratios for actions having a purpose and need solely on “qualitative” instead of quantifiable economics. SDEIS describes a proposed project whose purpose is based almost exclusively upon imaginary general statements of Economic benefits that fails to be based upon supporting definitive information and analysis. SDEIS also fails to provide a supporting qualitative analysis as to the Effects and Impacts loss of floodplain/floodway functions, resulting from the Green and Red Alternatives, presents to others who benefit from retaining these existing health and safety qualitative functions and benefits. Effects and Impacts accounting fails NEPA sufficiency test without a “definitive” Economic Analysis that includes b/c accounting.”

From 10-16-2010 Letter:

“Purpose and Need for the project at ES.2 is to “promote economic development by creating new jobs, specifically higher wage jobs, improve transportation capacity and competitiveness...” NEPA is a site-specific process. Other than broad imaginary general statements, SDEIS is notably absent an accounting analysis as to how Effects from converting the existing privately owned and operating transportation system to a taxpayer subsidized system meets the “worth-while” test? We view Judge Wilson’s Order that “general statements about potential effects” fails to provide a hard look at quantifying whether an Alternative meets the test of providing more benefits than cost, or does the action trade off more of both qualitative and quantitative benefits than is gained? We hold to our previous conclusion that the SDEIS continues the same flaw in the DEIS of basing Purpose and Need, not upon high quality supporting evidence of Need, but upon some broad imaginary opinion that Need will occur at some unknown future time. A better qualitative and quantitative transparent analysis must be provided to support Need.”

RESPONSE

Preparation of the DEIS relied on many sources and resources including, but not limited to the following: AHTD, Planning and Research Division. Intermodal Transportation Needs-Economic Development Study: Potential Benefits and of Regional Transportation Center and Manufacturing-Freight Consolidation/Distribution Complex, August 1998; Dr. Gregory Hamilton et al. Economic Feasibility and Debt Capacity of the Russellville River Port Project, September 2002; Dr. Heather Nachtmann, Economic Evaluation of the Impact of Waterways on the State of Arkansas, July 2002; AHTD - Arkansas State Public Riverport Study and Needs Assessment, March 2005; and AHTD -Arkansas Statewide Long-Range Intermodal Transportation Plan, May 2002 and 2007 Update. In addition, interviews were conducted in January 2010 with industry experts, port operators, and economic development professionals in the port industry to gain a local, regional, and national perspective of ports and intermodal facilities and to apply it to the SDEIS.

Data from these and other sources was the most recent best available data to use to compare the proposed Build Alternatives to the No Action Alternative. The details provided in Appendix C of the SDEIS (Community Impact Assessment Technical Memorandum) and in the indirect impacts analysis for the Red and Green Alternative concerning adverse impacts to private ports in Dardanelle do satisfy NEPA Section 102(2) requirements. Specific economic extrapolation or forecasting using existing data would be speculative in nature and could be misleading to the public.

SUMMARY

From 9-22-2010 Letter:

“...since the Corps of Engineers is a Cooperating Agency, we question as to whether provisions of the 2007 Water Resource Development Act Section 2034 Independent External Peer Review applies to the Corps Appendix B analysis, given that the project is highly controversial with City of Dardanelle and others who share affected floodplain functions? The SDEIS is declared to meet the NEPA test as a Stand Alone document?”

RESPONSE

According to Section 2034 of the Water Resources Development Act (121 STAT.1086, PL 110-114), a project must meet one of the mandatory criteria for IEPR. These criteria are:

- 1) total cost more than \$45 million;
- 2) Governor of Arkansas requests an IEPR;
- 3) Chief of Engineers determines project is controversial based on factors describe in Paragraph (4) in Section 2034. A project study is controversial if:
 - a) there is a significant public dispute as to the size, nature, or effects of the project; or
 - b) there is a significant public dispute as to the economic or environmental costs or benefits of the project.

In addition, under Section 2034 (33 U.S.C 2343), discretionary IEPR may be considered by Chief of Engineer if the need of a Federal or state agency “...determines that the project is likely to have a significant impact on environmental, cultural, or other resources under the jurisdiction of the agency.” No Federal or state agency has requested an IEPR. The USACE is a cooperating agency on this project and FHWA is the lead agency. FHWA hydraulic engineers have reviewed and approve the flood study for this project. The SDEIS was a stand-alone NEPA document.

SUMMARY

From 10-16-2010 Letter:

Regarding cumulative impacts, and SDEIS general lack of analysis to support conclusions, Judge Wilson's 16 August 04 Order provides guidance and states, "This inquiry requires some quantifiable or detailed information...general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." We believe this SDEIS continues to fail Judge Wilson's 8-16-04 Order upon which he justified his "permanent injunction pending completion of an EIS." The document continues the same DEIS flaw in its failure to analyze cumulative impacts and consider Dardanelle and Yell County portion of the floodplain as part of the Affected Environment, a data gathering function of FEMA's FIRM mapping periodic review process. Judge Wilson's Order further finds that "the various components of a project required a study of cumulative environmental impacts of the entire project," and we conclude the levee encircling 886 acres of this shared floodplain, and encroachment upon floodplain functions, is part of the "entire Project" and its sphere of influence upon Dardanelle and Yell County lacks definitive documentation in the SDEIS Appendix B?

RESPONSE

The tables provided by the USACE Little Rock District found in Appendix B (Floodplain Analysis) and in Section 4.13 of the SDEIS (Floodplains) provided quantified and detailed information on the increases in water surface elevation downstream from the proposed action area by River Mile until the increases in water surface elevation is zero. A detailed cumulative impact analysis was prepared. No past, present, or reasonably foreseeable future projects were identified that could produce significant cumulative adverse impacts to floodplains.

SUMMARY

From 10-16-2010 Letter:

SDEIS response to our 4-26-06 comments follows a pattern of summarizing and language modification instead of providing a definitive response specifically answering the issue, concern, or question we raised. The following at 4.(d) (4-26-04 comments) is an example: "DEIS calculates to levy off 2/3 of the floodplain at Nav Mile 202.09, take out 800 acres of flowage area, and 485,000 cfs only raises flood level 0.06 feet (less than an inch). This is scientifically impossible." We further quoted Corps calculating guidance at EP 1165-2-1, Chapter 13-6, b. and c. regarding how levees and floodplain modifications affect flood water levels. Your response is "The USACE floodplain analysis document can be found in Appendix B of the SDEIS" which does not answer the accuracy issue we raised. This method of response falls short of Judge Wilson's "definitive detailed information" requirement. And is further supporting evidence that SDEIS Appendix B calculations need Independent External Peer Review which we requested in the DEIS and now reaffirm.

RESPONSE

The Floodplain Analysis Report contains quantifiable data produced by the USACE Little Rock District. These data were generated by qualified hydrological engineers and are the most recent best available to date. Of the 886-acre Green Alternative, the proposed levee would encompass 739 acres of the existing floodplain. Of the 832-acre Red Alternative, the proposed levee would encompass 691 acres of the existing floodplain. The discharge of 485,000 cfs for a 100-year flood event was used for the study. The discharge encompasses the entire Arkansas River and not just the 739 acres or 691 acres of floodplain that would be levee protected.

SUMMARY

From 10-16-2010 Letter:

“With exception to the additional Purple Alternative, the SDEIS is little more than a restatement of the same February 2006 DEIS and flawed Alternative screening process fabricated to limit Alternatives to the Green and Red, which are so alike as to be the same proposed action. Moreover the SDEIS fails NEPA’s (1502.14) test of “providing a clear choice among options by the decision maker and public.” Verbose descriptions of the affected Pope County environment are themselves no measure of the adequacy of an environmental impact statement (1502.15) Affected Environment. SDEIS illegally narrows the Affected Environment to Pope County without a definitive analysis of the expanded sphere of influence the Red and Green Alternatives present to the shared floodplain situation. In addition to our largely unanswered 4-26-06 comments, we will clarify several reasons why this SDEIS continues to fail NEPA’s sufficiency test.”

RESPONSE

The FEIS will contain a preferred alternative which will satisfy the statement in Section 1502.14 of the NEPA which states, “...and providing a clear basis for choice among options by the decision-maker and the public...”

Section 1502.15 of the NEPA states, “The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues. Verbose descriptions of the affected environment are themselves no measure of the adequacy of an environmental impact statement.” Section 4.13 and Appendix B of SDEIS discussed the impacts to the floodplain two river miles beyond the extent of the Red and Green Alternative (i.e., to River Mile 198.22). The Floodplain Analysis Reports shows zero increase at this point in water surface elevation due to the proposed action.

SUMMARY

From 10-16-2010 Letter:

“Floodplain Impacts: 44 CFR 9 identifies a floodway as “that portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where the flood hazard is generally highest, where water depths and velocities are the greatest.” SDEIS 4.13.1 states, “The 100 year floodway was calculated – and then the proposed harbor was modeled within the floodway. The results showed the proposed harbor did not impact the 100 year flood elevation --.” SDEIS continues limiting base flood elevation impact modeling to using only the proposed harbor USACE data without considering consequence of the entire 886 acre encroachment, a notable disregard for Judge Wilson’s “environmental impacts of the entire project” requirement. The River separating Dardanelle from the Green and Red alternative areas clearly meets the “effective in carrying flow” test and both sides qualify as being part of the affected floodway environment. Does FHWA agree with this conclusion?”

RESPONSE

At the request of the USACE the text will be revised to read, “The 100 year *floodplain* was calculated...and then the proposed *intermodal facility* was modeled within the *floodplain*. The results showed the proposed *intermodal facility* did not impact the 100 year flood elevation....” Of the 886-acre encroachment for the Green Alternative, the proposed levee would encompass 739 acres of the existing floodplain. Of the 832-acre encroachment of the Red Alternative, the proposed levee would encompass 691 acres of the existing floodplain. In addition, excavation of the harbor will add a minor amount of flood storage capacity. The SDEIS does consider the consequence of the full encroachment of these alternatives on the floodplain.

SUMMARY

From 10-16-2010 Letter:

“SDEIS continues to avoid considering floodway impacts under a flawed claim that the project area does not have a regulated floodway. NEPA’s “to the fullest extent possible” test destroys such a claim, and requires that the floodway within the Red and Green alternatives sphere of influence are thresholds for decision and must be mapped and project encroachment upon floodway’s carrying capacity on both sides of the floodplain must be quantified for a base flood situation. Thus, SDEIS falls short of quantifying impacts to the Affected Environment.”

RESPONSE

The SDEIS states, “In the area of the proposed harbor (at the request of the USACE, “harbor” will be changed to “intermodal facility”), the Arkansas River does not have a designated 100-year floodway. This is a true statement. The SDEIS goes on to state, “To be consistent with EO 11988 and good floodplain management [44 CFR Section 60.3(c)], the proposed harbor cannot increase 100-year floodplain elevations by more than one foot. If this reach of the Arkansas River had a designated floodway, EO 11988

and 44 CFR would not allow the proposed harbor to increase 100-year floodway elevations at all.” This being stated, the impacts on the floodway would be nominal as discussed in Section 4.13 and Appendix B of the SDEIS.

All section of the SDEIS, including Section 4.13 – Floodplains, were written utilizing a systematic, interdisciplinary approach to insure the integrated use of the natural and social sciences.

SUMMARY

From 10-16-2010 Letter:

“FEMA revised on 3-4-02 FIRM mapping for City of Dardanelle base floodplain (100 year) adjacent to and opposite the proposed Red and Green Alternatives, as having an existing 320’ elevation, while SDEIS Appendix B analysis raises the existing elevation to 322’ for this same location? Thus, FEMA’s accounting for mile 202.09 is not 321.98’, but is 320’ causing your modeling to reveal that both Red/Green Alternatives will increase the base 100 year flood elevation more than two feet. Given that FHWA “uses the same methods as the FEMA flood insurance study” (SDEIS page 287) please clarify how using the same accounting methods FEMA produces an “existing” base flood elevation of 320’ and USACE 321.98’? This 1.98’ increase itself disqualify both Alternatives from meeting the one foot floodplain increase test of EO 11988. The SDEIS noticeably fails to consider the Issue of protecting the health and safety of City of Dardanelle and Yell County property owners. Thus we request Independent External Peer Review of the accounting methods FHWA is using to justify the Appendix B analysis.”

RESPONSE

Since “accounting accuracy” is not a technical term identified or specifically defined by 1502.24, it is not possible to develop a response to this portion of the comment.

There are differences in the base flood elevations for adjacent areas along the Arkansas River where the Yell County and Pope County Flood Insurance Rate Maps (FIRM) meet. The FIRM update for Yell County, effective in March 2002, based its mapping information along the Arkansas River through the project area based on the original study of the City of Dardanelle. It included analyses for the Arkansas River and Smiley Bayou, which were performed by the U.S. Army Corps of Engineers (USACE), Little Rock District, in 1969.” The Pope County FIRM update, effective March 2010, used this information as well; however, Pope County also incorporated the more current “U.S. Department of the Army, Corps of Engineers, Restudy of Arkansas River: Navigation Pool 9 and Dardanelle Reservoir, 1986 (unpublished).” These models and hydrology for the 1% annual chance flood event have been approved by the USACE Southwestern Division. In addition, FEMA approved all of the models when requested by the National Flood Insurance Program participating communities. The base flood elevations differ due to changes in the channel geometry, more detailed topographic information, and the development of more accurate computer modeling software and data.

The elevations from the Yell County FIRM should not be compared, because it is not based on the best and most recent information. The base flood elevation of 321.98 feet at mile 202.09 is the elevation for existing conditions. This elevation does not include either the Red or Green alternatives. With the Red and Green alternatives, the Floodplain Analysis Report shows that the base flood elevations are raised by 0.06 feet and 0.03 feet respectively.

The “Notes to Users” portion of the March 4, 2002 FIRM map states, “Users should be aware the Base Flood Elevations shown on the FIRM represent rounded whole-foot elevations. These Base Flood Elevations are intended for flood insurance rating purposes only and should not be used as sole source of flood elevation information.” The USACE elevation measurements in the Floodplain Analysis Report are more accurate than those provided on FIRM maps and use the latest floodplain data and modeling. FHWA hydraulic engineers have reviewed the USACE Report and HEC-RAS modeling.

SUMMARY

From 10-16-2010 Letter:

US Constitution Amendment 5 Takings Issue: The proposed Red and Green Alternatives clearly impacts to raise FEMA’s base floodplain delineation and FIRM mapping for City of Dardanelle. The Red and Green alternatives floodplain/floodway encroachment shifts impacts from major flood events over to Dardanelle property owners, and increase the number of homeowners required by lending institutions to purchase flood insurance as a condition of securing home loans. This situation raises a US Constitution “takings” Issue qualifying for SDEIS analysis under NEPA Sec. 102(2) and absolutely demands Independent External Peer Review to firm up accounting accuracy. Plain language (1502.8) and definitive information is absent as to why USACE’s Appendix B calculated existing base flood elevation is 2’ higher than FEMA’s FIRM mapped 320’ elevation. It is appropriate to point out that the Corps has a less than reliable record of accuracy in Pool 9 floodplain mapping. And it should be noted that the AR River Land Impact Study (January 1990) data, SDEIS now uses, was generated in response to successful private property flood damage lawsuits on AR River near Ft. Smith against USACE. It is also relevant to this proposed Project that in July ’09 the Federal Claims Court found that USACE had caused a \$7.3 million “takings” through a “super induced addition of water” upon Dave Donaldson Black River WMA. Flood or FIRM mapping impacts that the Red/Green alternatives shift over to Dardanelle appears to be a similar US Constitution “Takings” Issue that NEPA requires to be analyzed with definitive detailed information.

RESPONSE

There are differences in the base flood elevations for adjacent areas along the Arkansas River where the Yell County and Pope County Flood Insurance Rate Maps (FIRM) meet. The FIRM update for Yell County, effective in March 2002, based its mapping information along the Arkansas River through the project area based on the original study of the City of Dardanelle. It included analyses for the Arkansas River and

Smiley Bayou, which were performed by the U.S. Army Corps of Engineers (USACE), Little Rock District, in 1969.” The Pope County FIRM update, effective March 2010, used this information as well; however, Pope County also incorporated the more current “U.S. Department of the Army, Corps of Engineers, Restudy of Arkansas River: Navigation Pool 9 and Dardanelle Reservoir, 1986 (unpublished).” These models and hydrology for the 1% annual chance flood event have been approved by the USACE Southwestern Division. In addition, FEMA approved all of the models when requested by the National Flood Insurance Program participating communities. The base flood elevations differ due to changes in the channel geometry, more detailed topographic information, and the development of more accurate computer modeling software and data.

The elevations from the Yell County FIRM should not be compared, because it is not based on the best and most recent information.

The basis for this comment is rooted in the belief that the USACE Floodplain Analysis Report is inaccurate. The Floodplain Analysis Report was provided by the USACE and was produced using the most recent best data available. The FHWA hydraulic engineers have also reviewed the Floodplain Analysis Report and concur with the analysis and findings.

SUMMARY

From 10-16-2010 Letter:

Hydrologic/Hydraulic Analysis, Appendix B par 3: FHWA’s finding that USACE is the acknowledged expert in floodplain determination, is not supported by Yell County Wildlife Federation experience during our participation in the quoted January 1990 AR River Land Impact Study (ARLIS) for Pool 9/Rockefeller Lake from which you refer to at 3.1. Neither does your response meet NEPA’s “supporting evidence” test. This matter of disagreement is relevant to the SDEIS because FHWA relies upon ARLIS data that USACE themselves found in the 1990’s to be inaccurate. In May ’97 AR Attorney General Winston Bryant sued the Corps requesting a full EIS be developed to firm up accuracy of ARLIS hydraulic modeling. Midway of the \$33 million ARLIS flood impact/flowage easement project, USACE themselves found numerous errors in their HEC-RAS hydraulic modeling and chose to permanently terminate the project. The project area on Pool 9/Green and Red Alternative was the area of major hydraulic dispute. This disagreement alone reaffirms our conclusion that Appendix B USACE modeling be subjected to IEPR.

RESPONSE

The backwater models used in the ARLIS were developed using the LRD-1 computer model, and the results were approved by the United States Army Corps of Engineers Southwestern Division in 1986.

The statement that “Midway of the \$33 million ARLIS flood impact/flowage easement project, USACE themselves found numerous errors in their HEC-RAS hydraulic

modeling and chose to permanently terminate the project” is incorrect. ARLIS was completed and approved by the Southwestern Division. The Commander terminated the land acquisition for flowage easements phase of the project based on project expenditures to date and the projected project costs to continue the land acquisition phase.

According to the USACE, the backwater (USACE suggests that the term “backwater” be changed to “base flood elevations”) effects of the encroachments in the Red or Green alternatives will not extend very far downstream of the proposed levees in a subcritical flow regime. As shown in the SDEIS, both alternatives have no impact below River Mile 201. The Holla Bend Refuge, which is located below River Mile 200, should not see any rise in backwater or base flood elevation due to either alternative.

From examination of aerial photos there appear to be several spur dikes that extend perpendicular into the Arkansas River on both the west and east banks south of the Highway 7 Bridge all the way down to the Holla Bend Refuge. The effects, if any, of increased base flood elevations (backwater) on the ability of these river training dikes to function properly is discussed in the FEIS. The proposed project will have negligible impacts to the river training dikes in the area.

The basis for this comment is rooted in the belief that the USACE Floodplain Analysis Report is inaccurate. The Floodplain Analysis Report was provided by the USACE and was produced using the most recent best data available. The FHWA hydraulic engineers have also reviewed the Floodplain Analysis Report and concur with the analysis and findings.

Mr. Paul Latture
Little Rock Port Authority

SUMMARY

“I am providing comments because I am concerned that the proposed multimodal facility near Russellville would not be economically viable if the wrong site is selected.

As the long-term director of a major intermodal operation, there are two major issues that stand out to me as critical to the success of the proposed facility near Russellville.

The first of the biggest challenges will be establishing and operating a short-line rail. I understand that some of the alternatives would require start up of a new short-line rail operation while others would not. In the absence of an immediate industry base to cash flow the start-up and operations cost of a new rail venture, I do not see how the endeavor could succeed. In other words, for an area like the River Valley, utilizing an existing short-line rail operation is essential.

The second issue is access to the navigation channel. Again, my understanding is that some alternatives would require maintenance dredging while others would not. The Corps of Engineers has stringent cost-benefit guidelines for conducting maintenance dredging. If a site were selected that required dredging, I think it would take decades

for the proposed facility in the River Valley to receive a line item in the Corps' annual budget to help pay for this necessary work. Funding the work with all local dollars would be a major impediment to the success of the overall facility."

RESPONSE

Mr. Latture's comments on the project have been noted by the FHWA. No response is necessary.

A.2.4 Local Citizens/Other Stakeholders

Mr. Thomas C. Hunt

SUMMARY

"Upon review of the Supplemental Draft Environmental Impact Statement (EIS), discussions with Mr. [Roy] Reeves and the Corps representative, it became my understanding that only the Red and Green Alternatives were to be considered. The Purple Alternative, located in the vicinity of Knoxville, was not going to be pursued in that, according to Mr. Reeves, 'He did not have the money.'"

RESPONSE

All of the alternatives in the SDEIS were considered reasonable. The purple alternative is considered in detail as an action alternative in the SDEIS. The preferred alternative (Green Alternative) has been selected and is discussed in this FEIS.

SUMMARY

"My thoughts turned back to the Supplemental EIS regarding how so few would be affected by the proposed facility, while in fact, so many were displaced by the expansion of AR Highway 247 from a two lane to a five lane major highway....the AR Highway and Transportation Department...has treated this as a separate entity from the Intermodal Facility. A new highway that will handle a high volume of traffic only a mile or two from Alternatives Red or Green (when neither one have not been approved as yet)...coincidence? I believe not!"

RESPONSE

Mr. Hunt's comments are noted. The Highway 247 project, which has been completed, and this project have independent utility. Therefore, the projects are not dependent upon the other for completion. Cumulative impacts from the proposed action and from the Highway 247 project were considered in the SDEIS.

SUMMARY

"This farm that has been in our family for over one hundred and sixty (160) years would be placed in jeopardy providing either of the Red or Green Alternatives were approved. If levees were constructed along the Russellville side of the Arkansas River to support

either of these alternatives, it would create a choke point that would channel water into a smaller area causing a swifter current and the erosion of water power on the existing dirt levees...”

“With a stronger current and the loss of the New Hope Bottoms Flood Plain, not only mine, but other farms, would be considered an imminent “Blowout Point” for the river during times of high water. A breach would not only affect me but several farms and businesses, some of which would be detrimental to the environment. A hog farm with the typical open raw sewage pit and Terra Renewal Service (TRS) with storage facilities for over a million gallons of Dissolved Air Flootation (DAF) Skimmings (Or Sludge), both of which require permits for application by Arkansas Department of Environmental Quality (ADEQ). Below these farms and businesses is Holla Bend National Wildlife Refuge with various natural habitat that would also be placed at risk.”

“It would be important to take note here that flood insurance IS NOT available in Yell County. I have been told by a member of the Intermodal Committee that they can get flood insurance for us (Me). My response to that was “I do not want to get washed away and collect money. I want to preserve the land and pass it along to my son!””

RESPONSE

According to the USACE, the base flood elevations (backwater) effects of the encroachments in the Red or Green alternatives will not extend very far downstream of the proposed levees in a subcritical flow regime. As shown in the SDEIS, both alternatives have no impact below River Mile 201. The Holla Bend Refuge, which is located below River Mile 200, should not see any rise in backwater due to either alternative.

From examination of aerial photos there appear to be several spur dikes that extend perpendicular into the Arkansas River on both the west and east banks south of the Highway 7 Bridge all the way down to the Holla Bend Refuge. The effects, if any, of increased base flood elevations (backwater) on the ability of these river training dikes to function properly is discussed in the FEIS. The proposed project will have negligible impacts to the river training dikes in the area.

The basis for this comment is rooted in the belief that the USACE Floodplain Analysis Report is inaccurate. The Floodplain Analysis Report was provided by the USACE and was produced using the most recent best data available. The FHWA hydraulic engineers have also reviewed the Floodplain Analysis Report and concur with the analysis and findings.

The maximum increase in velocity is 0.11 feet per second at cross section at River Mile 202.09. This is only a 1.1% increase in channel velocity and is largely negligible in respect to erosive force.

Flood insurance can be obtained in Yell County. Yell County does not participate in the NFIP; therefore an individual cannot obtain flood insurance through the NFIP, but there are other companies that provide this service.

Using the Floodplain Analysis Report provided by the USACE, the SDEIS has documented the expected floodplain impacts for each alternative downstream from the proposed action area until the increase in water surface elevation for a 500-year flood is zero (i.e., River Mile 198.22).

SUMMARY

“I sincerely feel that this is once again the case of the apathy of the few in Russellville that has been shown for the citizens of Dardanelle, its businesses, schools, land owners, and farmers. There have been public meetings at various sites but none in Dardanelle on the construction of this facility outlining its proposed Alternatives, good and bad points. It seems almost like someone has something to hide. It is for these reasons that I am in total agreement with the City of Dardanelle and the Yell County Wildlife Federation for their request to institute an Independent External Peer Review of the Intermodal Facility.”

RESPONSE

Preparation of the DEIS relied on many sources and resources including, but not limited to, the following: AHTD, Planning and Research Division. Intermodal Transportation Needs-Economic Development Study: Potential Benefits and of Regional Transportation Center and Manufacturing-Freight Consolidation/Distribution Complex, August 1998; Dr. Gregory Hamilton et al. Economic Feasibility and Debt Capacity of the Russellville River Port Project, September 2002; Dr. Heather Nachtmann, Economic Evaluation of the Impact of Waterways on the State of Arkansas, July 2002; AHTD - Arkansas State Public Riverport Study and Needs Assessment, March 2005; and AHTD -Arkansas Statewide Long-Range Intermodal Transportation Plan, May 2002 and 2007 Update. In addition, interviews were conducted in January 2010 with industry experts, port operators, and economic development professionals in the port industry to gain a local, regional, and national perspective of ports and intermodal facilities and to apply it to the SDEIS.

Data from these and other sources was the most recent best available data to use to compare the proposed Build Alternatives to the No Action Alternative.

According to Section 2034 of the Water Resources Development Act (121 STAT.1086, PL 110-114), a project must meet one of the mandatory criteria for IEPR. These criteria are:

- 1) total cost more than \$45 million;
- 2) Governor of Arkansas requests an IEPR;
- 3) Chief of Engineers determines project is controversial based on factors describe in Paragraph (4) in Section 2034. A project study is controversial if:
 - a) there is a significant public dispute as to the size, nature, or effects of the project; or
 - b) there is a significant public dispute as to the economic or environmental costs or benefits of the project.

In addition, under Section 2034 (33 U.S.C 2343), discretionary IEPR may be considered by Chief of Engineer if the need of a Federal or state agency "...determines that the project is likely to have a significant impact on environmental, cultural, or other resources under the jurisdiction of the agency...." No Federal or state agency has requested an IEPR. The USACE is a cooperating agency on this project and FHWA is the lead agency. FHWA hydraulic engineers have reviewed and approve the flood study for this project.

Mr. Richard H. Mays

SUMMARY (COMMENT #1)

"The SDEIS does not identify a preferred alternative. At page 36, it is stated that a preferred alternative will be identified in the FEIS after "full analysis of impacts has been conducted for all reasonable Build Alternatives and the No-Action Alternative discussed in the DEIS and SDEIS." Any additional analysis of the Build Alternatives and No-Action Alternative, and the identification of a preferred alternative (including the rationale for the selection of such alternatives as the preferred alternative) should be made available to the public for review and comment."

RESPONSE

The preferred alternative is identified in the FEIS as the Green Alternative, and the FEIS will be made available to the public for review and comment.

SUMMARY (COMMENT #2)

"Also at page 36, the SDEIS states that "Detailed mitigation measures for the proposed action would be developed primarily during the permitting stage of this project." The failure to develop mitigation measures for the proposed action that the public can review and comment upon prior to the issuance of permits is a violation of the National Environmental Policy Act ("NEPA") and its implementing regulations issued by the White House Council on Environmental Quality ("the CEQ Regulations") that are applicable to all major federal actions with a potentially significant effect on the environment. The proposed Intermodal Facilities have been determined to be a major Federal action. Consequently, proposed mitigation measures must be discussed and the public given an opportunity to comment upon them in a draft EIS.

Notwithstanding the disclaimer regarding detailed mitigation measures in the SDEIS mentioned above, mitigation measures are discussed in Section 7.0 of the SDEIS. However, most of the discussion regarding such measures state that it is anticipated that there would be no adverse impacts in most resource categories, and therefore mitigation would not be necessary, or that best management practice techniques or permit conditions would serve as mitigation. "Mitigation" should not include those things that an entity is already obligated to do as a result of law, regulation or a permit."

RESPONSE

The SDEIS states, “Detailed mitigation measures for the proposed action would be developed primarily during the permitting stage of this project. The Authority would work directly with the regulatory agencies responsible for the various resources that would be impacted by the intermodal facilities.”

Mitigation measures for the proposed action have been included in the SDEIS and will be further defined for the preferred alternative (Green Alternative) in the FEIS. The Authority would work directly with the appropriate regulatory agencies to determine specific details of mitigation measures to reduce impacts from the proposed action where necessary.

All of the specifics needed to apply for permits are not available during this NEPA process, and a final design of the facility has not been prepared. Once a Record of Decision has been signed by the decision maker, specific plans for the facility would be designed. Once these plans are available the permitting process would begin. Coordination between appropriate agencies and the Authority would take place during the permit process, and it is at this moment in time when specific details of mitigation are determined.

In most situations, mitigation is performed so an entity can remain in compliance with a law, regulation, and/or permit. As stated in 40 CFR 1508.20:

Mitigation includes:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

SUMMARY (COMMENT #3)

“The Screening Criteria utilized to identify reasonable alternatives to be considered in the SDEIS (see Table 3.1, p.38), lists 14 such criteria. One of those (Criteria No. 13) states that “Planning level development costs should be reasonable compared to currently available funds of approximately \$7,000,000.” However, each of the proposed Alternatives to be carried forward for additional analysis would cost substantially in excess of that amount, in some cases by several orders of magnitude. This leads to several possible conclusions:

-
- a. The project is beyond the financial capability of the Intermodal Authority, and should be abandoned unless another alternative not identified in the SDEIS with lower planning level development costs can be found; or
 - b. The available funds for development costs and the estimated development costs for the Red and Green Alternatives are understated to skew the results of the SDEIS to favor those Alternatives.”

RESPONSE

Cost estimates were prepared consistently across all alternatives. Red and Green Alternatives are less expensive than other alternatives because of slackwater harbor development costs due to site specific characteristics.

It should be noted that the cost savings associated with the Red and Green Alternatives are primarily due to the presence of the existing sand and gravel facility. The facility's excavation drastically reduce the cost for excavation of the slackwater harbor. Constructing at another location, i.e. a location that would require excavating a harbor, greatly increases cost.

SUMMARY (COMMENT #4)

“The proposed Red and Green Alternatives cover much of the same area. They also appear to be the unofficial preferred alternatives, notwithstanding disclaimers in the SDEIS of there being no preferred alternative at this time. The overlap of area in the Red and Green Alternatives raise the issue of whether there is essentially only one alternative, divided into two separate alternatives to allow the appearance of having more alternatives.”

RESPONSE

The SDEIS had an additional build alternative added since the original DEIS. The Red and Green Alternatives were discussed as two alternatives as each alternative has differentiating environmental consequences for some resource categories. The SDEIS was in compliance with CEQ regulations concerning alternatives found in 40 CFR 1502.14. There are no CEQ regulations that state alternatives cannot share similar boundaries.

Although portions of the proposed Red and Green Alternatives overlap each other and the proposed slackwater harbor/river access point is in the same location, both alternatives are viable, reasonable, stand-alone alternatives that have enough differences in layout and environmental consequences to be distinguished from each other.

The primary differences between the Red Alternative and Green Alternative are that the 204 acres of the Green Alternative that differs from the Red Alternative avoids some of the higher quality wetlands, streams, and forested areas in the extreme northern portions of the Red Alternative. The Arkansas Game and Fish Commission provided

comments during scoping and on the SDEIS that supported the avoidance of the higher quality wetlands. The Green Alternative extends further south onto lands primarily used for agriculture (row-crops). The portion of the Green Alternative that differs from the Red Alternative also extends into an area found to contain a high number of archaeological sites. In addition, the layout of the two alternatives differs in that the Green Alternative would allow the proposed flood-protection levee system to be set-back from the edge of the Arkansas River to reduce flood impacts and allow much of the remnant riparian corridor to remain intact, whereas the Red Alternative would result in the levee being constructed immediately adjacent to the river and clearing of remaining riparian vegetation in that area.

SUMMARY (COMMENT #5)

“The application of the above mentioned Screening Criteria to the sites covered by the SDEIS does not appear to be uniform. Some sites with similar characteristics or factors based on the Criteria are eliminated from further consideration, while others are carried forward for further evaluation. For example, the Pittsburgh Road (Yellow) Alternative was eliminated from further consideration, while the Bend (Purple) Alternative was carried forward, notwithstanding that they appear to have much in common based on the Criteria. In the Yellow Alternative, the site terrain was deemed to be unsuitable for further analysis, whereas the Purple Alternative, with similar conditions and estimated development costs, was carried forward.”

RESPONSE

The Purple Alternative had more screening criteria that were met. A substantial difference between these two alternatives was the distance to the navigable channel of the Arkansas River. The Purple Alternative is approximately 4,000 feet closer to the Arkansas River channel than the Yellow Alternative and the slopes were more suitable for development.

SUMMARY (COMMENT #6)

“The Red and Green Alternatives would both require levees to be constructed along portions of those Alternatives to protect against upstream flooding and backwash. The estimated costs of operation and maintenance of those Alternatives in the SDEIS does not appear to include those levees, thereby substantially understating those costs.”

RESPONSE

Six of the nine pre-screened alternatives would require levees, and therefore, levee maintenance. The “Anticipated Operations and Maintenance Costs” screening criteria were developed qualitatively for comparison purposes.

SUMMARY (COMMENT #7)

“The scope of consideration of direct and indirect impacts of the proposed project for each alternative is entirely too narrow. The SDEIS limits the scope of consideration for

those impacts to the respective alternative sites. Obviously, a project of this size and nature would have direct and indirect impacts that affect areas beyond the project site itself, and those have not been adequately addressed.

For example, and without limiting the foregoing, the effect of the proposed Intermodal Project on future growth, while mentioned, is very superficial and inadequate. The SDEIS consists of many pages of promotional information regarding the beneficial effect of the project on economic development and growth, but fails to provide any real information regarding the effect of that growth on the human environment other than that it would provide more employment and economic prosperity. If the project is to have the kind of impact that its promoters claim it will have, the indirect impacts will be substantial and widespread and should be more adequately analyzed.”

RESPONSE

Direct and indirect impacts are defined in 40 CFR 1508.8 as:

- (a) Direct effects, which are caused by the action and occur at the same time and place.
- (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Preparation of the SDEIS relied on many sources and resources including, but not limited to, the following: AHTD, Planning, and Research Division. Intermodal Transportation Needs-Economic Development Study: Potential Benefits and of Regional Transportation Center and Manufacturing-Freight Consolidation/Distribution Complex, August 1998; Dr. Gregory Hamilton et al. Economic Feasibility and Debt Capacity of the Russellville River Port Project, September 2002; Dr. Heather Nachtmann, Economic Evaluation of the Impact of Waterways on the State of Arkansas, July 2002; AHTD - Arkansas State Public Riverport Study and Needs Assessment, March 2005; and AHTD -Arkansas Statewide Long-Range Intermodal Transportation Plan, May 2002 and 2007 Update. In addition, interviews were conducted in January 2010 with industry experts, port operators, and economic development professionals in the port industry to gain a local, regional, and national perspective of ports and intermodal facilities and to apply it to the SDEIS.

Data from these and other sources was the most recent best available data to use to compare the proposed Build Alternatives to the No Action Alternative. Beneficial, adverse, direct, and indirect impacts are discussed to a “reasonably foreseeable” level.

SUMMARY (COMMENT #8)

“The scope of the cumulative impact analysis is limited to “the geographic area that has the potential to be affected by implementation of any of the alternatives in the reasonably foreseeable future” (Page 122). It then states that for many of the resource categories considered, the cumulative impact geographic area of analysis is appropriately limited to lands within the project area boundaries.”

NEPA requires that the geographic area that may be affected by cumulative impacts of a project be defined and a rationale for the selection of that geographic area for the cumulative impact analysis be set forth in the environmental statement. There is no such rationale contained in the SDEIS, and the scope contained in the SDEIS as quoted above is illusory and fails to comply with the NEPA standard. To the extent that the SDEIS defines the scope of the cumulative impact analysis as lands within the project area boundaries, that scope is entirely too limited for a project of this size and scope.”

RESPONSE

Cumulative impacts are defined by 40 CFR 1508.7 as:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Table 4.1 on Pages 123 and 124 of the SDEIS listed each resource category, a physical description of the geographic area of analysis, and the rationale for the geographic area of analysis. Many of the resource categories have this geographic area defined as extending beyond the boundaries of the project area. No significant cumulative impacts were identified.

SUMMARY (COMMENT #9)

“While the scope of the analysis of cumulative impacts is inadequately defined in the SDEIS, such analysis of cumulative impacts that does appear in the SDEIS fails to provide any discussion of the impacts of the proposed project combined with the impacts of past, present and reasonably foreseeable future activities, whether by governmental or private entities. Instead, the discussion of cumulative impacts is a rehash of direct and indirect impacts of the proposed project. Direct and indirect impacts are not the same as cumulative impacts, and while cumulative impacts may be more difficult to quantify, they must be identified and analyzed.”

RESPONSE

For each resource category the SDEIS described cumulative impacts associated with The Arkansas River Navigation Project, Highway 247 Improvements, Industrial Development in the Arkansas River Bottoms near Russellville, Expansion of Soil and Gravel Excavation and Removal, Continuation of Agricultural Land Use, and Increases in Existing Arkansas River Commerce.

The analysis is consistent with *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992), the court reviewed the issue of whether a particular indirect (secondary) impact was "...sufficiently likely to occur, that a person of ordinary prudence would take it into account in making a decision." The analysis is also consistent with FHWA guidance "Considering Cumulative Effects under the National Environmental Policy Act."

SUMMARY (COMMENT #9 cont.)

"The SDEIS also fails to provide adequate analysis of the potential direct, indirect, and cumulative effects of the anticipated increase of truck traffic as a result of the Intermodal Project. The SDEIS, in pages 12 through 21, discusses the vast difference in cargo capacity of barges over truck and rail capacity. For example, on p. 18 of the SDEIS appears a chart showing that one 15-barge tow has the carrying capacity of 2.25 100-car trains, and 870 large semi-trucks. Only one barge has the capacity of 58 large semi-trucks. However, the data in the SDEIS also shows that the vast majority of cargo in the United States is carried by truck."

RESPONSE

Table 4.3 of the SDEIS described the additional trucks estimated to be utilizing the general area once the intermodal facility is operating. In the SDEIS this table was located in the Affected Environment Section. This table and corresponding text will be moved to the indirect impacts section.

The facts listed in the example are not mutually exclusive. One barge does have the capacity of 58 semi-trucks, and the majority of cargo in the US is carried by truck. The development of Highway 247 and the cumulative effects were analyzed. The additional truck traffic would not measurably affect the Level of Service (LOS) for Highway 247 (Highway 247 Environmental Assessment FONSI, 2007).

SUMMARY (COMMENT #9 cont.)

"Obviously, if the Intermodal Project is successful, the transfer of barge cargo to trucks or trains will involve a much larger number of trucks in the area than are currently in use in the area. Unfortunately, the SDEIS also shows that the far greatest number of injuries and fatalities are sustained in connection with the truck mode of transportation than in barge or rail transportation, and that the number and volume of large spills of hazardous substances occur in connection with truck transportation than in rail or barge. Clearly, there will be direct, indirect and cumulative impacts from accidents and spills at or related to the proposed Intermodal Project that should be analyzed."

RESPONSE

Direct, indirect, and cumulative impacts associated with hazardous material spills are located in Section 4.17 of the document. The following paragraph will be added to indirect impacts in the land use sections of each action alternative: “Increased truck traffic associated with the intermodal facilities could result in minor long-term, adverse impacts to safety. Table 4.3 describes the increase in amount of truck traffic. This increase has the long-term potential to increase the number of accidents that occur on the roads in the general area surrounding the proposed project site.” However, by utilizing the Arkansas River for shipping, many trucks would have otherwise utilized regional highways will be removed from the highway network, thus increasing overall safety.

SUMMARY (COMMENT #9 cont.)

“Further, the concentration of truck, rail, and barge traffic at this proposed facility will cause large increases in air contamination due to emissions from diesel and gasoline engines, cargo, and spills of volatile liquids. The potential of the proposed facility for emission of greenhouse gases is inadequately analyzed and should be further evaluated, as well as the impact of those emissions on climate change.”

RESPONSE

Language will be added to the FEIS stating, “As shown on Table 4.3 of the SDEIS, a localized estimated increase of 9,437 truck loads/year is expected. This increase is expected to have a very minor long-term adverse impact on air quality due to emissions. Increased barge and rail traffic would also have minor long-term adverse impacts on air quality due to emissions. As mentioned in the affected environment, the Carbon Monoxide (CO) Microscale Analysis revealed CO levels much less than the NAAQS standards. Increases in emissions are not expected to increase CO or any VOC above NAAQS standards.

SUMMARY (COMMENT #9 cont.)

“Of particular concern to my clients is the potential direct, indirect, and cumulative impacts upon the City of Dardanelle and other low-lying areas should the Red or Green Alternatives – which appear to be favored in the SDEIS – be selected. If a levee is necessary to protect the Intermodal Project on either of those alternative sites from flooding in the Arkansas River during 100 and 500 year flood events, it seems intuitive that, due to filling of the floodplain on the north bank of the river directly across from Dardanelle, there would be an increase in the base flood elevation on the south bank of the river.

We note that the SDEIS contains Section 4.13 (p. 285), relative to Floodplains, that states that the Corps of Engineers conducted a floodplain study report that is contained in Appendix B of the SDEIS. The SDEIS also provides (p. 286) that the Red and Green Alternative hydraulic models “were developed by modifying the existing condition model using Authority supplied plans that included site plans and levees.” The Authority-

supplied plans for the site and levees were not included in Appendix B, and should be made available for public review and comment, as they clearly have an impact on the results of the modeling.

In addition, the modeling conducted by the Corps of Engineers shows an increase of 0.12 feet in water surface elevation at River Stations 203.38 and 202.10 during a 100-year flood, and of 0.27 and 0.26 feet, respectively, at those stations during a 500-year flood. However, there is no analysis of the direct, indirect, or cumulative impacts of an increase of that amount on the Project Area, including the south bank of the river. The analysis appears to be limited only to the Red and Green Alternative sites on the north bank.”

RESPONSE

The increase in water surface elevation for the proposed action is calculated from River Mile 205.25 to 198.22. Therefore, the analysis extends beyond the extent of the adjacent Red and Green Proposed Project Boundaries. The increases in water surface elevations reported in the Floodplain Analysis Report represent increases for the floodplain of the Arkansas River whether it be on the left or right (north or south) side of the river.

Section 3.3 of the Floodplain Analysis Report found in Appendix B states, “The Red and Green alternative hydraulic models were developed by modifying the existing condition model using Authority supplied plans.” Site mapping and elevation data is available from the Authority and can be supplied to the City of Dardanelle upon request, but it is not necessary to publish this mapping in the NEPA document.

SUMMARY (COMMENT #9 cont.)

In addition, the SDEIS fails to discuss the effect of the proposed Intermodal Project upon the existing barge terminals that are located immediately adjacent to the Red and Green Alternatives. The presence of an intermodal facility containing a slackwater harbor, and its socioeconomic and environmental impacts on those terminals, is a part of the human environment of the area and should be evaluated.

RESPONSE

Preparation of the DEIS relied on many sources and resources including, but not limited to, the following: AHTD, Planning and Research Division. Intermodal Transportation Needs-Economic Development Study: Potential Benefits and of Regional Transportation Center and Manufacturing-Freight Consolidation/Distribution Complex, August 1998; Dr. Gregory Hamilton et al. Economic Feasibility and Debt Capacity of the Russellville River Port Project, September 2002; Dr. Heather Nachtmann, Economic Evaluation of the Impact of Waterways on the State of Arkansas, July 2002; AHTD - Arkansas State Public Riverport Study and Needs Assessment, March 2005; and AHTD -Arkansas Statewide Long-Range Intermodal Transportation Plan, May 2002 and 2007 Update. In addition, interviews were conducted in January 2010 with industry experts, port operators, and economic development professionals in the port industry to gain a local,

regional, and national perspective of ports and intermodal facilities and to apply it to the SDEIS.

Data from these and other sources was the most recent best available data to use to compare the proposed Build Alternatives to the No Action Alternative. The details provided in Appendix C (Community Impact Assessment Technical Memorandum) and in the indirect impacts analysis for the Red and Green Alternative concerning adverse impacts to private ports in Dardanelle do satisfy NEPA Section 102(2) requirements.

SUMMARY (COMMENT #9 cont.)

Further, the SDEIS fails to consider or analyze the past development and current operations of the Port of Dardanelle and Oakley Port as part of the cumulative impacts of the Intermodal Project. The concentration of barge and truck traffic using those existing ports combined with the barge, truck, and rail traffic anticipated to use the proposed Intermodal Project has the synergistic potential to substantially increase air, noise, water, and surface pollution, and cause increased safety risks.

RESPONSE

The cumulative impacts for these facilities and others adjacent to the proposed project area have been discussed under “Industrial Development in the Arkansas River Bottoms near Russellville” and “Increase in Existing Arkansas River Commerce.” No substantial impacts were identified for air, noise, water, and surface pollution. In addition, no substantial safety risks were identified.

SUMMARY (COMMENT #9 cont.)

In addition, the SDEIS fails to consider or analyze the potential future cumulative impact of the discharge of wastewater from the City of Russellville’s wastewater treatment plant directly into the Arkansas River at a point that is on both the Red and Green Alternative sites. Since the early 2000s, the City of Russellville has proposed an amendment to its SPDES permit from its wastewater treatment plant that would allow it to discharge that wastewater into the Arkansas River. An amendment to its permit was granted by the Arkansas Department of Environmental Quality, but that permit was withdrawn by the City in 2008 for further environmental analysis.

The City of Russellville reportedly intends to pursue that permit amendment to allow such discharge, and has continued to conduct studies of the River and the surrounding area. It is therefore a reasonably foreseeable future project. The Arkansas River from the Dardanelle Dam to downstream of the proposed Intermodal Project has extended periods of very low, if any, flow. The City of Dardanelle’s intake for its drinking water system is located in the Arkansas River in that same reach of the River. Consequently, the cumulative impact of the addition of the Intermodal Project, with its slackwater harbor, and the proposed discharge from the City of Russellville should be carefully analyzed.”

RESPONSE

The wastewater treatment plant in Russellville has the capacity to treat the minor amount of wastewater that would be produced by the proposed project. No adverse impacts to wastewater treatment plant are expected, and no impacts to water quality due to wastewater produced by the proposed project are anticipated. Therefore, no cumulative impacts associated with the wastewater treatment plant are expected. However, should additional wastewater treatment capacity be necessary for specific intermodal facility users/operators, these users/operators would be responsible for appropriate permits and would coordinate with the ADEQ-Water Division.

Currently, the Russellville Wastewater Treatment Plant disposes its effluent into Whig Creek. Contact with the City of Dardanelle indicated that their primary drinking water supply was from a system of wells south and east of the city and not from the Arkansas River.

SUMMARY (COMMENT #10)

“Section 4.15 of the SDEIS, relative to endangered species, fails to give adequate consideration to the potential impact of the proposed Intermodal Project on the endangered Interior Least Tern, which nests on exposed river sandbars and reservoir beaches. The SDEIS notes that there is no suitable least tern habitat along the east side of the Arkansas River (we assume this is intended to apply only to the immediate area of the proposed Project), but does not mention whether there is a suitable least tern habitat along the west bank (also referred to herein as the south bank at this location). The aerial photographs and a visual inspection of the west/south bank indicates that there are sandbars present on that bank that may be suitable habitat for the interior least tern.

Notwithstanding that the proposed Intermodal development would occur on the east/north bank of the river, the potential for direct, indirect and cumulative impacts of the west/south bank from either construction or operation of the proposed Project is high, including impacts from noise, contamination, increased water levels that would flood the sandbars, and other sources. An investigation should be conducted to determine whether the interior least tern is present on any sandbank of the Arkansas River in the Project Area, which extends from Clarksville to Morrilton.”

RESPONSE

On page A-12 of Appendix A, the USFWS has stated that no federally listed endangered, threatened, or candidate species are present (USFWS 2010). If endangered species were to be effected by the proposed action, the USFWS would have requested Section 7 consultation in accordance with the Endangered Species Act. In addition, life history information for the interior least tern was reviewed. The types of preferred sandbar habitat (i.e., intermittently exposed bars that are not connected to land), does not exist in the project area.

SUMMARY (COMMENT #11)

“The No-Action Alternative is not sufficiently analyzed in the SDEIS. 42 CFR §1502.14 provides that the alternatives analysis is “the heart of the environmental impact statement;” that in preparing an alternatives analysis, agencies “shall rigorously explore and objectively evaluate all reasonable alternatives...,” and “include the alternative of no action.” This means that the no-action alternative should be as rigorously explored and objectively evaluated as all of the others. A mere conclusory statement that nothing will change, or that the anticipated benefits of the other alternatives being considered will not be realized, are not sufficient.”

RESPONSE

The no action alternative was fully evaluated in the SDEIS for every resource category listed.

Mr. Doyle McEntyre
City of Dardanelle, Alderman

SUMMARY

“...one of the main topics of concern was the removal of flood plain by the construction of a five hundred year flood levee around the proposed intermodal site. The study done on the flood plain, in the SDEIS, as it impacts the removal of that much flood surge holding area seems to be very limited in its scope. As this is one of the major points of contention with the whole project it would seem that this would have been a major thrust of the statement, but it is dealt with in a most cavalier manner in the very few pages dealing with this topic.”

RESPONSE

An extensive Floodplain Analysis Report has been provided in Appendix B. Floodplain impacts have been defined in the SDEIS utilizing the information provided by Floodplain Analysis Report. The USACE has confirmed that the Floodplain Analysis Report utilizes the best and most recent floodplain analysis data. The results from this analysis were used to develop the impacts to floodplains found in Section 4.13 of the SDEIS.

The SDEIS and Appendix B described the impacts to the floodplain downstream to the extent where the increase in surface water elevation is zero. The SDEIS has documented the expected floodplain impacts for each alternative downstream from the proposed action area until the increase in water surface elevation is zero (i.e., River Mile 198.22). It is important to note that the Green Alternative would have 739 acres within a protective levee, and the Red Alternative would have approximately 691 acres within the intermodal facilities levee and not 800 acres. In addition, excavation of the harbor will add a minor amount of flood storage capacity.

SUMMARY

“I have included some attachments of the planning area flood plain, as provided in the SDEIS, verses the flood plain as it is currently delineated on the Dardanelle FIRM (map number 05149C0160 E) on the opposite side of the river from the intermodal site. It appears that the study area was quite limited in its scope and neglected to take into consideration all of the Dardanelle flood plain. As can be seen looking at the study area, in the SDEIS, the Dardanelle flood plain stopped near the bank of the Arkansas River and failed to incorporate the part of the flood plain south and west of Dardanelle. Since this area is the location of the Dardanelle elementary, middle and high schools and associated infrastructures and several homes, not doing an exhaustive study of flood impact is not consistent with proper investigation as we believe NEPA requires.”

RESPONSE

There are differences in the base flood elevations for adjacent areas along the Arkansas River where the Yell County and Pope County Flood Insurance Rate Maps (FIRM) meet. The FIRM update for Yell County, effective in March 2002, based its mapping information along the Arkansas River through the project area based on the original study of the City of Dardanelle. It included analyses for the Arkansas River and Smiley Bayou, which were performed by the U.S. Army Corps of Engineers (USACE), Little Rock District, in 1969.” The Pope County FIRM update, effective March 2010, used this information as well; however, Pope County also incorporated the more current “U.S. Department of the Army, Corps of Engineers, Restudy of Arkansas River: Navigation Pool 9 and Dardanelle Reservoir, 1986 (unpublished).” These models and hydrology for the 1% annual chance flood event have been approved by the USACE Southwestern Division. In addition, FEMA approved all of the models when requested by the National Flood Insurance Program participating communities. The base flood elevations differ due to changes in the channel geometry, more detailed topographic information, and the development of more accurate computer modeling software and data.

The elevations from the Yell County FIRM should not be compared, because it is not based on the best and most recent information. The base flood elevation of 321.98 feet at mile 202.09 is the elevation for existing conditions. This elevation does not include either the Red or Green alternatives. With the Red and Green alternatives, the Floodplain Analysis Report shows that the base flood elevations are raised by 0.06 feet and 0.03 feet respectively.

The “Notes to Users” portion of the March 4, 2002 FIRM map states, “Users should be aware the Base Flood Elevations shown on the FIRM represent rounded whole-foot elevations. These Base Flood Elevations are intended for flood insurance rating purposes only and should not be used as sole source of flood elevation information.” The USACE elevation measurements in the Floodplain Analysis Report are more accurate than those provided on FIRM maps and use the latest floodplain data and modeling. FHWA hydraulic engineers have reviewed the USACE Report and HEC-RAS modeling.

Floodplain impacts have been defined in the SDEIS utilizing the information provided by Floodplain Analysis Report. The USACE has confirmed that the Floodplain Analysis Report utilizes the best and most recent floodplain analysis data and will supersede the elevation data presented in the current FIRM. FHWA hydraulic engineers have also reviewed the Floodplain Analysis Report.

The SDEIS and Appendix B have described the impacts to the floodplain downstream to the extent where the increase in surface water elevation is zero. It is important to note that the Green Alternative would have 739 acres within a protective levee, and the Red Alternative would have approximately 691 acres within the intermodal facilities levee and not 800 acres. In addition, excavation of the harbor will add a minor amount of flood storage capacity.

SUMMARY

“Past floods have proven to be problematic in this reach of the Arkansas River in that before a levee system was built early last century on the south side of the river, flooding blowout was a problem downstream of Dardanelle. As that old levee system, on the south side of the river, is no longer present, the squeeze caused by narrowing the channel by the intermodal levee and removing the surge area north of the river, a blowout condition will be facilitated. The old levee has not been kept up since no monies were allocated and the levee board maybe defunct. Roads and robbing of levee material has rendered this levee useless and is considered nonexistent by the USCOE. A blowout in this area would impact several farming, ranching and commercial operations and the Holla Bend National Wildlife Refuge as well as Dardanelle.”

“We believe that altering the flood plain in this reach of the river can be dangerous and far reaching in its impacts to the areas that are low lying and prone to water inundation.”

RESPONSE

Using the Floodplain Analysis Report provided by the USACE, the SDEIS has documented the expected floodplain impacts for each alternative downstream from the proposed action area until the increase in water surface elevation is zero (i.e., River Mile 198.22). The locations mentioned in the comment above are further downstream from River Mile 198.22. According the USACE, no impacts two miles downstream would be anticipated. It is important to note that the Green Alternative would have 739 acres within a protective levee, and the Red Alternative would have approximately 691 acres within the intermodal facilities levee and not 800 acres. In addition, excavation of the harbor will add a minor amount of flood storage capacity.

SUMMARY

“Another main topic of the informational meeting was the impact of the proposed intermodal facility on industry all ready established in the area near the site, most specifically the Port of Dardanelle. The unfair competition it will be subjected to when the intermodal slack water harbor is constructed and begins subsidized operation in

competition with the tax paying Port of Dardanelle located just north of the intermodal facility.”

“Since a large part of the industry on the north side of the river, in the area of the intermodal facility, is in the Dardanelle School District, the closing or moving of industry as a result of the intermodal facility is of concern. Again with this being a major concern of the people most affected by the building of the intermodal facility it would seem that a most careful study of these points would have been addressed in a logical and empirical manner instead of a rah-rah chamber of commerce fashion based on what they think or hope will happen. Facts are that the Oakley Port of Dardanelle has approached what industry is in the area and have not been rewarded with any increase in use. But the selling points of the intermodal study always base their benefits on an intermodal site with 30 plus industries locating and using the site. Empirical data does not hold true for such an influx of use due to the nature of the industry in the service area.”

RESPONSE

NEPA requires that all impacts, beneficial and adverse, are discussed in the SDEIS. However, a benefit/cost analysis is not essential or required to comply with NEPA regulations.

Preparation of the DEIS and SDEIS relied on many sources and resources including, but not limited to, the following: AHTD, Planning and Research Division. Intermodal Transportation Needs-Economic Development Study: Potential Benefits and of Regional Transportation Center and Manufacturing-Freight Consolidation/Distribution Complex, August 1998; Dr. Gregory Hamilton et al. Economic Feasibility and Debt Capacity of the Russellville River Port Project, September 2002; Dr. Heather Nachtmann, Economic Evaluation of the Impact of Waterways on the State of Arkansas, July 2002; AHTD - Arkansas State Public Riverport Study and Needs Assessment, March 2005; and AHTD -Arkansas Statewide Long-Range Intermodal Transportation Plan, May 2002 and 2007 Update. In addition, interviews were conducted in January 2010 with industry experts, port operators, and economic development professionals in the port industry to gain a local, regional, and national perspective of ports and intermodal facilities and to apply it to the SDEIS.

Data from these and other sources was the most recent best available data to use to compare the proposed Build Alternatives to the No Action Alternative. The details provided in Appendix C (Community Impact Assessment Technical Memorandum) and in the indirect impacts analysis for the Red and Green Alternative concerning adverse impacts to private ports in Dardanelle do satisfy NEPA Section 102(2) requirements. Specific economic extrapolation or forecasting using existing data would be speculative in nature and could be misleading to the public.

SUMMARY

“If you only take the intermodal’s view of the project, the SDEIS does not even taken into consideration any increased rail traffic through Russellville and the impact it will

have on an elementary school the railroad track passes by, as to the transportation of any hazardous material causing the school to have evacuation plans or safe shelter areas and the increased traffic congestion caused by railroad street crossings.”

RESPONSE

Impacts associated with increased rail usage are discussed in Section 4.4.2.2.2 and impacts associated with potential spills were discussed in Section 4.17.2.2.2 of the SDEIS. Increased traffic capacity from improving Highway 247 would alleviate traffic congestion in and around Russellville.

SUMMARY

“These are but a few of the areas that we feel have not been addressed adequately in the SDEIS and thus would like to request an independent external peer review initiated by FHWA for the Chief of Engineers to determine that the project study is controversial considering the factors set forth to look at the project by an independent panel of experts and bring some true peace of mind to a lot of people affected by this project.”

RESPONSE

According to Section 2034 of the Water Resources Development Act (121 STAT.1086, PL 110-114), a project must meet one of the mandatory criteria for IEPR. These criteria are:

- 1) total cost more than \$45 million;
- 2) Governor of Arkansas requests an IEPR;
- 3) Chief of Engineers determines project is controversial based on factors describe in Paragraph (4) in Section 2034. A project study is controversial if:
 - a) there is a significant public dispute as to the size, nature, or effects of the project; or
 - b) there is a significant public dispute as to the economic or environmental costs or benefits of the project.

In addition, under Section 2034 (33 U.S.C 2343), discretionary IEPR may be considered by Chief of Engineer if the need of a Federal or state agency “...determines that the project is likely to have a significant impact on environmental, cultural, or other resources under the jurisdiction of the agency....” No Federal or state agency has requested an IEPR. The USACE is a cooperating agency on this project and FHWA is the lead agency. FHWA hydraulic engineers have reviewed and approve the flood study for this project.

Mr. Bobby L. Day, Airport Manager
Russellville Regional Airport

SUMMARY

“As the director of a part of the river valley transportation infrastructure, I see the intermodal project as an excellent compliment to existing area transportation facilities

and ongoing projects. Adequate transportation is a key prerequisite for the economic development of any area. The Arkansas River is one transportation mode which is not nearly developed to its potential in this area. A modern barge loading facility with efficient possibilities to transition loads to or from ground transportation for connection to the region would be an enabler for attracting various industries to the area. In the end, that raises the standard of living of everyone nearby.”

RESPONSE

Mr. Day’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Ann Beavers

SUMMARY

“Green. Fewer people displaced, no flooding issues, needed for economic growth.”

RESPONSE

Ms. Beavers’ comments on the project have been noted by the FHWA. No response is necessary.

Mr. Horace Beavers

SUMMARY

“Green gives no flooding issues, less displacement of people, good economic growth.”

RESPONSE

Mr. Beavers’ comments on the project have been noted by the FHWA. No response is necessary.

Mr. Charles Blanchard

SUMMARY

“Green – most convenient to serve industry, best cost, most efficient, closer to existing industry, currently served by Highway 247. Disappointed it has taken so long.”

RESPONSE

Mr. Blanchard’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Jim Bradley

SUMMARY

“I prefer the Green area because closer to existing industry, more economical to build infrastructure. We need the project to provide future economic development. One concern [I have] is the choice of the purple site which is away from the navigation channel and another cost driver is the additional dirt work (land prep) plus no access roads.”

RESPONSE

Mr. Bradley’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Sid Brain

SUMMARY

“The proposed project is very important to the continued economic growth and stability of this area. It should be completed as soon as possible. Our children and grandchildren should not have to go to the city to get a job!

The Green (and Red) Alternatives are closer to potential and existing users as well as being better located to use all modes of transportation. The Green has less impact on woodlands and views from the river.

The Green also has some less river load increase (although both are practically non-existent).”

RESPONSE

Mr. Brain’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Dale Brown

SUMMARY

“Red – location to highway and railroad. Would like to proceed as soon as possible due to the economy and the need for new jobs in the area. This project would be a start in the direction the Russellville area needs to be going in.”

RESPONSE

Mr. Brown’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Nancy M. Canerday

SUMMARY

“Green – the best site for local economic development.”

Issues and concerns about the project: “Length of time to get project completed.”

“This would be a great benefit to our area.”

RESPONSE

Ms. Canerday’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Amy Carpenter

SUMMARY

“Green – less people displaced. The project is vital to the growth of the River Valley!”

RESPONSE

Ms. Carpenter’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Kole Carpenter

SUMMARY

“Green – minimal flooding, less people affected. This project is essential to the vitality of the River Valley.”

RESPONSE

Mr. Carpenter’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Brooke Chandler

SUMMARY

“Green. There will be fewer people affected and it won’t have a big impact on the flooding. This project will be an economic improvement for the River Valley area.”

RESPONSE

Ms. Chandler’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Tommy Chandler and Mrs. Rita Chandler

SUMMARY

“We support the River Valley Intermodal project. We look forward to growth and development in the River Valley as a result of this project and hope for expansion and progress in the job markets.”

RESPONSE

Mr. and Ms. Chandler’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Richard Downes

SUMMARY

“Green. It will help out the river valley the most.”

RESPONSE

Mr. Downes comments on the project have been noted by the FHWA. No response is necessary.

Mr. Jerry Duvall

SUMMARY

“Green. I am Mayor of Pottsville. This location is the best for roads and rails. It will have the least environmental impact.”

RESPONSE

Mr. Duvall’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Lonnie Duvall

SUMMARY

“Green – this site will be better for the River Valley. This site will have better access. This site is closest to the existing industry. It will have lower maintenance cost.”

RESPONSE

Mr. Duvall’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Bill Eaton

SUMMARY

“Green – this is the most feasible site due to its location proximity to existing industry. The highway cross sections are more advantageous at this site. The navigation channel location to site location is an advantage at the Green site. As a city councilman of Russellville, the impact of having a site in Johnson County would be difficult for the city of Knoxville and the county itself to support.”

RESPONSE

Mr. Eaton’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Sharon Eaton

SUMMARY

“Green – it just makes sense to have it near Dardanelle and Russellville. The business will need houses for employees and it will be available here. The site would be closer to the channel.”

RESPONSE

Ms. Eaton’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Becky Ellison

SUMMARY

“Green – this would be the best site of economic growth in our area. It would be great to have this project completed to bring more business development to our area.”

RESPONSE

Ms. Ellison’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Pam Ennis

SUMMARY

“Green – good road access to this area, rail access close, close to the existing industry.”

Issues and concerns about the project: “the length of time this project has taken to complete.”

RESPONSE

Ms. Ennis's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Jason Epperson

SUMMARY

"Green – we need the economic growth we have been missing out on."

RESPONSE

Mr. Epperson's comments on the project have been noted by the FHWA. No response is necessary.

Mr. David A. Freeman

SUMMARY

"Green – lower maintenance cost, closer to existing industry, access being put in place."

"This project has taken too long and needs to be completed."

RESPONSE

Mr. Freeman's comments on the project have been noted by the FHWA. No response is necessary.

Ms. Donna Freeman

SUMMARY

"Green – land usage looks better."

"Missing options for additional industry in Pope County. Project really moving slow. The County really needs this for additional industry."

RESPONSE

Ms. Freeman's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Marvin Gerlach

SUMMARY

"The Green site is strategically located near rail and interstate. The other sites are not as suitable."

Issues and concerns about the project: “The city of Dardanelle’s concern about flooding.”

“This proposed project will be beneficial to existing industries and should serve to attract new industry.”

RESPONSE

Ms. Gerlach’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Jim Ed Gibson

SUMMARY

“Green – closer to local industry, currently has access by Highway 247, would serve the people of the River Valley better. Taken too long to complete.”

RESPONSE

Mr. Gibson’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Sidney Gray

SUMMARY

“Green – it would give better access, lower maintenance costs, and be closer to the existing industries.”

RESPONSE

Mr. Gray’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Suzy Griffin

SUMMARY

“I fully support the proposed Intermodal project. I favor the green alternative. This project needs to be fast-tracked. Two of the major benefits that I see as a result of the reduction in truck traffic are infrastructure maintenance costs going down, and the air quality improving. This project also puts our area in a more competitive position to attract new industry.”

RESPONSE

Ms. Griffin’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Jeanette Hale

SUMMARY

“The Green site would displace fewer families. There have been considerable road improvements to the highway servicing the Green site and is nearer a designated truck route. Since this project has been driven by Russellville citizens, for the most part, I feel that moving the project from the original Green site would diminish the local interest and success of the project.”

RESPONSE

Ms. Hale’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Benny Harris

SUMMARY

“Green proposal appears to be the best alternative decision considering flooding and displacement of people. Provide should provide a significant economic benefit to Pope and Yell County.”

RESPONSE

Mr. Harris’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Lavern Harris

SUMMARY

“Green appears to be more appealing and a much better alternative as fewer people are or will be affected with flooding issues. Pope and Yell County should both benefit economically with this project.”

RESPONSE

Ms. Harris’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Debbie Hernandez

SUMMARY

“Green – less people displaced, minimal flooding. This project is a very important part of growing and strengthening the River Valley.”

RESPONSE

Ms. Hernandez's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Gerald Hook

SUMMARY

"Prefer 'Green' site due to proximity to rail and highway access. Also, this site is closer to navigation channel."

RESPONSE

Mr. Hook's comments on the project have been noted by the FHWA. No response is necessary.

Ms. Rebecca Hopkins

SUMMARY

"Green. Minor impact to floodplain and would be less noticeable. Jobs would be created during and following the project."

RESPONSE

Ms. Hopkins' comments on the project have been noted by the FHWA. No response is necessary.

Mr. Marcus Huggard

SUMMARY

"Green – This site will be better for the River Valley. This site will have better access. This site is closest to the existing industry. It will have lower maintenance cost."

RESPONSE

Mr. Huggard's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Paul Hull

SUMMARY

"Green – location to city and appears to be cheaper to construct. I think the Green site is much better. The Green site looks like it would have more land for industry."

Issues and concerns about the project: "That it won't start within the next five years."

“This project would have my full support.”

RESPONSE

Mr. Hull’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Kurt Jones

SUMMARY

“Green – much closer to existing industry and infrastructure. Site is better suited for building. No negative concerns. I would like to see this project proceed as quickly as possible.”

RESPONSE

Mr. Jones’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Robert L. Laster

SUMMARY

“Green – cheapest. The grade on the Purple site does not work well for the rail road. Waterways Commission has commented on the needs of additional harbor sites.”

RESPONSE

Mr. Laster’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Allen Laws

SUMMARY

“Green, I feel this is the best, least disruptive alternative. It is least expensive and closest to existing industry and infrastructure. I would have liked to include airport facilities, but that is not possible.”

RESPONSE

Mr. Law’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Mike McCoy

SUMMARY

“Green – this alternative is the least expensive and closest to existing industry. This site appears to be the best for development. This project is very important for the economic development.”

RESPONSE

Mr. McCoy’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Laura McGuire

SUMMARY

“Green – this area will be close to the existing industry, lower cost, better location.”

RESPONSE

Ms. McGuire’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Rhonda McKown

SUMMARY

“Green – maintenance not as costly, closer proximity, access to facility put in place.”

RESPONSE

Ms. McKown’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Danny Minks

SUMMARY

“Green – because of its location. We have missed several industries coming to the area due to time delays. I just hope it starts soon.”

“I support this project and think it would be great for the future of this area.”

RESPONSE

Mr. Minks’ comments on the project have been noted by the FHWA. No response is necessary.

Ms. Lisa M. Mize

SUMMARY

“Green area best suited for this project, good access and close to existing industry.”

RESPONSE

Mr. Mize’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Johnny Morgan

SUMMARY

“Green – Pope and Yell counties have missed numerous opportunities due to lack of multi-modal facilities.”

“Purple site has too much slope for rail and site development.”

“The State of Arkansas and Waterways Commission have stated that more harbor sites are needed along river to improve efficiency.”

RESPONSE

Mr. Morgan’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Debbie Motley

SUMMARY

“Green – because it is closer to highway and rail access and cost would be less.”

“In today’s market competing for industries we need the river access to compete with other areas that already have intermodal facilities in place. This project needs to get underway ASAP so cost can be locked in.”

RESPONSE

Ms. Motley’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Delores L. Motley

SUMMARY

“Green. No flooding issues. Fewer people affected. Needed for economic growth.”

RESPONSE

Ms. Motley's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Bert Mullens

SUMMARY

"Green Alternative – Easy access to Highway 247 which connects to Interstate 40. This site has access to a short line rail service. The location is near to present manufacturing facilities and offers the best opportunities for attracting new industry which would result in additional jobs and therefore create economic growth and development."

Issues and concerns about the project: "just getting it built as soon as possible."

"It is important we move forward on this project for the growth and development of the entire River Valley area."

RESPONSE

Mr. Mullens' comments on the project have been noted by the FHWA. No response is necessary.

Mr. Charles W. Oates

SUMMARY

"Green is the best site to use."

RESPONSE

Mr. Oates' comments on the project have been noted by the FHWA. No response is necessary.

Ms. Stacy Pack

SUMMARY

"Green – presently we have a major road upgrade in the area. It will be closer to existing industry. It will be more beneficial to the River Valley."

RESPONSE

Ms. Pack's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Tommy Parker

SUMMARY

“Green – seems to be the best site for economic development.”

Issues and concerns about the project: “why it isn’t already done.”

RESPONSE

Mr. Parker’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Jeff Pipkin

SUMMARY

“The Green Alternative makes the most sense to me since the City of Russellville has already purchased almost 300 acres either within this site or adjacent to it. The City’s land is perfect for industrial use.”

“I’m only concerned about more possible delays whether it’s funding, litigation, environmental or whatever. We have been working on this way too long.”

RESPONSE

Mr. Pipkin’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Pamela Randle

SUMMARY

“Green. I think this is something that would be good for our areas – both Yell and Pope Counties. This project would be advantageous to all of the River Valley.”

RESPONSE

Ms. Randle’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Rebecca Reaves

SUMMARY

“I feel the Green Alternative would be the best choice. I feel this is a great project that will be most beneficial to the whole area.”

RESPONSE

Ms. Reaves' comments on the project have been noted by the FHWA. No response is necessary.

Mr. Roy Reaves

SUMMARY

"Green – has no significant impact on flooding! The dam around the project is set back from the river. The dam around the project is set back from the river."

"It will be a great economic stimulus to this area for many years to come."

RESPONSE

Mr. Reaves' comments on the project have been noted by the FHWA. No response is necessary.

Ms. Joan Sadler

SUMMARY

"Green – best for this area."

RESPONSE

Ms. Sadler's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Elnor Shannon

SUMMARY

"Green – closer to existing industry, lower maintenance cost."

RESPONSE

Mr. Shannon's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Bill Sorrells

SUMMARY

"The Green site is better situated and suited for the facility."

Issues and concerns about the project: "the timeframe to get the project initiated."

“Quicken the process.”

“This will be a wonderful economic attribute to the river valley area for existing industry and future ones.”

RESPONSE

Mr. Sorrells’ comments on the project have been noted by the FHWA. No response is necessary.

Mr. Steven Sparks

SUMMARY

“The Green site is the best option for development, closer to existing industry.”

“One should just look at our history of the railroad being built in Russellville to see what a project like this will do for our local economic development.”

RESPONSE

Mr. Sparks’ comments on the project have been noted by the FHWA. No response is necessary.

Ms. Carmen Stump

SUMMARY

“Green – need more economic development in the region. This Green option is the best on cost, has fewer impacts. The Purple alternative is too expensive and the operations and expenses are too high. ”

RESPONSE

Mr. Stump’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Fern Tucker

SUMMARY

“Green – lower cost, State is presently upgrading the access road in this area, close to railroad spur, close to other industry.”

RESPONSE

Ms. Tucker’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Norman Watson

SUMMARY

“I prefer the Green alternative because the infrastructure is either already in place or least costly to put in place. Operation and maintenance are the most reasonable.”

“The Purple alternative seems to be the most expensive to construct. There is no existing industry use this area near Knoxville.”

RESPONSE

Mr. Watson’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Chad Weisler

SUMMARY

“Green is the best option. This is because of the amount of land to develop. It also does not include a low or wet area.”

Issues and concerns about the project: “Time – this is a needed item for our area. It would help bring industry to both Russellville and Dardanelle, which in turn provides more jobs.”

Changes: “Rush!”

“I strongly support this project.”

RESPONSE

Mr. Weisler’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Hilda Wesley

SUMMARY

“Green has no significant impact on flooding and is most advantageous for Yell and Pope County. Less amount of people affected. The project will be an economic advantage to the River Valley.”

RESPONSE

Ms. Wesley’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Hilery Wesley

SUMMARY

“Green would be most effective for Pope and Yell County. Doesn’t change flooding much. Will benefit all of the Valley area.”

RESPONSE

Ms. Wesley’s comments on the project have been noted by the FHWA. No response is necessary.

Mr. Matt White

SUMMARY

“I would prefer the Green site due to its proximity to existing industry and my understanding that it would be less costly than some other site such as the purple site.”

Issues and concerns about the project: “The slow progress of the project. This project needs to move forward as soon as possible. Especially with the potential benefits it could bring to the River Valley.”

RESPONSE

Mr. White’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Annette Whittenburg

SUMMARY

“Green – this seems to be the most logical choice for a good road access that is close to the existing industry.”

RESPONSE

Ms. Whittenburg’s comments on the project have been noted by the FHWA. No response is necessary.

Ms. Karen Whittenburg

SUMMARY

“Green. Minimal flooding, less people dislodged. This project is vital to the growth of our River Valley!”

RESPONSE

Ms. Whittenburg's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Robert D. Wiley

SUMMARY

"Green."

RESPONSE

Mr. Wiley's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Jared Wood

SUMMARY

"Green Alternative would be the best option. This is a very important Project for Russellville and the River Valley."

RESPONSE

Mr. Wood's comments on the project have been noted by the FHWA. No response is necessary.

Mr. Jeff Wright

SUMMARY

"Green best location for the project."

RESPONSE

Mr. Wright's comments on the project have been noted by the FHWA. No response is necessary.

**A.3 COPIES OF ORIGINAL COMMENT CARDS AND LETTERS RECEIVED
DURING THE OFFICIAL SDEIS PUBLIC REVIEW PERIOD**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

OCT 5 2010

Randal Looney
Environmental Specialist
Federal Highway Administration
700 West Capitol Avenue
Little Rock, AR 72201-3298

Dear Mr. Looney:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the Supplemental Draft Environmental Impact Statement (SDEIS) for the proposed River Valley Intermodal Facilities, Pope County, Arkansas. The River Valley Intermodal Facility Authority seeks to establish intermodal facilities to promote economic development, transportation capacities, competitiveness, and job creation in the Arkansas River Valley.

EPA rates the SDEIS as "LO," i.e., EPA has "**Lack of Objections**" to the proposed action as described in the SDEIS. However, we have enclosed some general comments detailed comments for your consideration which we believe would strengthen the Supplemental Final EIS (SFEIS). Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act to inform the public of our views on proposed Federal actions. If you have any questions, please contact Michael Jansky of my staff at 214-665-7451 or by e-mail at jansky.michael@epa.gov.

EPA appreciates the opportunity to review the SFEIS. Please send our office two copies of the SFEIS when it is sent to the Office of Federal Activities, EPA (Mail Code 2252A), Ariel Rios Building, 1200 Pennsylvania Ave, N.W., Washington, D.C. 20460.

Sincerely yours,

Craig Weeks, Acting Chief
Office of Planning and
Coordination (6EN-XP)

Enclosure

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**DETAILED COMMENTS
ON DETAILED
RIVER VALLEY INTERMODAL FACILITIES
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT
US ARMY CORPS OF ENGINEERS AND FEDERAL HIGHWAY
ADMINISTRATION
Near Russellville, Arkansas**

Environmental Justice Comments:

Summary EJ Assessment: This Supplemental DEIS analyzes three possible options and a “no action alternative” regarding building an intermodal (rail, barge and highway) facility for the transport/delivery of goods on the Arkansas River near Russellville, Arkansas. The purpose of this project is to promote economic development and job creation in a six-county region in the Arkansas River Valley. The SDEIS carefully analyzed the three alternate sites and the “No Action” alternative, and it appears that environmental justice (EJ) considerations were taken into account in all the analyses and determinations. There is no indication in this SDEIS that low-income or minority communities would be impacted in a disproportionate or adverse manner as a result of the construction or maintenance of this project.

Recommendation: One additional tribal nation should have been afforded an opportunity for consultation. The Wichita and Affiliated Tribes (Wichita Proper, Waco, Keechi, and Tawakoni) have occupied parts of western Arkansas and eastern Oklahoma for many years prior to European contact. It seems the Arkansas SHPO should have advised the writers of the SDEIS to consult with the Wichita as well. (See Tribal Concerns section)

Background: The project would entail building a “slackwater harbor” (a port out of the main channel of the river to allow for loading/offloading of barges without impeding river traffic) and for rail/truck, truck/barge, and rail/barge loading and offloading. A complex of warehouses and material storage would also eventually be built. This facility would enable Arkansas to have access to the Mississippi River transportation corridor.

Potential Sites: Nine possible sites were selected originally for further study. A “No Action” alternative was also selected for consideration, and three of the nine were chosen for additional study, the “Red Alternative,” the “Green Alternative,” and the “Purple Alternative.” All the sites were on or very near the Arkansas River. Some would have more negative environmental impacts than others, but the information is well laid out.

EJ Implications: The three potential sites are in semi-rural areas that reflect minority levels lower than the State’s level, and two of the three have lower poverty levels than the State’s level.

- The Red and Green Alternatives have a population that is less than 5% minority, and a 22% poverty level.
- In the Purple Alternative, there are no minorities, and 16% of the population is below the poverty level.

- These figures contrast with Arkansas's 19.2 % minority population and 17.3% below poverty level.

This project will require the relocation of some households.

- The Red Alternative will potentially require the relocation of 8 households;
- The Green Alternative will potentially require the relocation of 6 households;
- The Purple Alternative will entail the location of 15 households, six of which would be considered businesses, since they are family farms

Mitigation measures are clearly laid out. Homeowners would receive replacement value for their properties, and although it is unfortunate that the residents would have to move, the whole region will benefit financially and the residents will be provided new homes if this project goes forward. There will be no disproportionate and adverse impact suffered by the low-income or minority residents impacted by this project as described in this SDEIS.

Tribal Concerns: Although no Indian Tribes reside in the area, Tribal consultation was employed to notify certain tribes about the potential areas of construction and to learn if they had concerns that sites in their historical lands might be impacted by the construction. Fourteen Native American groups may have historical ties to the project area. These groups include:

- Alabama-Quassarte Tribal Town of the Creek Nation of Indians, Oklahoma
- Caddo Nation of Oklahoma
- Cherokee Nation of Oklahoma
- Chicasaw Nation of Oklahoma
- Choctaw Nation of Oklahoma
- Eastern Band of the Cherokee Indian Nation, North Carolina
- Kialegee Tribal Town, Oklahoma
- Jena Band of the Choctaw Indians, Louisiana
- Mississippi Band of Choctaw Indians, Mississippi
- Osage Nation of Oklahoma
- Poarch Band of Creek Indians, Alabama
- Quapaw Tribe of Oklahoma
- Thlopthlocco Tribal Town of the Creek Indian Nation of Oklahoma, and
- United Keetoowah Band of Cherokee Indians

Consultation was begun with these groups in 2005, and they were asked to assist in identifying whether locations of religious/cultural significance might be found in the proposed project area. While these tribes listed above have had a presence in the project area (some for a much shorter time than others), one additional tribal nation should have been afforded an opportunity for consultation. The Wichita and Affiliated Tribes (Wichita Proper, Waco, Keechi, and Tawakoni) have occupied parts of western Arkansas and eastern Oklahoma for many years prior to European contact. The Wichita people have also raised the issue of Spiro Mounds in eastern Oklahoma being related to the Keechi. Spiro is located east of the project area but still within the range of any aboriginal people living in the area. It seems the Arkansas SHPO should have advised the writers of the SDEIS to consult with the Wichita as well.

It appears that all other aspects of the consultation by the group is satisfactory. The SDEIS provides a list of tribes contacted and the responses received back (from the Cherokee Nation and Quapaw Tribe. The SDEIS writers' efforts have been satisfactory up to the date of the EIS. The SDEIS does identify potential impacts to affected areas and tribes appear to have been given an opportunity to comment. Tribes listed by the Arkansas SHPO appear to have been contacted at least twice by mail (2005 & 2010) and one meeting was held in Arkansas.

At the Tribal scoping meeting, only representatives of the Caddo Nation of Oklahoma attended, but no other Tribal groups participated. Consultation will continue with the groups during the decision-making process. In the event that any concerns arise, proper channels and mechanisms will be followed to ensure the protection of historical Indian sacred sites and archeological treasures, according to the SDEIS. It appears that proper steps have been put in place to ensure that Tribal concerns are addressed in accordance with NEPA.



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

9043.1
PEP/NRM



alo
JES
RTZ
GMD

ER10/705

OCT 13 2010

Ms. Sandra L. Otto
Division Administrator
Federal Highway Administration
700 West Capitol Avenue, Room 3130
Little Rock, Arkansas 72201

Dear Ms. Otto:

As requested, the Department of the Interior (Department) has reviewed the Supplemental Draft Environmental Impact Statement for the **River Valley Intermodal Facilities near Russellville, Pope County, Arkansas**. The Department offers the following comments for your consideration.

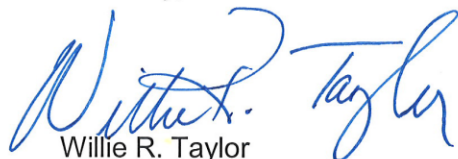
Section 4(f) Comments

The Department would concur with the determination by the Federal Highway Administration (FHWA) and the Arkansas Highway and Transportation Department (AHTD) that there are no properties eligible to be considered under Section 4(f) of the Department of Transportation Act of 1966 (48 U.S.C. 1653(f)) in the project area. Alternatives with potential impacts to these types of properties were dismissed from further consideration in this study, with the caveat that should the FHWA and the AHTD become aware of eligible properties as the study progresses, an evaluation will then be prepared.

The Department has a continuing interest in working with the FHWA and the AHTD to ensure impacts to resources of concern to the Department are adequately addressed. For continued consultation and coordination with the issues concerning Section 4(f) resources, please contact Regional Environmental Coordinator Nick Chevance, Midwest Regional Office, National Park Service, 601 Riverfront Drive, Omaha, Nebraska 68102, telephone 402-661-1844.

We appreciate the opportunity to provide these comments.

Sincerely,

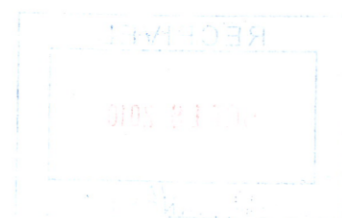


Willie R. Taylor
Director, Office of Environmental
Policy and Compliance

cc:

Mr. Dan Flowers, Director
Arkansas State Highway and Transportation Department
Post Office Box 2261
Little Rock, Arkansas 72203

Mr. Sid Brain, Chairman
River Valley Intermodal Facility Authority
708 West Main Street
Russellville, Arkansas 72801



U. S. Department of Homeland Security
FEMA Region 6
800 North Loop 288
Denton, TX 76209-3698



FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION VI
MITIGATION DIVISION

PUBLIC NOTICE REVIEW/ENVIRONMENTAL CONSULTATION

☐

We have no comments to offer.

☒

We offer the following comments:

**WE WOULD REQUEST THAT THE COUNTIES FLOODPLAIN ADMINISTRATORS
BE CONTACTED FOR THE REVIEW AND POSSIBLE PERMIT REQUIREMENTS
FOR THIS PROJECT.**

REVIEWER: *Mayra G. Diaz*
Natural Hazards Program Specialist

DATE: *11/15/10*

If additional jurisdictions are involved in the project or if you have any questions, please contact me at 940-898-5541.

Our apologies for not answering sooner.



**The Department of
Arkansas
Heritage**

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

Arkansas Natural Heritage
Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum



**Arkansas Historic
Preservation Program**

1500 Tower Building
323 Center Street
Little Rock, AR 72201
(501) 324-9880
fax: (501) 324-9184
tdd: (501) 324-9811

e-mail:

info@arkansaspreservation.org

website:

www.arkansaspreservation.com

An Equal Opportunity Employer



September 14, 2010

Mr. Luke F. Eggering PWS
EIS Project Manager
Parsons
400 Woods Mill Road South, Suite 330
Chesterfield, Missouri 63017-3426

RE: Pope County - Russellville
Section 106 Review - FHWA/COE
Russellville Intermodal Transportation Project.
AHPP Tracking No: 43922

Dear Mr. Eggering:

This letter is written in response to your inquiry regarding properties of architectural, historical, or archeological significance in the area of the referenced project. My staff has reviewed the revised draft Environmental Impact Statement (EIS) for the above-referenced undertaking, and we have the following comments to offer:

1. No preferred alternative is specifically identified in the EIS (although it seems apparent that either the North Dardanelle (Red) or the Russellville Bottoms (Green) are preferred) and the no action alternative did not receive serious consideration.
2. Most of the alternatives discussed have not been investigated for the presence of cultural resources, which makes comparison of the possible impacts of the alternatives difficult.
3. No archeologist participated in compiling the EIS, with the result that the potential commitment of time and resources for cultural resources investigations have been grossly understated. For example, at the Red and Green alternatives, the cost of test excavations alone could easily approach one million dollars and the cost of data recovery excavations could approach one million dollars per site.

Thank you for the opportunity to comment on this undertaking. If you have any questions, please contact George McCluskey or Steve Imhoff of my staff at (501) 324-9880.

Sincerely,



Frances McSwain
Deputy State Historic Preservation Officer

cc: Dr. Richard Allen, Cherokee Nation
Ms. Augustine Asbury, Alabama-Quassarte Tribal Town
Ms. Joyce Bear, Muscogee Nation of Oklahoma
Mr. Robert Cast, Caddo Nation
Mr. Terry Cole, Choctaw Nation of Oklahoma
Mr. Tracy L. Copeland, State Clearinghouse
Dr. Ann M. Early, Arkansas Archeological Survey
Dr. John Eddins, Advisory Council on Historic Preservation
Mr. Larry Harrison, Seminole Nation of Oklahoma
Dr. Andrea A. Hunter, Osage Nation
Ms. Lisa Larue-Stopp, United Keetoowah Band of Cherokees
Ms. Carol Legard, Advisory Council on Historic Preservation
Ms. Jennie Lillard, Kialegee Tribal Town
Mr. Randall Looney, Federal Highway Administration
Mr. Lynn P. Malbrough, Arkansas Highway & Transportation Dept.
Ms. Joyce C. Perser, Little Rock District, Corps of Engineers
Ms. Carrie V. Wilson, Quapaw Tribe of Oklahoma
Mr. Vernon Yarholer, Thlopthlocco Tribal Town



STATE OF ARKANSAS
**Department of Finance
and Administration**

OFFICE OF INTERGOVERNMENTAL SERVICES
1515 West Seventh Street, Suite 330
Post Office Box 8031
Little Rock, Arkansas 72203-8031
Phone: (501) 682-1074
Fax: (501) 682-5206
<http://www.arkansas.gov/dfa/igs>

September 29, 2010



Mr. Luke F. Eggering, PWS
EIS Project Manager
PARSONS
400 Woods Mill Road South, Ste. 300
Chesterfield, MO 63017-3426

RE: River Valley Intermodal Facilities – SUPPLEMENTAL DRAFT
ENVIRONMENTAL IMPACT STATEMENT – PARSONS PROJECT #744286
FEDERAL AID PROJECT #HPP-0268 (2) Arkansas Highway and Transportation
Project #080157

Dear Mr. Eggering:

The State Clearinghouse has received the above document pursuant to the
Arkansas Project Notification and Review System.

To carry out the review and comment process, this document was forwarded to
members of the Arkansas Technical Review Committee. Resulting comments received
from the Technical Review Committee which represents the position of the State of
Arkansas are attached.

The State Clearinghouse wishes to thank you for your cooperation with the
Arkansas Project Notification and Review System.

Sincerely,



Tracy L. Copeland, Manager
State Clearinghouse

TLC/nd
Enclosure
CC: J. Randy Young



Arkansas Natural Resources Commission



J. Randy Young, PE
Executive Director

101 East Capitol, Suite 350
Little Rock, Arkansas 72201
<http://www.anrc.arkansas.gov/>

Phone: (501) 682-1611
Fax: (501) 682-3991
E-mail: anrc@arkansas.gov

Mike Beebe
Governor

MEMORANDUM

TO: Mr. Tracy Copeland, Manager
State Clearinghouse

FROM: Mr. J. Randy Young, P.E., and Chairman
Technical Review Committee

SUBJECT: River Valley Intermodal Facilities
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT
STATEMENT - PARSONS PROJECT #744286
FEDERAL AID PROJECT #HPP-0268 (2)
Arkansas Highway and Transportation Project #080157

DATE: September 27, 2010



Members of the Technical Review Committee have reviewed the above referenced project; this project is intended to improve regional and national transportation, to serve existing industry, and to improve services necessary to promote economic development in the six-county Arkansas River Valley regional (Conway, Johnson, Logan, Perry, Pope, and Yell Counties.)

The Committee supports this project.

Agency comments are included for your review.

The opportunity to comment is appreciated.

JRY/ddavis



STATE OF ARKANSAS

OFFICE OF INTERGOVERNMENTAL SERVICES

**Department of Finance
and Administration**

1515 West Seventh Street, Suite 412
Post Office Box 8031
Little Rock, Arkansas 72203-8031
Phone: (501) 682-1074
Fax: (501) 682-5206
<http://www.arkansas.gov/dfa/igs>

MEMORANDUM

TO: All Technical Review Committee Members

FROM: Tracy L. Copeland, Manager - State Clearinghouse *#1429*

DATE: August 30, 2010

SUBJECT: **River Valley Intermodal Facilities – Supplemental Draft Environmental Impact Statement – Parsons Project No. 744286 – Federal Aid Project No. HPP-0268 (2) Arkansas Highway and Transportation Project No. 080157**

Please review the above stated document under provisions of Section 404 of the Clean Water Act, Section 102(2) of the National Environmental Policy Act of 1969 and the Arkansas Project Notification and Review System.

Your comments should be returned by **September 15, 2010** to - Mr. Randy Young, Chairman, Technical Review Committee, 101 E. Capitol, Suite 350, Little Rock, AR 72203.

If you have no reply within that time we will assume you have no comments and will proceed with the sign-off.

NOTE: It is imperative that your response be in to the Arkansas Natural Resources Commission (ANRC) office by the date requested. Should your Agency anticipate having a response which will be delayed beyond the stated deadline for comments, please contact Ms. Debby Davis of the ANRC at (501) 682-3830 or the State Clearinghouse Office.

<input type="checkbox"/> Support	<input type="checkbox"/> Do Not Support (Comments Attached)
<input type="checkbox"/> Comments Attached	<input type="checkbox"/> Support with Following Conditions
<input checked="" type="checkbox"/> No Comments	<input type="checkbox"/> Non-Degradation Certification Issues (Applies to ADEQ Only)

Name(print) John Turner Agency ANRC Date 9-22-2010

Telephone Number 501 682 6608



STATE OF ARKANSAS

Department of Finance and Administration

OFFICE OF INTERGOVERNMENTAL SERVICES

1515 West Seventh Street, Suite 412
Post Office Box 8031
Little Rock, Arkansas 72203-8031
Phone: (501) 682-1074
Fax: (501) 682-5206
<http://www.arkansas.gov/dfa/igs>

MEMORANDUM

TO: All Technical Review Committee Members

FROM: Tracy L. Copeland, *TRC* Manager - State Clearinghouse

DATE: August 30, 2010

SUBJECT: **River Valley Intermodal Facilities – Supplemental Draft Environmental Impact Statement – Parsons Project No. 744286 – Federal Aid Project No. HPP-0268 (2) Arkansas Highway and Transportation Project No. 080157**

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☐ Support ☐ Do Not Support (Comments Attached)

☐ Comments Attached ☐ Support with Following Conditions

☒ No Comments ☐ Non-Degradation Certification Issues
(Applies to ADEQ Only)

Name(print) JAMES L. MONTANA Agency AR FOR CORR Date 3/9/10

Telephone Number 501-296-1863



STATE OF ARKANSAS

OFFICE OF INTERGOVERNMENTAL SERVICES

Department of Finance and Administration

1515 West Seventh Street, Suite 412
Post Office Box 8031
Little Rock, Arkansas 72203-8031
Phone: (501) 682-1074
Fax: (501) 682-5206
<http://www.arkansas.gov/dfa/igs>

MEMORANDUM

TO: All Technical Review Committee Members
FROM: Tracy L. Copeland, Manager - State Clearinghouse
DATE: August 30, 2010
SUBJECT: River Valley Intermodal Facilities – Supplemental Draft Environmental Impact Statement – Parsons Project No. 744286 – Federal Aid Project No. HPP-0268 (2) Arkansas Highway and Transportation Project No. 080157

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☒ Support ☐ Do Not Support (Comments Attached)
☐ Comments Attached ☐ Support with Following Conditions
☒ No Comments ☐ Non-Degradation Certification Issues
(Applies to ADEQ Only)

Name(print) William Prior Agency AGS Date 9-8-2010
Telephone Number 683-0117



Keeping the Natural State natural.

Loren Hitchcock
Interim Director

Arkansas Game and Fish Commission

Mike Armstrong
Assistant Director

MEMORANDUM

TO: Randy Young, Chairman
Technical Review Committee

DATE: September 16, 2010

FROM: Craig K. Uyeda, Member
Ecological & Engineering Services

CC: USFWS, Conway, AR
State Clearinghouse ✓
USACE - MVM - LRD - VXD
Mark Oliver, AGFC
David Goad, AGFC

Subject: Public Notice

Responsive to the memorandums from the State Clearinghouse of August 30, 31, and September 7, 8, 9, 2010, this is to advise that we anticipate insignificant adverse impacts to fish and wildlife resources associated with these proposed activities. We have no objections to issuance of the following Public Notices; however, we have included comments.

RIVER VALLEY INTERMODAL FACILITIES – SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT – PARSONS PROJECT NO. 744286 – FEDERAL AID PROJECT NO. HPP-0268 (2) ARKANSAS HIGHWAY AND TRANSPORTATION PROJECT NO. 080157 – Biologists from our agency have reviewed the River Valley Supplemental Draft Environmental Impact Statement and recommend the proposed Green Alternative. This alternative appears to lessen impacts to the shoreline of the Arkansas River and fish and wildlife resources.

PUBLIC NOTICE NO: MVM-2010-264 (RDM) JOINT PUBLIC NOTICE, CORPS OF ENGINEERS & STATE OF ARKANSAS – MVM – USACE – The USACE, Memphis, Little Rock, and Vicksburg Districts, District Engineers proposes a Regional General Permit to authorize deposition of fill material into waters of the United States, as regulated by Section 404 of the Clean Water Act, associated with the relocation of agricultural drainage ditches in the state of Arkansas. This RGP authorizes the relocation of up to 3,000 linear feet of a previously constructed/channelized agricultural drainage ditch currently in use for established farming operations.

EMERGENCY STREAMBANK AND SHORELINE EROSION PROTECTION STUDY ON THE WHITE RIVER AT THE BATESVILLE SOUTHSIDE WATER TREATMENT PLANT INTAKE STRUCTURE – INDEPENDENCE COUNTY, ARKANSAS – LRD – USACE – The USACE, Little Rock District, has initiated an "Emergency Streambank and Shoreline Erosion Protection" study on the White River at the Batesville Southside Water Treatment Plant intake structure located approximately 0.75 miles above the Highway 167 bridge in Independence County, Arkansas.

RECEIVED

SEP 21 2010

2 Natural Resources Drive • Little Rock, AR 72205 • www.agfc.com
Phone (800) 364-4263 • (501) 223-6300 • Fax (501) 223-6448

INTERGOVERNMENTAL
SERVICES
STATE CLEARINGHOUSE

The mission of the Arkansas Game and Fish Commission is to wisely manage all the fish and wildlife resources of Arkansas while providing maximum enjoyment for the people.

**SPECIAL PUBLIC NOTICE – ONE-YEAR TRIAL IMPLEMENTATION PERIOD OF THE
EASTERN MOUNTAINS AND PIEDMONT INTERIM REGIONAL SUPPLEMENT TO THE
1987 WETLAND DELINEATION MANUAL – MVK – LRD – USACE.**

Thank you for the opportunity to comment on these proposed projects.

RECEIVED
SEP 21 2010
INTERGOVERNMENTAL
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STATE CLEARINGHOUSE

2 Natural Resources Drive • Little Rock, AR 72205 • www.agfc.com
Phone (800) 364-4263 • (501) 223-6300 • Fax (501) 223-6448

*The mission of the Arkansas Game and Fish Commission is to wisely manage all the fish and wildlife resources
of Arkansas while providing maximum enjoyment for the people.*

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CAROLYN MCGEE
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OFFICE 120 N. FRONT

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KENNARD K. HELTON
901 NORTH FRONT ST.
OFFICE 108 QUAY STREET

CLERK
FRANCES MYERS
P.O. BOX 380
OFFICE 120 N. FRONT

City of Dardanelle

P.O. BOX 360
DARDANELLE, ARKANSAS 72834
PHONE 479-229-4500 • FAX 479-229-4804

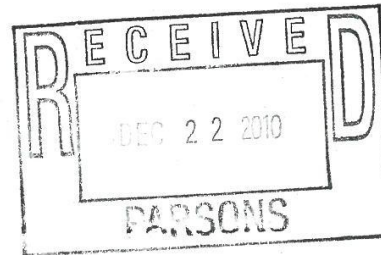
ALDERMAN WARD 1
KENNY GEORGE
KURT SPEARS

ALDERMAN WARD 2
JULIA ANN TAYLOR
DOYLE MCENTYRE

ALDERMAN WARD 3
KENNETH TAYLOR
JAMES H. GEORGE

December 15, 2010

Mr. Darren Mitchell
Parsons
400 Woods Mill Road South
Chesterfield, Missouri 62122



Re: SDEIS Comments

Dear Mr. Mitchell:

I appreciate the opportunity to comment on the SDEIS for the River Valley Regional Intermodal Facilities. I would first, like to point out that without the resources to properly model the study area, I must rely on data supplied within the SDEIS by your firm, the Pope & Yell County FIRM's and history as it relates to the flood plain within the city limits of Dardanelle.

After review of the draft, I feel the following comments are in order.

There appears to be a discrepancy between the FIRM's for the Pope County and Yell County BFE's along the Arkansas River. As used in your modeling, the Pope County FIRM shows a BFE of 323.00 at the Hwy 7 River Bridge. The BFE on the Yell County FIRM at the same location shows an elevation of 320.00. Depending upon which elevation is correct, the impact could be as much as 3.00 feet.

Part of the study area is along the Dardanelle Levee System. In a letter to the chairman of the Carden Bottoms and Dardanelle Drainage Districts, dated February 4, 1993, these levees were deemed unacceptable. In one instance, a portion of the levee had been restored to natural ground level. Was this taken into account when the floodplain analysis was conducted?

The study area mainly deals with the floodplain directly adjacent to the proposed project. However, I feel the implications of removing 700 plus acres from the undelineated floodway of the Arkansas River will have implications reaching from the Dardanelle Lock and Dam all the way to the Morrilton Lock and Dam. Any rise in Base Flood Elevation will affect all areas within the floodplains of the areas between the two dams.

Historically, Dardanelle's flooding is not directly caused by the Arkansas River, rather by the rivers affect on Smiley Bayou which runs along the western borders of Dardanelle. The flood prone areas of Dardanelle flow into the Smiley Bayou, which in turn drains into the river south of town in the Hollow Bend Refuge area. When the river rises during periods of heavy rains in the western states, the bayou backs up from the rising waters of the river. Then when heavy rainfall hits the local area, the backup of Smiley Bayou caused by the rise of the Arkansas River, creates flooding within Dardanelles western and southern floodplains. Any increase of rise caused by the removal of 700 plus acres of floodplain would only serve to enhance the flooding in these areas of Dardanelle. I feel that in the very least the area of study should have included the entire city of Dardanelle and the areas south of town up to and including where the bayou drains into the Arkansas River.

It is my belief that until these questions are answered, no permits should be issued for development within the floodplain as outline in the SDEIS.

Respectively,

A handwritten signature in black ink, appearing to read "Bill Smith", with a long horizontal flourish extending to the right.

Bill Smith, Floodplain Administrator
City of Dardanelle



POPE COUNTY CONSERVATION DISTRICT
& FLOODPLAIN ADMINISTRATION
420 N HAMPTON SUITE B
RUSSELLVILLE, AR 72802
479-968-3881 EXT. 101
FAX: 479-968-5933

November 23, 2010

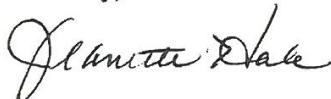
Darren Mitchell
Parsons
400 Woods Mill Road South
Chesterfield, Missouri 63122

Dear Darren:

I have reviewed the various alternatives in the proposed Russellville Intermodal facility. Various alternatives in this project do impact floodplains. It appears that none of the area (green or red alternatives) are located within a "floodway". They are located in zones AE and/or in A, so they do require a floodplain development permit from the County. It is important that the cumulative increases in flood levels be maintained for whichever alternative is chosen. Permits may be required for specific aspects of the project, for example, buildings, fill, road, etc.

I will be happy to forward a copy of the ordinance and codes if you would like to review them.

Sincerely,



Jeanette Hale, CFM

Yell County Historical & Genealogical Association

Yell County, Arkansas
P.O. Box 622
Dardanelle, Arkansas 72834

September 28, 2010

Randal J. Looney
Environmental Specialist
700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298

Ms Gloria Craig, President
Yell County Historical &
Genealogical Association
11763 Oak Grove Road
Dardanelle, AR 72834

Ref: River Valley Intermodal Facilities Supplemental Draft Environmental Impact
Statement, Section 106 Review/Archeological Sites.

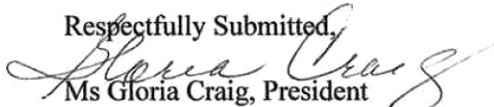
Dear Mr. Looney,

On behalf of Yell County Historical & Genealogical Association members, we offer the following issues and concerns regarding need to protect and preserve for future generations Native American archeological and cultural resource sites within the boundaries of the proposed Red and Green Alternatives. Intensive research of these sites have been undertaken by AR Tech U, Dr. Skip Abernathy and others over the years, and reveal the richest treasure of early Indian occupation between Little Rock and Ft. Smith. Cherokee, and a mixture of other Native American tribes, have occupied this floodplain adjacent to the Trail of Tears, now a historical landmark.

Many current residents of Yell and Pope County descend in some measure from these tribes and place great value on preserving their cultural heritage. The SDEIS fails the sufficiency test of site-specific grading these sites or considering alternatives that would avoid their destruction. Many of these sites apparently qualify for protection under the National Historic Preservation Act for they meet Criteria A; B; C; and D: 4.16.1 Affected Environment, page 324. Project sponsor, Parsons, FTN Associates, Corps of Engineers and FHWA have failed over the past 10 years to adequately evaluate and identify impacts the green/red alternatives present to Cultural Resources.

The Alternative screening process is notably fabricated to disqualify Alternatives that would protect Cultural Resources. To correct this bias, our organization respectfully requests Independent External Peer Review of impacts the green and red alternatives present to archeological resources. We appreciate your attention to our concerns.

Respectfully Submitted,



Ms Gloria Craig, President
Yell County Historical & Genealogical Association

Cc file
Ken Grunwald, Dept. of AR Heritage
1500 Tower Building
323 Center Street
Little Rock, AR 72201



P.O. Box 508
Dardanelle, AR 72834

Randal Looney
Environmental Specialist
Federal HWY Administration
700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298

Jim Wood, Chairman
Intermodal Study Committee
Yell County Wildlife Fed.
56 Delaware Bay Road
Dardanelle, AR 72834
September 22, 2010

Dear Randal,

The below is a follow up to our Sept. 16 conversation with you at the public information meeting regarding my request for FHWA to institute a Independent External Peer Review Panel to examine methodology and accounting analysis of the River Valley Intermodal Facilities Supplemental Draft EIS. Yell County Wildlife Federation and City of Dardanelle formally requests IEPR be applied by a National Academy of Scientist Panel to issues of disputed environmental effects, including threats to community safety.

We find SDEIS fails to meet the Data Quality Act of 2000 Guidelines which mandate, "In those situations involving dissemination of influential scientific, financial or statistical information, a high degree of transparency of data and methods must be ensured to facilitate the reproducibility of such information by qualified third parties". We find the SDEIS Appendix B Floodplain Analysis Report fails this test and also seems to notably fail NEPA's Sec. 102(2) to the fullest extent possible test. Moreover, given the Federal Emergency Management Agency oversight policy to provide a leadership floodplain regulatory role at 44 CFR 60 and 40 CFR 1501.6 "jurisdiction by law" we reaffirm our previous request that FEMA be included as a Cooperating Agency in this NEPA Process.

We conclude that IEPR is a proper mechanism for elevating this document to a quality necessary to meet NEPA's sufficiency test and ask that it be applied to quantifying potential project impacts to the following issues of significant public dispute.

1. Loss of flood storage function the approximately 800 acres of the shared base floodplain presents to City of Dardanelle and Yell County portion of the floodway and floodplain, and potential such floodway encroachment presents to delineation of floodplain boundaries on the Dardanelle side of the River. Quantify using transparent, accurate accounting methods to site-specific, reveal proposed project impacts to FEMA Flood Insurance Rate Map and Special Flood Hazard Areas and Dardanelle's Federal Flood Insurance Program.



2. Locate, identify and grade each archeological and native American Cultural Resource site and impacts proposed Alternatives present to each.
3. Flood induced impacts to Dardanelle Bottoms and Holla Bend National Wildlife Refuge resulting from removing 800 acres of floodplain functions the Greene and Red Alternatives present to historically unstable flood blowout areas of the shared floodplain.
4. Provide a transparent economic benefit/cost analysis in specific accounting detail for each studied Alternative, sufficient to meet NEPA Sec. 102(2) to the fullest extent possible test. Methodology to grade the proposed projects worthwhile test must evaluate and compare cumulative long term local tax and sphere of economic benefits that would be traded off by forcing private riverside ports and regional transportation systems either out of business or to unfairly compete with non taxpaying subsidized project systems.
5. Additionally, since the Corps of Engineers is a Cooperating Agency, we question as to whether provisions of the 2007 Water Resource Development Act Sec. 2034 Independent External Peer Review applies to the Corps Appendix B analysis, given that the project is highly controversial with City of Dardanelle and others who share affected floodplain functions? The SDEIS is declared to meet the NEPA test as a Stand Alone Document?

The Yell County Wildlife Federation and City of Dardanelle respectfully request that the Lead Agency/Federal HWY Administration provide Independent External Peer Review of the above issues at controversy regarding the River Valley Intermodal Facilities Supplemental Draft Environmental Impact Statement. Should you have questions, please contact either Mayor McGee or Jim Wood at the below phone No.

Respectfully Submitted

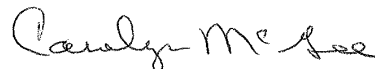


Jim Wood, Chairman

Intermodal Study Committee
Yell County Wildlife Federation
Ph 479-229-4449

Cc. file

Guy Lowes, Civil Engineer (Arkansas)
Federal Emergency Management Agency
800 North Loop 288
Denton, TX 76201-3698



Honorable Carolyn McGee
Mayor, City of Dardanelle
479-229-4500



P.O. Box 508
Dardanelle, AR 72834

Randal Looney
Environmental Specialist
Federal HWY Administration
700 West Capitol Avenue, Room 3130
Little Rock, AR 72201-3298

From: Jim Wood, Chairman
Intermodal Study Comm.
Yell County Wildlife Fed.
56 Delaware Bay Road
Dardanelle, AR 72834
October 16, 2010

Ref: Federal HWY Administration solicitation of comments regarding Supplemental
Draft Environmental Impact Statement for the proposed River Valley Intermodal
Facility.

Dear Randal,

The following constitutes Yell County Wildlife Federations response to the above
SDEIS solicitation. Our organization has participated in this Project NEPA Process over
the past 10 years and continue to have an elevated interest in this proposed extensive
floodplain development Facility. We offer the following comments and appreciate your
attention to our Issues and Concerns.

The SDEIS continues to fail the NEPA Section 102(2)(C) sufficiency test to
“determine the environmental impacts of the proposed action” on the entire floodway and
presents a document largely repeating promotional type general statements and
assumptions, absent a supporting accounting analysis, relying largely on little more than
imagination. Although declared to be a “stand-alone” SDEIS, it is absent a “hard look”
that “rigorously explore and objectively evaluate all reasonable alternatives.” Objectivity
of the NEPA Process is destroyed by a Alternative screening process that, except for the
new Lake Dardanelle Purple Alternative, fails to consider Project locations that avoid
base floodplain encroachment and AR River floodway functions that provide existing
flood reduction benefits to the City of Dardanelle and Yell County property owners.

Regarding cumulative impacts, and SDEIS general lack of analysis to support
conclusions, Judge Wilson’s 16 August 04 Order provides guidance and states, **“This
inquiry requires some quantifiable or detailed information...general statements
about possible effects and some risk do not constitute a hard look absent a
justification regarding why more definitive information could not be provided.”** We
believe this SDEIS continues to fail Judge Wilson’s 8-16-04 Order upon which he
justified his “permanent injunction pending completion of an EIS.” The document
continues the same DEIS flaw in its failure to analyze cumulative impacts and consider
Dardanelle and Yell County portion of the floodplain as part of the Affected
Environment, a data gathering function of FEMA’s FIRM mapping periodic review
process. Judge Wilson’s Order further finds that **“the various components of a project
required a study of the cumulative environmental impacts of the entire project”**



we conclude the levee encircling 886 acres of this shared floodplain, and encroachment upon floodway functions, is part of the “entire Project” and its sphere of influence upon Dardanelle and Yell County lacks definitive documentation in the SDEIS Appendix B?

SDEIS response to our 4-24-06 comments follows a pattern of summarizing and language modification instead of providing a definitive response specifically answering the issue, concern or question we raised. The following at 4.(d) (4-24-06 comments) is an example: “DEIS calculates to levy off 2/3 of the floodplain at Nav Mile 202.09, take out 800 acres of flowage area, and 485,000 cfs only raises flood level 0.06 feet (less than an inch). This is scientifically impossible.” We further quoted Corps calculating guidance at EP 1165-2-1, Chapter 13-6, b. and c. regarding how levees and floodplain modifications affect flood water levels. Your response is “The USACE floodplain analysis document can be found in Appendix B of the SDEIS” which does not answer the accuracy issue we raised. This method of response falls short of Judge Wilson’s “definitive detailed information” requirement. And is further supporting evidence that SDEIS Appendix B calculations need Independent External Peer Review which we requested in the DEIS and now reaffirm.

With exception to the additional Purple Alternative, the SDEIS is little more than a restatement of the same February 2006 DEIS and flawed Alternative screening process fabricated to limit Alternatives to the Green & Red, which are so alike as to be the same proposed action. Moreover the SDEIS fails NEPA’s (1502.14) test of “providing a clear choice among options by the decision maker and the public.” Verbose descriptions of the affected Pope County environment are themselves no measure of the adequacy of an environmental impact statement (1502.15) Affected Environment. SDEIS illegally narrows the Affected Environment to Pope County without a definitive analysis of the expanded sphere of influence the Red & Green Alternatives present to the shared floodplain situation. In addition to our largely unanswered 4-24-06 comments, we will clarify several reasons why this SDEIS continues to fails NEPA’s sufficiency test.

1. Floodplain Impacts: 44 CFR 9 identifies a Floodway as “that portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where the flood hazard is generally highest, where water depths and velocities are the greatest.” SDEIS 4.13.1 states, “The 100 year floodway was calculated---and then the proposed harbor was modeled within the floodway. The results showed the proposed harbor did not impact the 100 year flood elevation---“. SDEIS continues limiting base flood elevation impact modeling to using only the proposed harbor USACE data without considering consequence of the entire 886 acre encroachment, a notable disregard for Judge Wilson’s **environmental impacts of the entire project** requirement. The River separating Dardanelle from the Green and Red alternative areas clearly meets the “effective in carrying flow” test and both sides qualify as being part of the affected floodway environment. Does FHWA agree with this conclusion?

(a) The SDEIS fails to map the entire affected AR River floodway for the proposed Red and Green alternatives, and thus lacks sufficiency in identifying the pre project existing baseline floodway situation essential to comparing alternatives. It fails to “succinctly

describe the environment of the area(s) to be affected or created by the alternatives under consideration” (1502.15), and fails to rigorously analyze the sphere of potential floodway encroachment impacts to Dardanelle and Yell County. Appendix B is a brief listing of figures, but fails to “explain methodologies of research and modeling” (CEQ 40 FAQ’s).

(b) SDEIS continues to avoid considering floodway impacts under a flawed claim that the project area does not have a regulated floodway. NEPA’s “to the fullest extent possible” test destroys such a claim, and requires that the floodway within the Red and Green alternatives sphere of influence are thresholds for decision and must be mapped and project encroachment upon floodway’s carrying capacity on both sides of the floodplain must be quantified for a base flood situation. Thus, SDEIS falls short of quantifying impacts to the Affected Environment.

(c) FEMA revised on 3-4-02 FIRM mapping for City of Dardanelle base floodplain (100 year) adjacent to and opposite the proposed Red and Green alternatives, as having an existing 320’ elevation, while SDEIS Appendix B analysis raises the existing elevation to 322’ for this same location? Thus, FEMA’s accounting for mile 202.09 is not 321.98’, but is 320’ causing your modeling to reveal that both Red/Green Alternatives will increase the base 100 year flood elevation more than two feet. Given that FHWA “uses the same methods as the FEMA flood insurance study” (SDEIS pg 287) please clarify how using the same accounting methods FEMA produces a “existing” base flood elevation of 320’ and USACE 321.98’? This 1.98’ increase itself disqualify both Alternatives from meeting the one foot floodplain increase test of EO 11988. The SDEIS noticeably fails to consider the Issue of protecting the health and safety of City of Dardanelle and Yell County property owners. Thus we request Independent External Peer Review of the accounting methods FHWA is using to justify the Appendix B analysis.

2. US Constitution Amendment 5 Takings Issue: The proposed Red & Green Alternatives clearly impacts to raise FEMA’s base floodplain delineation and FIRM mapping for City of Dardanelle. The Red & Green alternatives floodplain/floodway encroachment shifts impacts from major flood events over to Dardanelle property owners, and increase the number of homeowners required by lending institutions to purchase flood insurance as a condition of securing home loans. This situation raises a US Constitution “takings” Issue qualifying for SDEIS analysis under NEPA Sec. 102(2) and absolutely demands Independent External Peer Review to firm up accounting accuracy. Plain language (1502.8) and definitive information is absent as to why USACE’s Appendix B calculated existing base flood elevation is 2’ higher than FEMA’s FIRM mapped 320’ elevation. It is appropriate to point out that the Corps has a less than reliable record of accuracy in Pool 9 floodplain mapping. And it should be noted that the AR River Land Impact Study (January 1990) data, SDEIS now uses, was generated in response to successful private property flood damage lawsuits on AR River near Ft. Smith against USACE. It is also relevant to this proposed Project that in July ‘09 the Federal Claims Court found that USACE had caused a \$7.3 million “takings” through a “super induced addition of water” upon Dave Donaldson Black River WMA. Flood or FIRM mapping impacts that the Red/Green alternatives shift over to Dardanelle appears to be a similar US Constitution

“takings” Issue that NEPA requires to be analyzed with definitive detailed information.

(a) Your response to our 4-24-06 request for Peer Review of USACE’s hydraulic modeling is, “USACE is the acknowledged expert to floodplain determination and is routinely responsible for such determinations”, fails to answer our challenge to accounting accuracy we consider mandated by 1502.24, Methodology and Scientific accuracy. Moreover, when a Lead Agency relies upon data provided by other Agencies or sources, the Lead Agency is responsible for assuring accuracy of such information in order to provide “supporting evidence that the Agency has made the necessary environmental analysis” 1502.1. SDEIS fails to assure USACE accounting accuracy?

(b) Hydrologic/Hydraulic Analysis, Appendix B par 3: FHWA’s finding that USACE is the acknowledged expert in floodplain determination, is not supported by Yell County Wildlife Federation experience during our participation in the quoted January 1990 AR River Land Impact Study (ARLIS) for Pool 9/Rockefeller Lake from which you refer to at 3.1. Neither does your response meet NEPA’s “supporting evidence” test. This matter of disagreement is relevant to the SDEIS because FHWA relies upon ARLIS data that USACE themselves found in the 1990’s to be inaccurate. In May ‘97 AR Attorney General Winston Bryant sued the Corps requesting a full EIS be developed to firm up accuracy of ARLIS hydraulic modeling. Midway of this \$33 million ARLIS flood impact/flowage easement project, USACE themselves found numerous errors in their HEC-RAS hydraulic modeling and chose to permanently terminate the project. The project area on Pool 9/Green & Red Alternative, was the area of major hydraulic dispute. This disagreement alone reaffirms our conclusion that Appendix B USACE modeling be subjected to IEPR.

(c) AR River at mile 200 is recognized by USACE as a historically unstable blow out area where flood events have produced catastrophic damage to farmlands, a situation that will likely be exacerbated by removing the Project areas 886 acres of base floodplain surge area. There is a notable failure to discuss how this levee and floodplain modification negatively or positively affects flood water levels at this unstable location, but is recognized by USACE at their EP 1165-2-1. The proposed Project poses threat to shift blowouts from major flood events down through Dardanelle Bottoms and through Holla Bend National Wildlife Refuge. SDEIS also fails to discuss the direct and indirect effects this situation presents to Environmental Consequences 1502.16. It appears that this situation qualifies as a “takings” Issue under US Constitution Amendment 5?

3. Failure to provide Economic Analysis: We disagree with FHWA’s response at page A-124 “NEPA regulations do not require a benefit/cost analysis” which we find contrary to 1508.8(b) Effects---“Effects and impacts as used in these regulations are synonymous.” Effects include----aesthetic, historic, cultural, **economic**, social or health, whether direct indirect, or cumulative. How can you reasonable account for economic Effects without meeting Judge Wilson’s **quantifiable definitive information** requirement? FHWA avoids an Economic Analysis on a flawed misplaced argument based on 1502.23 option to exclude requiring b/c ratios for actions having a purpose and need solely on

“qualitative” instead of quantifiable economics. SDEIS describes a proposed project whose purpose is based almost exclusively upon imaginary general statements of Economic benefits that fails to be based upon supporting definitive information and analysis. SDEIS also fails to provide a supporting qualitative analysis as to the Effects and Impacts loss of floodplain/floodway functions, resulting from the Green and Red Alternatives, presents to others who benefit from retaining these existing health and safety qualitative functions and benefits? Effects and Impacts accounting fails NEPA sufficiency test without a “definitive” Economic Analysis that includes b/c accounting.

(a) Purpose and Need for the project at ES.2 is to **promote economic development by creating new jobs, specifically higher wage jobs, improve transportation capacity and competitiveness** ---. NEPA is a site-specific process. Other than broad imaginary general statements, SDEIS is notably absent an accounting analysis as to how Effects from converting the existing privately owned and operating transportation system to a taxpayer subsidized system meets the “worth-while” test? We view Judge Wilson’s Order that “general statements about potential effects” fails to provide a hard look at quantifying whether an Alternative meets the test of providing more benefits than cost, or does the action trade off more of both qualitative and quantitative benefits than is gained? We hold to our previous conclusion that the SDEIS continues the same flaw in the DEIS of basing Purpose and Need, not upon high quality supporting evidence of Need, but upon some broad imaginary opinion that Need will occur at some unknown future time. A better qualitative and quantitative transparent analysis must be provided to support Need.

4. Cultural Resources: Since early Indian settlement of this area (see Nov. ‘02 Intermodal Env. Assessment 3.5 Cultural Resources and Local History) the Red and Green Alternative sites have been well known rich Cultural and Archeological resources. Yet with an immense information base of site specific data for these two sites as declared by AR Archeological Survey, the SDEIS fails to provide a mapping of these resources. Environmental Consequences (1502.16), direct and indirect effects upon Cultural Resources, would be to destroy the “regional archeological record decreasing its overall research contribution”. Without Mitigation that avoids destruction of these Cultural Resources by expanding Alternatives considered to non floodplain locations.

(a) Mitigation is declared at SDEIS 4.16.2.2.4 to be labor intensive and costly. Therefore, in order to meet NEPA’s “before decisions are made or actions taken” test, to the fullest extent, cost to protect these resources must be subjected to a cost accounting analysis.

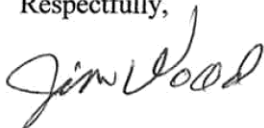
(b) SDEIS provides no quantifiable or definitive mapping information as to the 49 referenced archeological sites in the Red Alternative or the 72 sites in the Green Alternative. Neither are nearby sites east of the two Alternatives mentioned although they are a connected part of New Hope Bottoms cultural resources. This lack of definitive information notably fails 1500.1 Purpose that information must be available “before decisions are made and before actions are taken.”

(c) Regarding Cultural Resource data, 1502.22(a) provides guidance that “if the

information is not known and overall cost to obtain it is not exorbitant, the agency shall include the information in the EIS.” SDEIS has notably fabricated a alternative screening process that allows destruction of cultural resource sites. In the above referenced ‘02 EA Response to Comments, Dr. Skip Stewart-Abernathy from AR Archeological Survey ATU Station, alerted the Lead Agency about potential major impacts to archeological resources, yet the SDEIS continues to lack sufficiency in determining how these historically significant sites will be mitigated. Producing a Record of Decision absent this information is disallowed by NEPA.

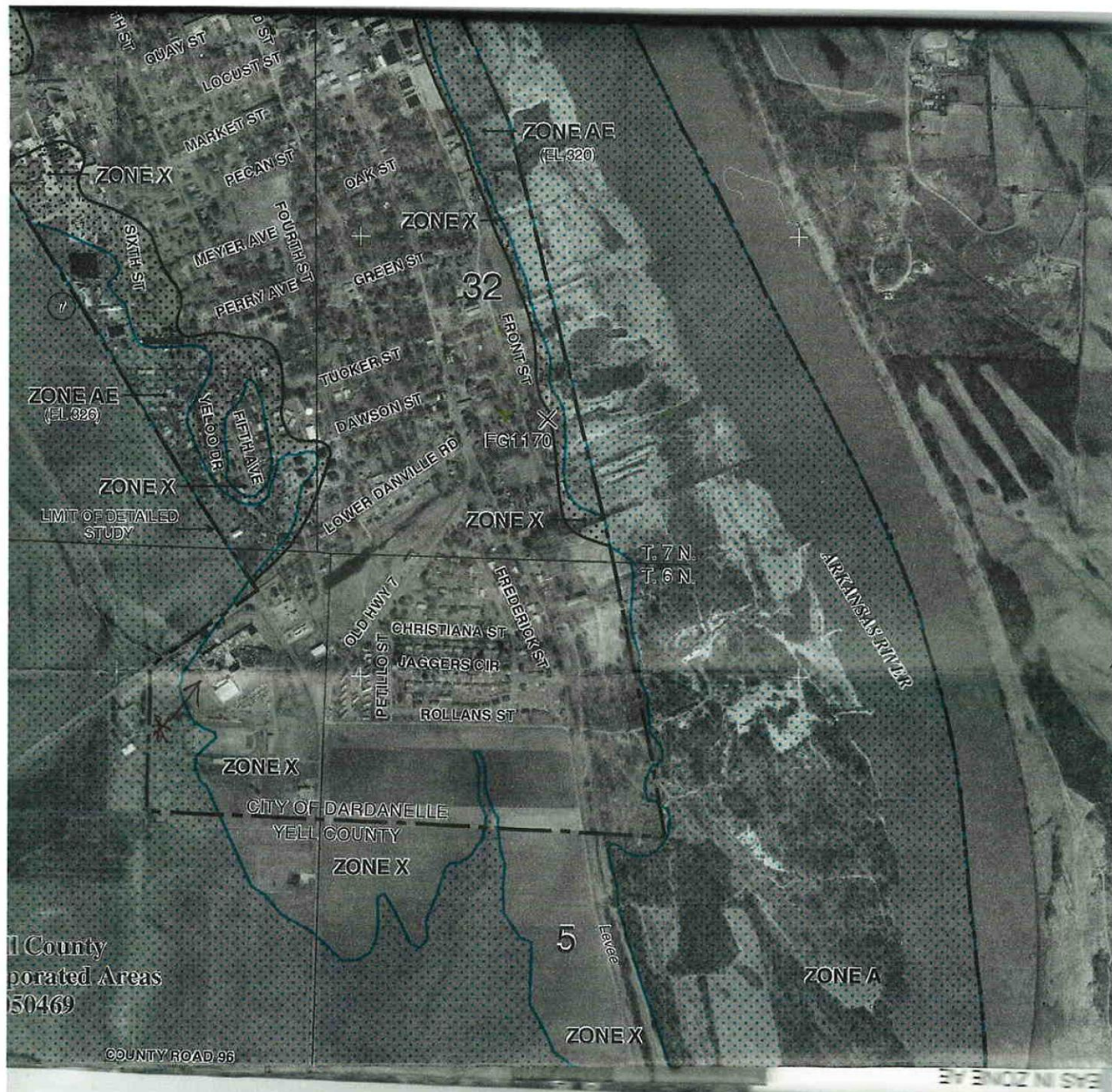
We find the SDEIS to largely fail NEPA’s sufficiency test. The document fails to take a hard look at a range of reasonable alternative sites that would avoid encroaching upon floodplain/floodway functions essential to protecting City of Dardanelle FEMA FIRM mapping and health and safety of the community. Given that FEMA and not FHWA or USACE has the legal regulatory role by law to determine 100 year base flood delineations and modifications for City of Dardanelle, we question why FHWA fails to included FEMA as a Cooperating Agency or at least have consulted with them in developing this SDEIS? Excluding FEMA appears to be a scheme by Project sponsors to avoid an analysis of impacts the Red and Green Alternative presents to City of Dardanelle’s FIRM mapping and Federal Flood Insurance Program. SDEIS relies largely upon promotional broad assumptions about economic benefits but fails to provide quantifiable definitive information or accounting formulas to support these figures? Based upon similar situations both Red and Green Alternatives appear to violate the US Constitution through creating a “takings” situation upon City of Dardanelle and property owners, and if either Alternative is approved, raises an Issue as to whether FHWA or some other government entity will be subject to damage claims? Of the three Alternatives now considered in the SDEIS, the Bend (Purple) Alternative is the only action that avoids a “takings” issue under the US Constitution. We appreciate this opportunity to comment on this proposed floodplain development project SDEIS.

Respectfully,



Jim Wood, Chairman
Intermodal Study Committee
Yell County Wildlife Federation
Cc file
Enclosures

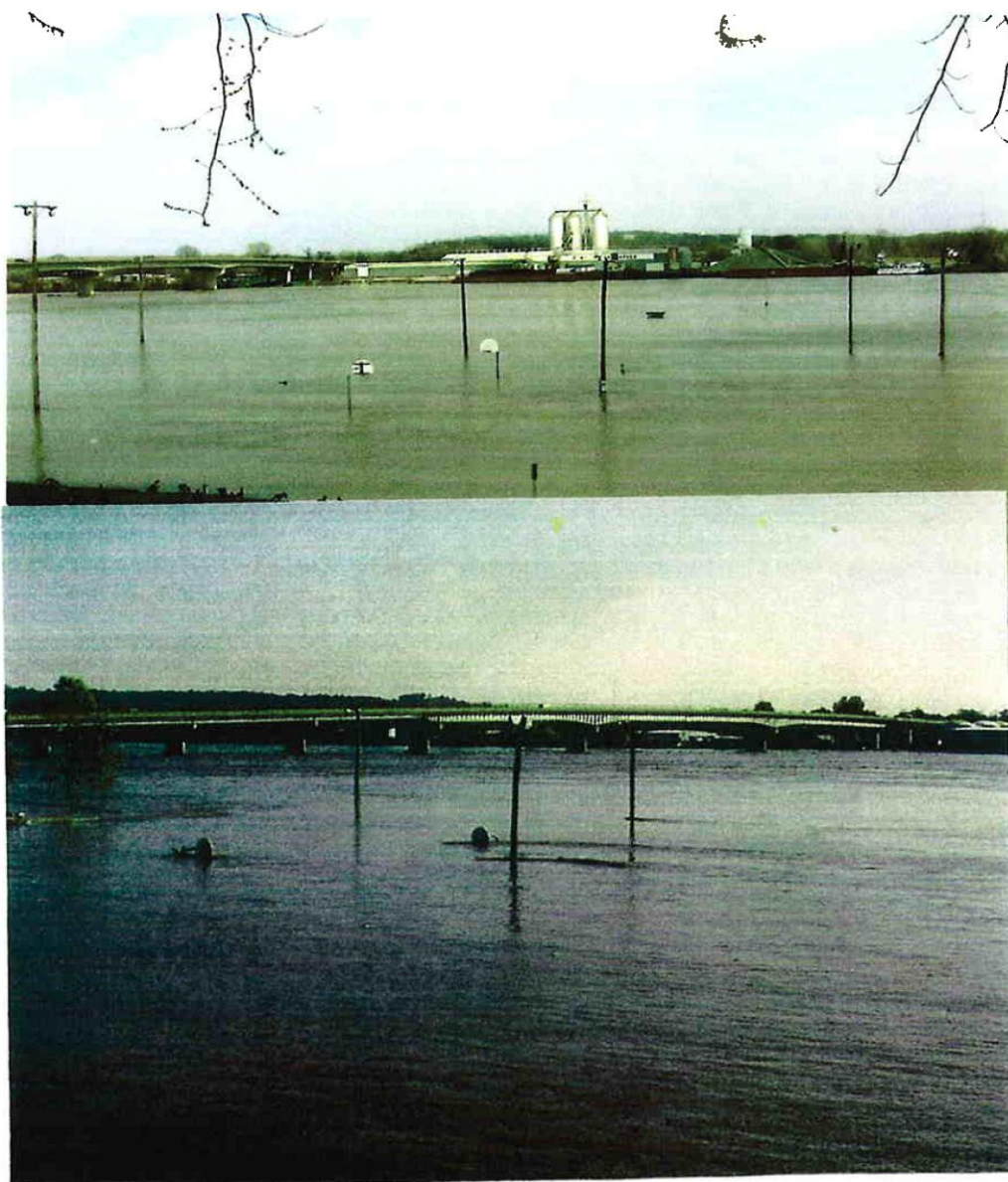
Guy Lowes, Civil Engineer (Arkansas)
FEMA, Federal Regional Center
Denton, TX 76201-3698



Note that Dardanelle's existing 100 year base flood elevation is depicted by the blue line Zone AE, is at 320' elevation and the school complex * would be affected as well as many residential properties and businesses with only a minor raising of the base flood delineation. It is mathematically impossible to shift 800 acres of flood surge over to Dardanelle without a major impact to Flood Insurance Rate Mapping.



The above photo #1 shows the base floodplain type landscape across the lower portion of the Red and Green Alternatives. Photo #2 taken on 3-19-08 of the same area displays how at 321,000 cfs flow (164,000 cfs below a base flood) the area becomes part of the AR River floodway to evacuate floodwaters. The floodplain's existing function serves to lower base flood impacts upon Dardanelle and helps protect the communities health and safety. Appendix B calculation that shifting 800 acres of these flood waters for a 485,000 cfs base flood event only raises level at Dardanelle .06 feet is mathematically impossible and seems to indicate an effort to falsify information in an official government document.



Both photos are of the same view of Dardanelle Riverfront Veterans Park. Photo #1 taken 3-19-08 the River flow was 321,000 cfs. Photo #2 taken May 5, 1990 with River flowing at 433,000 cfs (52,000 cfs below a 485,000 cfs base flood). This depicts the floodway benefits that would be totally lost by either the Red or Green Alternatives. And reveals threats both Alternatives present to health, safety and property within Dardanelle and Yell County. Corps accounting in Appendix B analyzes only the slack water harbor and fails to consider Environmental Impacts the 800 acre floodplain/floodway encroachment presents to others who share this riverside environment. SDEIS lacks sufficiency to comply with NEPA. Appendix B .06 foot elevation increase for a base flood event is inaccurate.

Porath, Rebecca

From: Parsons, RiverValleyEIS
Sent: Tuesday, October 26, 2010 1:31 PM
To: Randal.Looney@dot.gov; Lynn.Malbrough@arkansashighways.com;
Don.Nichols@arkansashighways.com
Cc: 'Sid Brain'; Roy Reaves; David Manns; Porath, Rebecca
Subject: FW: Intermodal Project Comment

Interesting comments from the Little Rock Port Authority.

From: Paul Latture [mailto:platture@yahoo.com]
Sent: Saturday, October 23, 2010 4:29 PM
To: Parsons, RiverValleyEIS
Cc: dmanns@provident-strategies.com; Jeff Pipkin
Subject: Intermodal Project Comment

I have been the executive director at the Little Rock Port Authority for 12 years and have been in economic development for almost 40 years. I have been following with great interest the proposed intermodal project for the Arkansas River Valley . I am providing comments because I am concerned that the proposed multimodal facility near Russellville would not be economically viable if the wrong site is selected.

As the long-term director of a major intermodal operation, there are two major issues that stand out to me as critical to the success of the proposed facility near Russellville.

The first of the biggest challenges will be establishing and operating a short-line rail. I understand that some of the alternatives would require start up of a new short-line rail operation while others would not. In the absence of an immediate industry base to cash flow the start-up and operations cost of a new rail venture, I do not see how the endeavor could succeed. In other words, for an area like the River Valley, utilizing an existing short-line rail operation is essential.

The second issue is access to the navigation channel. Again, my understanding is that some alternatives would require maintenance dredging while others would not. The Corps of Engineers has stringent cost-benefit guidelines for conducting maintenance dredging. If a site were selected that required dredging, I think it would take decades for the proposed facility in the River Valley to receive a line item in the Corps' annual budget to help pay for this necessary work. Funding the work with all local dollars would be a major impediment to the success of the overall facility.

Thank you for allowing the public an opportunity to review and comment on the Supplemental Draft Environmental Impact Statement.

Sincerely,
Paul Latture
Little Rock Port Authority

P. O.Box 304
Dardanelle, AR 72834
September 24, 2010

Mr. Randal Looney
Environmental Specialist
Federal Highway Administration
700 West Capitol Avenue, Room 3130
Little Rock, AR 72201-3298

Dear Mr. Looney,

This correspondence is written in reference to the proposed River Valley Intermodal Facilities and to express my disapproval, as a farmer and private land owner, for its construction.

During a public information meeting on September 16, I had the opportunity to meet with representatives for the project, particularly Mr. Roy Reeves and the Corps of Engineers. Upon review of the Supplemental Draft Environmental Impact Statement (EIS), discussions with Mr. Reeves and the Corps representative, it became my understanding that only the Red and Green Alternatives were to be considered. The Purple Alternative, located in the vicinity of Knoxville, was not going to be pursued in that, according to Mr. Reeves, "He did not have the money". My thoughts turned back to the Supplemental EIS regarding how so few would be effected by the proposed facility, while in fact, so many were displaced by the expansion of AR Highway 247 from a two lane to a five lane major highway. Of course, the AR Highway and Transportation Department, with its District Headquarters located in Russellville, has treated this as a separate entity from the Intermodal Facility. A new highway that will handle a high volume of traffic only a mile or two from Alternatives Red or Green (When neither one have not been approved as yet)...coincidence? I believe not!

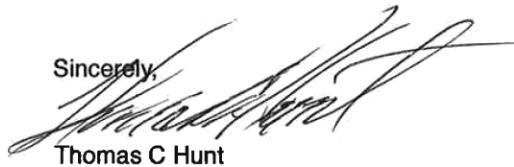
I am the fifth generation of farmers in my family. This farm that has been in our family for over one hundred and sixty (160) years would be placed in jeopardy providing either of the Red or Green Alternatives were approved. If levees were constructed along the Russellville side of the Arkansas River to support either of these alternatives, it would create a choke point that would channel water into a smaller area causing a swifter current and the erosion of water power on the existing dirt levees (You might make a comparison similar to hydraulic mining around the turn of the century). Our land is located in Section 16, Township 6, Range 20 and Section 21, Township 6, Range 20. This property is in the bend of the Arkansas River just below the proposed Red or Green sites. With a stronger current and the loss of the New Hope Bottoms Flood Plain, not only mine, but other farms, would be considered an imminent "Blowout Point" for the river during times of high water. A breach would not only effect me but several farms and business, some of which would be detrimental to the environment. A hog farm with the typical open raw sewage pit and Terra Renewal Service (TRS) with storage facilities for over a million gallons of Dissolved Air Flootation (DAF) Skimmings (Or Sludge), both of which require permits for application by Arkansas Department of Environmental Quality (ADEQ). Below these farms and businesses is Holla Bend National Wildlife Refuge with various natural habitat that would also be placed at risk. As recent as 1980, had it not been for the natural flood plain of the New Hope Bottoms, the river would have breached somewhere along the south bank creating the typical flood destruction of a levee break. It would be important to take note here that flood insurance IS NOT available in Yell County. I have been told by a member of the Intermodal

Committee that they can get flood insurance for us (Me). My response to that was "I do not want to get washed away and collect money. I want to preserve the land and pass it along to my son!" It seems to me more and more every day that so many are only interested in money. The bankers and business people of Russellville speak so highly of how the Intermodal facility and how much the economy will flourish if this facility is built. You never hear them mention how much money they can make, directly or indirectly, at others expense or concern (Displacement of people, potential devastation of a flood, etc.).

Please understand, Mr. Looney, it does not set well with me to complain or sit around all day long and think of things to gripe about. And, I most certainly am not opposed to progress in any form or fashion as long as all stand to benefit. However, I am not reluctant to express myself in regards to the selfishness on the part of some who use others for their own benefit. I sincerely feel that this is once again the case of the apathy of the few in Russellville that has been shown for the citizens of Dardanelle, its businesses, schools, land owners and farmers. There have been public meetings at various sites but none in Dardanelle on the construction of this facility outlining its proposed Alternatives, good and bad points. It seems almost like someone has something to hide. It is for these reasons that I am in total agreement with the City of Dardanelle and the Yell County Wildlife Federation for their request to institute an Independent External Peer Review of the Intermodal Facility.

Your immediate and positive attention to this matter will be most appreciated. Should you require any additional information or clarification on any points, I may be contacted at (Home) 1-479-229-2347 or (Cell) 1-479-453-0004.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas C Hunt", written over a horizontal line.

Thomas C Hunt

MAYS & WHITE, PLLC
ATTORNEYS AT LAW

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CAROL BALDERREE
cbalderree@mayswhite.com
Social Security
Consultant
(not a licensed attorney)

October 22, 2010

Mr. Randal Looney
Environmental Specialist
Federal Highway Administration
700 West Capitol Avenue - Room 3130
Little Rock, AR 72201-3298

Re: River Valley Intermodal Facilities --
Supplemental Draft Environmental Impact Statement, August, 2010

Dear Mr. Looney:

This firm represents the City of Dardanelle, Arkansas, and the Yell County Wildlife Federation, whose offices are located in Dardanelle.

At their request, I have reviewed the River Valley Intermodal Facilities Supplemental Draft Environmental Impact Statement (hereafter referred to as "the SDEIS") dated August, 2010, and have the following comments. These comments are supplemental to, and not in substitution of, any other comments submitted by any other official or person on behalf of or from the City of Dardanelle or the Yell County Wildlife Federation, Mr. Jim Wood or Mr. Doyle McEntyre.

The comments contained herein are those that have been developed to this date from a review of the SDEIS. At the time of submission of these comments, the matters expressed herein appear to be significant flaws, omissions or areas of concern in the DEIS. Additional review of the SDEIS and comments from other persons, firms or organizations may disclose additional flaws, omissions or areas of concern. The failure to include any such matters in these comments does not prohibit Dardanelle from raising any such matters in subsequent comments or proceedings relative to the DEIS or a final environmental impact statement. We also reserve the right to rely upon comments submitted by or on behalf of any other person, firm or entity on the SDEIS.

Dardanelle/Yell County Wildlife Federation Comments
On River Valley Intermodal Facility SDEIS

Page 1

Our comments to date are as follows:

Comment No. 1: The SDEIS does not identify a preferred alternative. At page 36, it is stated that a preferred alternative will be identified in the FEIS after “full analysis of impacts has been conducted for all reasonable Build Alternatives and the No-Action Alternative discussed in the DEIS and SDEIS.” Any additional analysis of the Build Alternatives and No-Action Alternative, and the identification of a preferred alternative (including the rationale for the selection of such alternative as the preferred alternative) should be made available to the public for review and comment.

Comment No. 2: Also at page 36, the SDEIS states that “Detailed mitigation measures for the proposed action would be developed primarily during the permitting stage of this project.” The failure to develop mitigation measures for the proposed action that the public can review and comment upon prior to the issuance of permits is a violation of the National Environmental Policy Act (“NEPA”) and its implementing regulations issued by the White House Council on Environmental Quality (“the CEQ Regulations”) that are applicable to all major federal actions with a potentially significant effect on the environment. The proposed Intermodal Facilities have been determined to be a major Federal action. Consequently, proposed mitigation measures must be discussed and the public given an opportunity to comment upon them in a draft EIS.

Notwithstanding the disclaimer regarding detailed mitigation measures in the SDEIS mentioned above, mitigation measures are discussed in Section 7.0 of the SDEIS. However, most of the discussion regarding such measures state that it is anticipated that there would be no adverse impacts in most resource categories, and therefore mitigation would not be necessary, or that best management practice techniques or permit conditions would serve as mitigation. “Mitigation” should not include those things that an entity is already obligated to do as a result of law, regulation or a permit.

Comment No. 3: The Screening Criteria utilized to identify reasonable alternatives to be considered in the SDEIS (see Table 3.1, p. 38), lists 14 such criteria. One of those (Criteria No. 13) states that “Planning level development costs should be reasonable compared to currently available funds of approximately \$7,000,000.” However, each of the proposed Alternatives to be carried forward for additional analysis would cost substantially in excess of that amount, in some cases by several orders of magnitude. This leads to several possible conclusions:

- a. The project is beyond the financial capability of the Intermodal Authority, and should be abandoned unless another alternative not identified in the SDEIS with lower planning level development costs can be found; or

-
- b. The available funds for development costs and the estimated development costs for the Red and Green Alternatives are understated to skew the results of the SDEIS to favor those Alternatives.

Comment No. 4: The proposed Red and Green Alternatives cover much of the same area. They also appear to be the unofficial preferred alternatives, notwithstanding disclaimers in the SDEIS of there being no preferred alternative at this time. The overlap of area in the Red and Green Alternatives raise the issue of whether there is essentially only one alternative, divided into two separate alternatives to allow the appearance of having more alternatives.

Comment No. 5: The application of the abovementioned Screening Criteria to the sites covered by the SDEIS does not appear to be uniform. Some sites with similar characteristics or factors based on the Criteria are eliminated from further consideration, while others are carried forward for further evaluation. For example, the Pittsburgh Road (Yellow) Alternative was eliminated from further consideration, while the Bend (Purple) Alternative was carried forward, notwithstanding that they appear to have much in common based on the Criteria. In the Yellow Alternative, the site terrain was deemed to be unsuitable for further analysis, whereas the Purple Alternative, with similar conditions and estimated development costs, was carried forward.

Comment No. 6: The Red and Green Alternatives would both require levees to be constructed along portions of those Alternatives to protect against upstream flooding and backwash. The estimated costs of operation and maintenance of those Alternatives in the SDEIS does not appear to include those levees, thereby substantially understating those costs.

Comment No. 7: The scope of consideration of direct and indirect impacts of the proposed project for each alternative is entirely too narrow. The SDEIS limits the scope of consideration for those impacts to the respective alternative sites. Obviously, a project of this size and nature would have direct and indirect impacts that affect areas beyond the project site itself, and those have not been adequately addressed.

For example, and without limiting the foregoing, the effect of the proposed Intermodal Project on future growth, while mentioned, is very superficial and inadequate. The SDEIS consists of many pages of promotional information regarding the beneficial effect of the project on economic development and growth, but fails to provide any real information regarding the effect of that growth on the human environment other than that it would provide more employment and economic prosperity. If the project is to have the kind of impact that its promoters claim it will have, the indirect impacts will be substantial and widespread and should be more adequately analyzed.

Comment No. 8: The scope of the cumulative impact analysis is limited to “the geographic area that has the potential to be affected by implementation of any of the alternatives in the reasonably foreseeable future.” (Page 122) It then states that for many of the resource categories considered, the cumulative impact geographic area of analysis is appropriately limited to lands within the project area boundaries.”

NEPA requires that the geographic area that may be affected by cumulative impacts of a project be defined and a rationale for the selection of that geographic area for the cumulative impact analysis be set forth in the environmental statement. There is no such rationale contained in the SDEIS, and the scope contained in the SDEIS as quoted above is illusory and fails to comply with the NEPA standard. To the extent that the SDEIS defines the scope of the cumulative impact analysis as lands within the project area boundaries, that scope is entirely too limited for a project of this size and scope.

Comment No. 9: While the scope of the analysis of cumulative impacts is inadequately defined in the SDEIS, such analysis of cumulative impacts that does appear in the SDEIS fails to provide any discussion of the impacts of the proposed project combined with the impacts of past, present and reasonably foreseeable future activities, whether by governmental or private entities. Instead, the discussion of cumulative impacts is a rehash of direct and indirect impacts of the proposed project. Direct and indirect impacts are not the same as cumulative impacts, and while cumulative impacts may be more difficult to quantify, they must be identified and analyzed.

The SDEIS also fails to provide adequate analysis of the potential direct, indirect and cumulative effects of the anticipated increase of truck traffic as a result of the Intermodal Project. The SDEIS, in pages 12 through 21, discusses the vast difference in cargo capacity of barges over truck and rail capacity. For example, on p. 18 of the SDEIS appears a chart showing that one 15-barge tow has the carrying capacity of 2.25 100-car trains, and 870 large semi-trucks. Only one barge has the capacity of 58 large semi-trucks. However, the data in the SDEIS also shows that the vast majority of cargo in the United States is carried by truck.

Obviously, if the Intermodal Project is successful, the transfer of barge cargo to trucks or trains will involve a much larger number of trucks in the area than are currently in use in the area. Unfortunately, the SDEIS also shows that the far greatest number of injuries and fatalities are sustained in connection with the truck mode of transportation than in barge or rail transportation, and that the number and volume of large spills of hazardous substances occur in connection with truck transportation than in rail or barge. Clearly, there will be direct, indirect and cumulative impacts from accidents and spills at or related to the proposed Intermodal Project that should be analyzed.

Further, the concentration of truck, rail and barge traffic at this proposed facility will cause large increases in air contamination due to emissions from diesel and gasoline engines, cargo, and spills of volatile liquids. The potential of the proposed facility for emission of greenhouse gases is inadequately analyzed and should be further evaluated, as well as the impact of those emissions on climate change.

Of particular concern to my clients is the potential direct, indirect and cumulative impacts upon the City of Dardanelle and other low-lying areas should the Red or Green Alternatives – which appear to be favored in the SDEIS -- be selected. If a levee is necessary to protect the Intermodal Project on either of those alternative sites from flooding in the Arkansas River during 100 and 500 year flood events, it seems intuitive that that, due to filling of the floodplain on the north bank of the river directly across from Dardanelle, there would be an increase in the base flood elevation on the south bank of the river.

We note that the SDEIS contains Section 4.13 (p. 285), relative to Floodplains, that states that the Corps of Engineers conducted a floodplain study report that is contained in Appendix B of the SDEIS. The SDEIS also provides (p. 286) that the Red and Green Alternative hydraulic models “were developed by modifying the existing condition model using Authority supplied plans that included site plans and levees.” The Authority-supplied plans for the site and levees were not included in Appendix B, and should be made available for public review and comment, as they clearly have an impact on the results of the modeling.

In addition, the modeling conducted by the Corps of Engineers shows an increase of .12 feet in water surface elevation at River Stations 203.38 and 202.10 during a 100-year flood, and of .27 and .26 feet, respectively, at those stations during a 500-year flood. However, there is no analysis of the direct, indirect or cumulative impacts of an increase of that amount on the Project Area, including the south bank of the river. The analysis appears to be limited only to the Red and Green Alternatives sites on the north bank.

In addition, the SDEIS fails to discuss the effect of the proposed Intermodal Project upon the existing barge terminals that are located immediately adjacent to the Red and Green Alternatives. The presence of an intermodal facility containing a slackwater harbor, and its socioeconomic and environmental impacts on those terminals, is a part of the human environment of the area and should be evaluated.

Further, the SDEIS fails to consider or analyze the past development and current operations of the Port of Dardanelle and Oakley Port as part of the cumulative impacts of the Intermodal Project. The concentration of barge and truck traffic using those existing ports combined with the barge, truck and rail traffic anticipated to use the

proposed Intermodal Project has the synergistic potential to substantially increase air, noise, water and surface pollution and cause increased safety risks.

In addition, the SDEIS fails to consider or analyze the potential future cumulative impact of the discharge of wastewater from the City of Russellville's wastewater treatment plant directly into the Arkansas River at a point that is on both the Red and Green Alternative sites. Since the early 2000s, the City of Russellville has proposed an amendment to its SPDES permit from its wastewater treatment plant that would allow it to discharge that wastewater into the Arkansas River. An amendment to its permit was granted by the Arkansas Department of Environmental Quality, but that permit was withdrawn by the City in 2008 for further environmental analysis.

The City of Russellville reportedly intends to pursue that permit amendment to allow such discharge, and has continued to conduct studies of the River and the surrounding area. It is therefore a reasonably foreseeable future project. The Arkansas River from the Dardanelle Dam to downstream of the proposed Intermodal Project has extended periods of very low, if any, flow. The City of Dardanelle's intake for its drinking water system is located in the Arkansas River in that same reach of the River. Consequently, the cumulative impact of the addition of the Intermodal Project, with its slackwater harbor, and the proposed discharge from the City of Russellville should be carefully analyzed.

Comment No. 10: Section 4.15 of the SDEIS, relative to endangered species, fails to give adequate consideration to the potential impact of the proposed Intermodal Project on the endangered Interior Least Tern, which nests on exposed river sandbars and reservoir beaches. The SDEIS notes that there is no suitable least tern habitat along the east side of the Arkansas River (we assume this is intended to apply only to the immediate area of the proposed Project), but does not mention whether there is a suitable least tern habitat along the west bank (also referred to herein as the south bank at this location). The aerial photographs and a visual inspection of the west/south bank indicates that there are sandbars present on that bank that may be suitable habitat for the interior least tern.

Notwithstanding that the proposed Intermodal development would occur on the east/north bank of the river, the potential for direct, indirect and cumulative impacts of the west/south bank from either construction or operation of the proposed Project is high, including impacts from noise, contamination, increased water levels that would flood the sandbars, and other sources. An investigation should be conducted to determine whether the interior least tern is present on any sandbank of the Arkansas River in the Project Area, which extends from Clarksville to Morrilton.

Comment No. 11: The No-Action Alternative is not sufficiently analyzed in the SDEIS. 42 C.F.R. §1502.14 provides that the alternatives analysis is "the heart of the

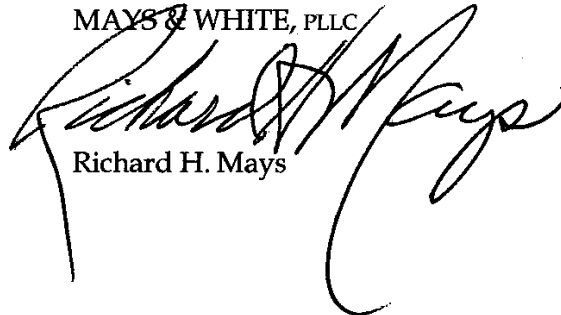
environmental impact statement;" that in preparing an alternatives analysis, agencies "shall rigorously explore and objectively evaluate all reasonable alternatives..." and "include the alternative of no action." This means that the no-action alternative should be as rigorously explored and objectively evaluated as all of the others. A mere conclusory statement that nothing will change, or that the anticipated benefits of the other alternatives being considered will not be realized, are not sufficient.

We also incorporate comments submitted by the undersigned to you dated May 1, 2006, regarding the Draft Environmental Impact Statement on this proposed Project.

My clients and I appreciate the opportunity to submit these comments to you. If you have any questions concerning them, please give me a call.

Sincerely,

MAYS & WHITE, PLLC



Richard H. Mays

cc: Mayor Carolyn McGee
Councilman Doyle McEntyre
Mr. Jim Wood
Parsons Engineering

Doyle McEntyre
Dardanelle, AR 72834

October 3, 2010

Randal Looney
Environmental Coordinator
FHWA - Arkansas Division Office
700 West Capitol Avenue, Rm 3130
Little Rock, AR 72201-3298

Dear Mr. Looney;

I would like to thank you for the opportunity to comment and for the public meeting at London on the SDEIS for the River Valley Intermodal project and answering our questions in such a professional manner. We attendees from the Dardanelle area later held a meeting at Dardanelle City Hall and invited some of the area residents that have voiced concerns in the past, and relayed some of the information put forth at the public meeting at London and answered some of their questions.

In our discussion about the SDEIS, one of the main topics of concern was the removal of flood plain by the construction of a five hundred year flood levee around the proposed intermodal site. The study done on the flood plain, in the SDEIS, as it impacts the removal of that much flood surge holding area seems to be very limited in its scope. As this is one of the major points of contention with the whole project it would seem that this would have been a major thrust of the statement, but it is dealt with in a most cavalier manner in the very few pages dealing with this topic.

I have included some attachments of the planning area flood plain, as provided in the SDEIS, versus the flood plain as it is currently delineated on the Dardanelle FIRM (map number 05149C0160 E) on the opposite side of the river from the intermodal site. It appears that the study area was quite limited in its scope and neglected to take into consideration all of the Dardanelle flood plain. As can be seen looking at the study area, in the SDEIS, the Dardanelle flood plain stopped near the bank of the Arkansas River and failed to incorporate the part of the flood plain south and west of Dardanelle. Since this area is the location of the Dardanelle elementary, middle and high schools and associated infrastructures and several homes, not doing an exhaustive study of flood impact is not consistent with proper investigation as we believe NEPA requires.

Past floods have proven to be problematic in this reach of the Arkansas River in that before a levee system was built early last century on the south side of the river, flooding blowout was a problem down stream of Dardanelle. As that old levee system, on the south side of the river, is no longer present, the squeeze caused by narrowing the channel by the intermodal levee and removing the surge area north of the river, a blowout condition will be facilitated. The old levee has not been kept up since no monies were

allocated and the levee board maybe defunct. Roads and robbing of levee material has rendered this levee useless and is considered non existent by the USCOE. A blowout in this area would impact several farming, ranching and commercial operations and the Holla Bend National Wildlife Refuge as well as Dardanelle.

We believe that altering the flood plain in this reach of the river can be dangerous and far reaching in its impacts to the areas that are low lying and prone to water inundation.

Another main topic of the informational meeting was the impact of the proposed intermodal facility on industry all ready established in the area near the site, most specifically the Port of Dardanelle. The unfair competition it will be subjected to when the intermodal slack water harbor is constructed and begins subsidized operation in competition with the tax paying Port of Dardanelle located just north of the intermodal facility.

Since a large part of the industry on the north side of the river, in the area of the intermodal facility, is in the Dardanelle School District, the closing or moving of industry as a result of the intermodal facility is of concern. Again with this being a major concern of the people most effected by the building of the intermodal facility it would seem that a most careful study of these points would have been addressed in a logical and empirical manner in stead of a rah-rah chamber of commerce fashion based on what they think or hope will happen. Facts are that the Oakley Port of Dardanelle has approached what industry is in the area and have not been rewarded with any increase in use. But the selling points of the intermodal study always base their benefits on an intermodal site with 30 plus industries locating and using the site. Empirical data does not hold true for such an influx of use due to the nature of the industry in the service area.

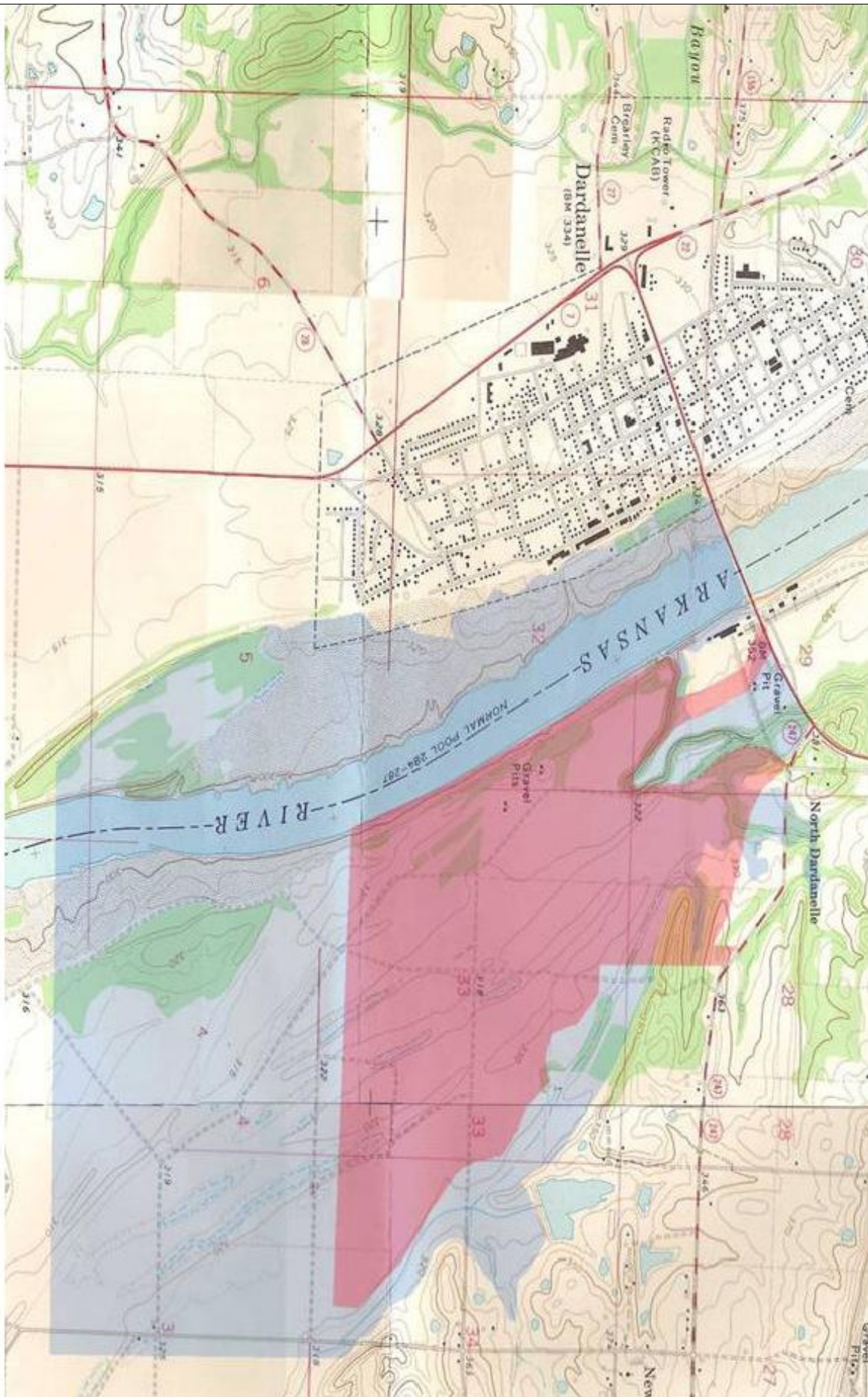
If you only take the intermodal's view of the project, the SDEIS does not even taken into consideration any increased rail traffic through Russellville and the impact it will have on an elementary school the railroad track passes by, as to the transportation of any hazardous material causing the school to have evacuation plans or safe shelter areas and the increased traffic congestion caused by railroad street crossings.

These are but a few of the areas that we feel have not been addressed adequately in the SDEIS and thus would like to request an independent external peer review initiated by FHWA for the Chief of Engineers to determine that the project study is controversial considering the factors set forth to look at the project by an independent panel of experts and bring some true peace of mind to a lot of people effected by this project.

Doyle McEntyre
City of Dardanelle, Alderman

Cc: Mr. Richard Mays
Mayor Carolyn McGee
Mr. Jim Wood





Porath, Rebecca

From: Parsons, RiverValleyEIS
Sent: Tuesday, October 26, 2010 1:33 PM
To: Porath, Rebecca
Subject: FW: River Valley Intermodal Project Comment

From: KRUE [mailto:KRUE@russellvillearkansas.org]
Sent: Wednesday, October 20, 2010 2:24 PM
To: Parsons, RiverValleyEIS
Subject: River Valley Intermodal Project Comment

As the director of a part of the river valley transportation infrastructure, I see the intermodal project as an excellent compliment to existing area transportation facilities and on going projects. Adequate transportation is a key prerequisite for the economic development of any area. The Arkansas River is one transportation mode which is not nearly developed to its potential in this area. A modern barge loading facility with efficient possibilities to transition loads to or from ground transportation for connection to the region would be an enabler for attracting various industries to the area. In the end, that raises the standard of living of everyone nearby.

Bobby L. Day



River Valley Intermodal Facilities
Comment Date: 10-21-10
Supplemental Draft EIS

Name: Ann Beavers
Street Address: 275 Campbell Rd
City: Russellville State: Ar Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green or Purple) and tell us why: _____

fewer people displaced

What issues and concerns you have about the project: no flooding issues

~~fewer people displaced~~

Any changes you would make to the project: none

Other Comments: needed for economic growth

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities
Comment Date: 10-21-10
Supplemental Draft EIS

Name: Hance Bealen
Street Address: 275 CAMBELL Rd
City: Pinebluff State: AR Zip: 72802

Which describes your primary interest in the project:
Affected Resident _____ Affected Landowner _____
Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why:

Green given no flooding issues less displacement of
People

What issues and concerns you have about the project: none

Any changes you would make to the project: none

Other Comments: good economic growth

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Charles Blanchard

Street Address: 202 East Shore

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: GREEN -
Most Convenient to serve industry
Best Cost - Most Efficient
Closer to existing industry
Currently served by Highway 247

What issues and concerns you have about the project: Disappointed
it has taken so long.

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

Charles H Blanchard

River Valley Intermodal Facilities

Comment Date: 10-21-2010
Supplemental Draft EIS

Name: Jim Bradley
Street Address: 1003 S. Inglenook
City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

I prefer the green area because closer to
existing industry, more economical to build
infrastructure.

What issues and concerns you have about the project: We need the project
to provide faster economic development. One
concern is the choice of the purple site which is
away from the navigation channel and another cost
driver is the additional dirt work (land prep) plus
no access roads.

Any changes you would make to the project: None at this time.

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 9/29/10

Supplemental Draft EIS

Name: Sid Brain

Street Address: 601 Dalewood Court

City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

The proposed project is very important to the continued economic growth and stability of this area. It should be completed AS SOON AS POSSIBLE. Our children and grandchildren should not have to go to the city to get a job!

~~What issues and concerns you have about the project:~~

The green (and red) alternatives are closer to potential and existing ^{potential} users as well as being better located to use all modes of transportation.

The green has less impact on woodlands and views from the river.

~~Any changes you would make to the project:~~

The green also has some less river level increase. (although both are practically non-existent)

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10/21/10

Supplemental Draft EIS

Name: Daly Brown

Street Address: 2676 BR 105 NO

City: Arkings State: AK Zip: 72823

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Location

to Highway & Railroad

What issues and concerns you have about the project: Would like the proceed

As soon as possible, due to the Economy + the Need for
New Jobs in the Area.

Any changes you would make to the project: _____

Other Comments: This Project would be A ~~pos~~ start in the
Direction the Russellville Area Needs to be Going in

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

Name: Nancy M. Canerday
Street Address: 2503 W. 2nd St
City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why:

The Best site for local economic
development

What issues and concerns you have about the project:

length of time to get project
completed

Any changes you would make to the project:

this would be a
great benefit to our area

Other Comments:

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-21-10

Supplemental Draft EIS

Name: Amy Carpenter

Street Address: 120 Salmon Lane

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green - less people displaced

What issues and concerns you have about the project: _____

NONE

Any changes you would make to the project: _____

Don't know of any

Other Comments: This project is vital to the growth of

the River Valley!

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Kyle Carpenter

Street Address: 1211 Salmon Lane

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green - minimal flooding, less people affected

What issues and concerns you have about the project: none

Any changes you would make to the project: don't know of any

Other Comments: This project is essential to the vitality of the River Valley.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

Name: Brooke Chandler
Street Address: 420 Ellis Road
City: Pottsville State: AR Zip: 72858

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green or Purple) and tell us why: There
will be fewer people affected and it won't have
a big impact on the flooding.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: This project will be an economic
improvement for the River Valley area.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

Porath, Rebecca

From: Parsons, RiverValleyEIS
Sent: Tuesday, October 26, 2010 1:31 PM
To: Porath, Rebecca
Subject: FW: River Valley Intermodal Project

From: ritachandler@centurylink.net [mailto:ritachandler@centurylink.net]
Sent: Thursday, October 21, 2010 6:34 AM
To: Parsons, RiverValleyEIS
Subject: River Valley Intermodal Project

To Whom It May Concern:

We support the River Valley Intermodal project. We look forward to growth and development in the River Valley as a result of this project and hope for expansion and progress in the job markets.

Sincerely,
Tommy and Rita Chandler
170 Oak Street
Hector, AR 72843

River Valley Intermodal Facilities

Comment Date: 10-21-10

Supplemental Draft EIS

Name: RICHARD POWNES

Street Address: 1302 E. 13TH

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident ☒ Affected Landowner ☐

Affected Business ☒ Concerned Citizen ☐

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green,

it will help out the RIVER VALLEY the most.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities
Comment Date: 10-21-10
Supplemental Draft EIS

Name: Jerry Duvall
Street Address: 1023 E Ash
City: Pottsville State: AR Zip: 72858

Which describes your primary interest in the project:
Affected Resident ☒ Affected Landowner _____
Affected Business _____ Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
I am Mayor of Pottsville. This location
is the best for Roads & Rails. It will have
the least environmental impact

What issues and concerns you have about the project: None

Any changes you would make to the project: None

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Lonnie Duvall

Street Address: 502 S.E 4th St.

City: Atkins State: AR. Zip: 72823

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: GREEN

This site will be Better for the River Valley

This site will have Better Access

This site is closest to the existing Industry

It will have Lower Maintenance cost

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: BILL EATON

Street Address: 2111 W. 6TH ST.

City: RUSSELLVILLE State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: GREEN

"THIS IS THE MOST FEASIBLE SITE DUE TO
ITS LOCATION PROXIMITY TO EXIST. INDUSTRY.
THE HIGHWAY CROSS SECTIONS ARE MORE
ADVANTAGEOUS AT THIS SITE. THE NAVIGATION CHAN,
LOCATION TO SITE LOCATION IS AN ADVANTAGE
AT THE GREEN SITE.

What issues and concerns you have about the project: AS A CITY COUNCILMAN
OF RUSSELLVILLE, THE IMPACT OF HAVING
A SITE IN JOHNSON COUNTY WOULD BE
DIFFICULT FOR THE CITY OF KNOXVILLE AND
THE COUNTY ITSELF TO SUPPORT

Any changes you would make to the project: NONE AT PRESENT

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Sharon Eaton

Street Address: 211 W. 6th St.

City: Russellville State: Ar Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

It just makes sense to have it near Dardanelle and Russellville. The business will need houses for employees and it will be available here. The site would be closer to the channel.

What issues and concerns you have about the project: _____

N/A

Any changes you would make to the project: _____

N/A

Other Comments: N/A

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Berkey Ellison
Street Address: 507 Fair Oaks Lane
City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green or Purple) and tell us why: _____

This would be the best site of
economic growth in our area.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: It would be great to have this
project completed to bring more business
development to our area.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

Name: Pam Ennis
Street Address: PO Box 397
City: Atkins State: AR Zip: 72823

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <u>X</u>

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
Good Road access to this area,
Rail access close
~~to~~ close to the existing industry

What issues and concerns you have about the project: The length of
time this project has taken to
complete.

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Jason Epperson

Street Address: 2003 S. Frankfort Ave

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

We need the economic growth we have been missing
out on.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

Name: David A. Freeman
Street Address: 261 Carruth Lane
City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green or Purple) and tell us why: Lower maintenance cost, closer to existing industry, access being put in place.

What issues and concerns you have about the project:

This project has taken too long and needs to be completed.

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-21-10

Supplemental Draft EIS

Name: Donna Freeman

Street Address: 728 Bud Chesney Rd.

City: Russell State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident ☒ Affected Landowner ☐

Affected Business ☐ Concerned Citizen ☐

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green -

land usage looks better

What issues and concerns you have about the project: Missing ~~opportunities~~

options for additional industry in Pope co. Project
really moving slow.

Any changes you would make to the project: none

Other Comments: The county really needs this for additional
industry, @

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: MARVIN GERLACH

Street Address: 430 TANGLEWOOD

City: RUSSELLVILLE State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: THE GREEN SITE IS STRATEGICALLY LOCATED NEAR RAIL AND INTERSTATE. THE OTHER SITES ARE NOT AS SUITABLE.

What issues and concerns you have about the project: THE CITY OF DANDANELLE'S CONCERN ABOUT FLOODING.

Any changes you would make to the project: NONE

Other Comments: THIS PROPOSED PROJECT WILL BE BENEFICIAL TO EXISTING INDUSTRIES AND SHOULD SERVE TO ATTRACT NEW INDUSTRY.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-21-10
Supplemental Draft EIS

Name: Jim Ed Gibson

Street Address: 100 WEST Main

City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green

Closer to local industry

Currently has access by Hwy 247

would serve the people of the River Valley better

What issues and concerns you have about the project: Taken to long to

Complete

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

Name: Sidney Gray
Street Address: 201 Youth Camp Rd.
City: Russellville State: AR Zip: 72602

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <input checked="" type="checkbox"/>

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
It would give better access, lower
maintenance costs, and be closer to
the existing industries.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

Porath, Rebecca

From: Parsons, RiverValleyEIS
Sent: Tuesday, October 26, 2010 1:31 PM
To: Porath, Rebecca
Subject: FW: comment

From: Suzy Griffin [mailto:sgriffin@russellville.org]
Sent: Thursday, October 21, 2010 9:20 AM
To: Parsons, RiverValleyEIS
Subject: comment

I fully support the proposed Intermodal project. I favor the green alternative. This project needs to be fast-tracked. Two of the major benefits that I see as a result of the reduction in truck traffic are infrastructure maintenance costs going down, and the air quality improving. This project also puts our area in a more competitive position to attract new industry.

Suzy Griffin
309 Candlewick Lane
Russellville AR 72801
griffin@russellville.org

River Valley Intermodal Facilities

Comment Date: 9-16-10

Supplemental Draft EIS

Name: Jonathan Nash
 Street Address: 3007 Heistop Place
 City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ✓

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why:

The GREEN site would displace fewer families.
There have been considerable road improvements
to the highway servicing the GREEN site and is
nearer a designated truck route.

What issues and concerns you have about the project:

Any changes you would make to the project:

Other Comments: Since this project has been driven by
Russellville citizens, for the most part, I feel that
moving the project from the original GRTF site would
diminish the local interest & success of the project

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10-21-10

Supplemental Draft EIS

Name: Benny HARRIS

Street Address: 50 Sumac Cove

City: Riverview State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green proposed appears to be the best
alternative since considering flooding and
displacement of people.

What issues and concerns you have about the project: None

Any changes you would make to the project: None

Other Comments: Project should provide a significant
economic benefit to the + yld country.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10/21/10

Supplemental Draft EIS

Name: Larry Harris

Street Address: 50 Sumac Cove

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why:

Appears to be more appealing and a much better
alternative as fewer people are or will be affected
with flooding issues.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: Pope + Yell County should both benefit

economically with this project.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Debbie Hernandez

Street Address: 1002 Ave 1 NW

City: Atkins State: AR Zip: 72823

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green - less people displaced - minimal flooding

What issues and concerns you have about the project: That a few are opposed

Any changes you would make to the project: don't have any

Other Comments: This project is a very important part of growing & strengthening the River Valley.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: GERALD HOOK

Street Address: 2102 W. 8th St

City: RUSSELLVILLE State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

PREFER GREEN SITE DUE TO PROXIMITY TO RAIL &
Highway Access - Also, THIS SITE IS CLOSE TO NAVIGATION
CHANNEL -

What issues and concerns you have about the project: _____

I HAVE NO NEGATIVES ABOUT THIS PROJECT

Any changes you would make to the project: _____

N/A

Other Comments: _____

N/A

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Rebecca Hopkins

Street Address: 132 Winterwood Circle

City: Nandanelle State: AR Zip: 72834

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Minor impact to flood plains and would
be less noticeable

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: Jobs would be created during
and following the project

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10/22/10

Supplemental Draft EIS

Name: MARCUS HUBBARD

Street Address: 210 West 13TH

City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green or Purple) and tell us why: GREEN

This site will be better For The River Valley

This site will Have better Access

This site is closest to The Existing Industry

It will Have Lower Maintenance Cost.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities
Comment Date: 10-21-2010
Supplemental Draft EIS

Name: Paul Hull
Street Address: 4562 SR 164 West
City: Dover State: Ar. Zip: 72837

Which describes your primary interest in the project:
Affected Resident _____ Affected Landowner _____
Affected Business ✓ Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:
The alternative you like best (No Build, Red, Green, or Purple) and tell us why:

Location to city & appears to be cheaper
to construct.
I think the Green site is much better.
The Green site looks like it would have more
land for industry

What issues and concerns you have about the project: That won't start
within the next five years.

Any changes you would make to the project: None at this time!

Other Comments: This project would have my full
support.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities
Comment Date: 10-21-10
Supplemental Draft EIS

Name: KURT JONES
Street Address: 500 WEST MAIN, SUITE # 201
City: RUSSELLVILLE State: AR Zip: 72801

Which describes your primary interest in the project:
Affected Resident _____ Affected Landowner _____
Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: GREEN - MUCH CLOSER TO EXISTING INDUSTRY
& INFRASTRUCTURE. SITE IS BETTER SUITED FOR
BUILDING

What issues and concerns you have about the project: NO NEGATIVE
CONCERNS. I WOULD LIKE TO SEE THIS
PROJECT PROCEED AS QUICKLY AS POSSIBLE

Any changes you would make to the project: NONE

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

Name: Robert L. LASTER
 Street Address: 3103 EAST MAIN
 City: Russ State: AK Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ✓

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
Changes +

What issues and concerns you have about the project: The Grade on the
Purple site does not work well for
the rail road

Any changes you would make to the project: _____

Other Comments: Water ways Commission has
commented on the needs of additional
harbor sites

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Allen Laws

Street Address: 318 Duane Dr.

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why:

Green, I feel this is the best, least disruptive
alternative. It is least expensive & closest to
existing industry & infrastructure

What issues and concerns you have about the project: None

Any changes you would make to the project: I would have liked
to include airport facilities, but that is not
possible

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10/21/10

Supplemental Draft EIS

Name: MIKE MCCOY

Street Address: 204 RIVER OAKS LANE

City: RUSSELLVILLE State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

GREEN - THIS ALTERNATIVE IS THE LEAST EXPENSIVE AND CLOSEST
TO EXISTING INDUSTRY. THIS SITE APPEARS TO BE THE BEST FOR
DEVELOPMENT.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: THIS PROJECT IS VERY IMPORTANT FOR THE ECONOMIC
DEVELOPMENT.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities
Comment Date: 10-22-10
Supplemental Draft EIS

Name: Laura Mc Guire
Street Address: 255 Spring Hill Dr
City: London State: AR Zip: 72847

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green

This area will be close to the existing industry, lower cost,
better location

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

Name: Rhonda McKown
Street Address: 1704 S. Baltimore
City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____
Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red Green, or Purple) and tell us why: Maintenance
not as costly. Closer proximity, access to facility put in place.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10/21/10

Supplemental Draft EIS

Name: DANNY MINKS

Street Address: 73 GEORGE BROWN COVE

City: DOVER State: AR Zip: 72837

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

GREEN - BECAUSE OF ITS LOCATION.

What issues and concerns you have about the project: _____

WE HAVE MISSED SEVERAL INDUSTRIES COMING TO THE AREA
DUE TO TIME DELAYS

Any changes you would make to the project: _____

I JUST HOPE IT STARTS SOON.

Other Comments: I SUPPORT THIS PROJECT AND THINK IT WOULD

BE GREAT FOR THE FUTURE OF THIS AREA.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

Name: Lisa M. Mize
Street Address: 2103 Ave 7 NE
City: Atkins State: AR Zip: 72823
~~72801~~

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <input checked="" type="checkbox"/>

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
Area best suited for this project, a
good access and close to existing
industry.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10/22/10

Supplemental Draft EIS

Name: JOHNNY MORGAN

Street Address: 216 HILTOP DRIVE

City: RUSS State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: GREEN

Poplar Hill Counties have missed numerous opportunities due to lack of multi-modal facilities.

What issues and concerns you have about the project: Purple site has too much slope for rail + site development.

Any changes you would make to the project: —

Other Comments: The State of Ark + Waterways Commission have stated that more harbor sites are needed along River to improve efficiency.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10/21/10

Supplemental Draft EIS

Name: Debbie Motley

Street Address: 908 West Norristown Circle

City: Russellville **State:** AR **Zip:** 72802

Which describes your primary interest in the project:

Affected Resident _____ **Affected Landowner** _____

Affected Business _____ **Concerned Citizen** X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green

Because it is closer to Highway and Rail Access and cost
would be less.

What issues and concerns you have about the project: In today's market completing

for industries we need the River Access to complete with
other areas that already have intermodal facilities in place.
This project needs to get underway ASAP so cost can be
lock in.

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Delores L Motley

Street Address: 277 Sparksford Drive

City: Russ State: W Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

No Flooding Issues, Town People
Effective

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: Needed for Economic Growth

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Bert Mullens

250 South Enid

Street Address: _____

City: Russellville, **State:** AR **Zip:** 72801

Which describes your primary interest in the project:

Affected Resident _____ **Affected Landowner** _____

Affected Business _____ **Concerned Citizen** X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green Alternative

Easy access to highway 247 which connects to I40. This site has access to
a short line rail service. The location is near to present manufacturing
facilities and offers the best opportunities for attracting new industry
which would result in additional Jobs and therefore creat Economic growth
and development

What issues and concerns you have about the project: just getting it built as soon as
possible I am in favor of the Green Alternative

Any changes you would make to the project: None

Other Comments: It is important we move forward on this project for the growth
and development of the entire River Valley area

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 9-16-10

Supplemental Draft EIS

Name: Charles W. Dates

Street Address: 6368 SR 247

City: Pottsville State: Pa Zip: 72818

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ✓

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green is the best site to use.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

Name: Stacy Pack
Street Address: 1801 N Church St
City: Atkins State: AR Zip: 72823

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <u><input checked="" type="checkbox"/></u>

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green -
Presently we have a major road upgrade in
the area. It will be closer to existing
industry. It will be more beneficial to
the River Valley.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities
Comment Date: _____
Supplemental Draft EIS

Name: Tommy PARKER
Street Address: 2303 West 8th
City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <u>X</u>

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Seems to be the best site for
economic development

What issues and concerns you have about the project: _____

Why it isn't already done

Any changes you would make to the project: NONE

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-20-10

Supplemental Draft EIS

Name: Jeff Pipkin

Street Address: 708 W. Main

City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

The green alternative makes the most sense to me since
the City of Russellville has already purchased almost 300
acres either within this site or adjacent to it. The city's
land is perfect for industrial use.

What issues and concerns you have about the project: I'm only concerned about
more possible delays, whether it's funding, litigation,
environmental or whatever. We have been working on
this way too long.

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Penula Randle

Street Address: P.O. Box 113

City: Dardanelle State: Ar. Zip: 72834

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

I think this is something that would be
good for our area's. Both Jefferson & Pope Counties.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: This Project would be advantageous
to all of the River Valley.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: 9/16/10

Supplemental Draft EIS

Name: Rebecca Reaves

Street Address: 1601 Center Valley Rd

City: Russellville **State:** AR **Zip:** 72802

Which describes your primary interest in the project:

Affected Resident _____ **Affected Landowner** _____

Affected Business _____ **Concerned Citizen** X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why:

I feel the Green alternative would be
the best choice

What issues and concerns you have about the project:

I feel this is
a great project that will be most
beneficial to the whole area.

Any changes you would make to the project:

Other Comments:

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Roy Reaves

Street Address: 1601 Center Valley Rd

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Has No Significant impact on flooding!

The Dam around the project is set back from the River

What issues and concerns you have about the project: _____

Any changes you would make to the project: None

Other Comments: It will be a great economic
stimulus to this area for many years to come.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities
Comment Date: 10-22-10
Supplemental Draft EIS

Name: Jean Sadler
Street Address: 734 McHenry Road
City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <input checked="" type="checkbox"/>

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: GREEN
Best for this area

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities
Comment Date: 10/22/10
Supplemental Draft EIS

Name: Elber Shannon
Street Address: 188 Country Acres Rd.
City: Atkins State: AR Zip: 72823

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green -
Closer to existing industry, Lower maintenance
cost

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: BILL SORRELLS

Street Address: 2011 W. 9th

City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

The green site is better situated and suited for the facility.

What issues and concerns you have about the project: The timeframe to get the project initiated.

Any changes you would make to the project: Quicken the process

Other Comments: This will be a wonderful economic attribute to the river valley area for existing industry and future ones.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Steven Sparks

Street Address: 305 N Vancouver

City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

The green site is the best apt. for development
closer to existing industry

What issues and concerns you have about the project: N/A

Any changes you would make to the project: N/A

Other Comments: One should just look at our history of the railroad
being built in Rust to see what a project like this will do for
our local economic development

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Carmen Stump

Street Address: 918 W Norrisdowner

City: RSU1 State: Arz Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

need
More economic development in the region.
This green option is the best option
on cost? has fewer impacts.

What issues and concerns you have about the project: _____

The purple alternative is too expensive
& the operations & expenses are too high.

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities
Comment Date: 10-22-10
Supplemental Draft EIS

Name: Fern Tucker
Street Address: 370 Bowen Est. Rd
City: Russellville State: Ar Zip: 72802

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <u>✓</u>

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
Lower Cost, State is presently upgrading the access road
in this area close to railroad spur. Close to other
industry.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Norman Watson

Street Address: 407 Skyline Vista Lane

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green - I prefer the green alternative
because the infrastructure is either
already in place or least costly to
put in place. Operation & maintenance
are the most reasonable

What issues and concerns you have about the project: _____

The purple alternative seems to be the most
expensive to construct. There is no existing
industry use this area near Knoxville

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Chad Weisler

Street Address: 704 South Durant

City: Russellville State: AR Zip: 72809

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green is the best option. This is because of the amount of
land to develop. It also does not include a low or
wet area.

What issues and concerns you have about the project: _____

Time - this is a much needed item for our area. It
would help bring industry to both Russellville & Dardenelle.
Which in turn provides more jobs

Any changes you would make to the project: Rush!

Other Comments: I strongly support this project.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities
Comment Date: 9/16/10
Supplemental Draft EIS

Name: Quida Wesley
Street Address: 10696 Bryce Manor Cir.
City: Bardonia State: Ar. Zip: 12834

Which describes your primary interest in the project:	
Affected Resident _____	Affected Landowner _____
Affected Business _____	Concerned Citizen <input checked="" type="checkbox"/> _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Yes No
significant impact on flooding and is most
advantageous for Yell and Pope County.
Less, amount of people affected.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: The Project will be an economic advantage
to the River Valley.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 9/16/10

Supplemental Draft EIS

Name: Henry Wesley

Street Address: 10690 Boyce Manor Cir

City: Dardanelle State: Ar Zip: 72834

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Would

be most effective for Pope & Yell County.
Doesn't change flooding much.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: Will benefit all of the Valley area.

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities
Comment Date: 10/21/16
Supplemental Draft EIS

Name: Matt White
Street Address: 1509 West Main St
City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:
Affected Resident _____ Affected Landowner _____
Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: I would
prefer the Green site due to its proximity to existing industry
and my understanding that it would be less costly than
some other site such as the purple site.

What issues and concerns you have about the project: The slow progress of
the project. This project needs to move forward asap.
Especially with the potential benefits it could bring to
the river valley

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-22-10
Supplemental Draft EIS

Name: Annette Whittenburg
Street Address: 2540 St. Hwy 207
City: Atkins State: AR Zip: 72823

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
This seems to be the most logical choice for a
good road access that is close to the
existing industry.

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Karen Whittenburg

Street Address: 112 McKenna Road

City: Morrilton State: AR Zip: 72110

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ☒

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

Green-Minimal flooding - less people displaced.

What issues and concerns you have about the project: _____

none

Any changes you would make to the project: _____

none

Other Comments: _____

This project is vital to the growth of our River valley!

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Comments must be postmarked by October 9, 2010. Thank you for your participation in this public involvement effort.

Comments may be emailed to: RiverValleyEIS.Parsons@parsons.com

River Valley Intermodal Facilities

Comment Date: _____

Supplemental Draft EIS

Name: Robert D. Wiley

Street Address: 711 S Denver Ave

City: Russellville State: AR Zip: 72801

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen _____

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: _____

What issues and concerns you have about the project: _____

Any changes you would make to the project: _____

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10-22-10

Supplemental Draft EIS

Name: Jared Wood

Street Address: 124 Tarpon Place

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen ✓

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green

alternative would be the best option.

What issues and concerns you have about the project: No Cons. This is a

very important part of Russellville - the River Valley

Any changes you would make to the project: No

Other Comments: _____

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

River Valley Intermodal Facilities

Comment Date: 10/21/10

Supplemental Draft EIS

Name: Jeff Wright

Street Address: 214 N. Shore Dr.

City: Russellville State: AR Zip: 72802

Which describes your primary interest in the project:

Affected Resident _____ Affected Landowner _____

Affected Business _____ Concerned Citizen X

We are interested in your comments about the proposed project. Please indicate:

The alternative you like best (No Build, Red, Green, or Purple) and tell us why: Green
Best location for the project

What issues and concerns you have about the project: _____

Any changes you would make to the project: No changes at this time.

Other Comments: None

Please place your completed form in the drop box in the meeting entrance area or mail to the address on the reverse side. Thank you for your participation in this public involvement effort.

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**APPENDIX B – U.S. ARMY CORPS OF ENGINEERS, LITTLE ROCK
DISTRICT, RIVER VALLEY INTERMODAL FACILITIES,
FLOODPLAIN ANALYSIS REPORT**

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RIVER VALLEY INTERMODAL FACILITIES

Flood Plain Analysis

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1. Introduction

The Little Rock District, Corps of Engineers (SWL) is a Cooperating Agency for the preparation of an Environmental Impact Statement (EIS) for the Arkansas River Valley Intermodal Facilities Authority (Authority) in Russellville, Arkansas. The City of Dardanelle, Arkansas, has concerns that the proposed project will have an adverse impact on base flood elevations; therefore a flood plain analysis was made to be part of the EIS.

To be consistent with Executive Order 11988 and to satisfy the requirements of the Federal Emergency Management Agency (FEMA) for good flood plain management, the proposed River Valley Intermodal Facility cannot increase 100-year flood elevations by more than 1 foot.

This report presents a description of the analyses performed and the results obtained for the detailed flood plain analysis for the proposed River Valley Intermodal Facility. Results of this analysis include: water surface elevations for the 10-, 50-, 100-, and 500-year return period flow events pre- and post-project conditions for both the Red alternative and the Green alternative. The existing, Red alternative, and Green alternative 100-year flood plain outlines have been delineated.

2. General

2.1 Scope of Work

This study entailed development of an existing condition hydraulic model, a hydraulic model for the Red alternative, and a hydraulic model for the Green alternative.

2.2 Area to be Studied

The project area is located 75 miles northwest of Little Rock on the Arkansas River downstream of Dardanelle Lock & Dam. The project area is on the left descending bank of the river adjacent to navigation mile 202.3 in the Winthrop Rockefeller Lake pool of the McClellan-Kerr Arkansas River Navigation System.

3. Hydrologic and Hydraulic Analysis

3.1 General

Existing hydrology for the Arkansas River was used in this study. The Arkansas River discharges were determined in a discharge-frequency study for the "Arkansas River Land Impact Study", by SWL. The following discharges were used in this study.

Arkansas River Design Discharges			
10 yr	50 yr	100 yr	500 yr
310,000 cfs	430,000 cfs	485,000 cfs	625,000 cfs

3.2 Cross-Sections

Cross-sections for this study were taken from 1999 hydrographic channel surveys with overbanks from the 1983 Sediment Range surveys and the 1987 LRD-1 model. The overbanks were supplemented with 2-foot contours circa 2000. The following table lists the HEC-RAS cross-sections by Sediment Range number and Navigation Mile. The navigation mile station is identical to the "River Station" identifier in the HEC-RAS model.

Surveyed Cross-Section Locations		
Cross-Section I.D.	Navigation Mile Location	Comments
SR-257.6	205.25	U/S Study Limit
SR-257.3	205.04	
SR-257.2	204.71	
SR-256.8	204.39	
SR-256.4	204.00	
SR-256.2	203.86	
SR-255.8	203.47	
	203.42	State Highway 7 Bridge
	203.38	Approximate U/S Limit Red Alternative
SR-255.4	203.10	Approximate U/S Limit Green Alternative
SR-255.0	202.61	
SR-254.6	202.09	Approximate D/S Limit Red Alternative
SR-253.7	201.31	Approximate D/S Limit Green Alternative
SR-252.8	200.43	
SR-251.8	199.00	
SR-251.0	198.22	D/S Study Limit

3.3 Hydraulic Models

The computer program HEC-RAS, version 3.1.3 (May 2005), was used to compute existing condition water surface elevations for the 10-year, 50-year, 100-year, and 500-year flow events. The Red and Green alternative hydraulic models were developed by modifying the existing condition model using Authority supplied plans. The following tables show the HEC-RAS results for the 10-year, 50-year, 100-year and 500-year flow events for existing conditions, the Red alternative, and the Green alternative.

10-year					
River Stationing	Water Surface Profiles				
	Existing	Red Alternative	Increase in water surface elevation for the Red Alternative	Green Alternative	Increase in water surface elevation for the Green Alternative
Navigation Mile	ft	Ft	Ft	ft	Ft
205.25	316.13	316.13	0.00	316.13	0.00
205.04	316.07	316.07	0.00	316.07	0.00
204.71	315.78	315.78	0.00	315.78	0.00
204.39	315.54	315.54	0.00	315.54	0.00
204.00	315.09	315.09	0.00	315.09	0.00
203.86	314.99	314.99	0.00	314.99	0.00
203.47	314.81	314.81	0.00	314.81	0.00
Bridge 203.42					...
203.38	314.69	314.69	0.00	314.69	0.00
203.10	314.43	314.43	0.00	314.43	0.00
202.61	314.07	314.07	0.00	314.07	0.00
202.09	313.48	313.48	0.00	313.48	0.00
201.31	313.22	313.22	0.00	313.22	0.00
200.43	312.87	312.87	0.00	312.87	0.00
199.00	312.21	312.21	0.00	312.21	0.00
198.22	311.48	311.48	0.00	311.48	0.00

50-year					
River Stationing	Water Surface Profiles				
	Existing	Red Alternative	Increase in water surface elevation for the Red Alternative	Green Alternative	Increase in water surface elevation for the Green Alternative
Navigation Mile	ft	Ft	Ft	ft	Ft
205.25	322.85	322.85	0.00	322.85	0.00
205.04	322.77	322.77	0.00	322.77	0.00
204.71	322.39	322.40	0.01	322.39	0.00
204.39	322.07	322.07	0.00	322.07	0.00
204.00	321.48	321.48	0.00	321.48	0.00
203.86	321.39	321.40	0.01	321.39	0.00
203.47	321.18	321.19	0.01	321.19	0.01
Bridge 203.42					
203.38	321.01	321.01	0.00	321.01	0.00
203.10	320.73	320.73	0.00	320.73	0.00
202.61	320.3	320.30	0.00	320.30	0.00
202.09	319.66	319.66	0.00	319.66	0.00
201.31	319.37	319.37	0.00	319.37	0.00
200.43	319.14	319.14	0.00	319.14	0.00
199.00	318.47	318.47	0.00	318.47	0.00
198.22	317.75	317.75	0.00	317.75	0.00

100-year					
River Stationing	Water Surface Profiles				
	Existing	Red Alternative	Increase in water surface elevation for the Red Alternative	Green Alternative	Increase in water surface elevation for the Green Alternative
Navigation Mile	ft	Ft	Ft	Ft	Ft
205.25	325.32	325.42	0.10	325.39	0.07
205.04	325.24	325.34	0.10	325.31	0.07
204.71	324.81	324.92	0.11	324.89	0.08
204.39	324.43	324.54	0.11	324.51	0.08
204.00	323.79	323.91	0.12	323.88	0.09
203.86	323.71	323.82	0.11	323.79	0.08
203.47	323.48	323.60	0.12	323.56	0.08
Bridge 203.42					
203.38	323.28	323.40	0.12	323.37	0.09
203.10	322.99	323.11	0.12	323.08	0.09
202.61	322.53	322.63	0.10	322.60	0.07
202.09	321.98	322.04	0.06	322.01	0.03
201.31	321.72	321.75	0.03	321.75	0.03
200.43	321.5	321.50	0.00	321.50	0.00
199.00	320.83	320.83	0.00	320.83	0.00
198.22	320.1	320.10	0.00	320.10	0.00

500-year					
River Stationing	Water Surface Profiles				
	Existing	Red Alternative	Increase in water surface elevation for the Red Alternative	Green Alternative	Increase in water surface elevation for the Green Alternative
Navigation Mile	ft	Ft	Ft	Ft	Ft
205.25	330.06	330.29	0.23	330.24	0.18
205.04	329.96	330.20	0.24	330.14	0.18
204.71	329.42	329.66	0.24	329.60	0.18
204.39	328.90	329.15	0.25	329.09	0.19
204.00	328.06	328.32	0.26	328.26	0.20
203.86	327.97	328.23	0.26	328.17	0.20
203.47	327.68	327.94	0.26	327.88	0.20
Bridge 203.42					
203.38	327.39	327.66	0.27	327.60	0.21
203.10	327.06	327.32	0.26	327.28	0.22
202.61	326.51	326.63	0.12	326.60	0.09
202.09	326.09	326.09	0.00	326.09	0.00
201.31	325.78	325.83	0.05	325.81	0.03
200.43	325.68	325.68	0.00	325.68	0.00
199.00	325.00	325.00	0.00	325.00	0.00
198.22	324.32	324.32	0.00	324.32	0.00

4. 100-Year Flood Plain Boundary

To provide a national standard, without regional discrimination, the one percent annual chance (100-year) flood has been adopted by FEMA as the base flood for flood plain management purposes. For existing condition, the Red alternative, and the Green alternative the 100-year flood plain boundary has been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated.

5. Summary of Results

The HEC-RAS analysis show the proposed River Valley Intermodal Facility will increase 100-year water surface elevations by a maximum of 0.12 feet for the Red alternative and by 0.09 feet for the Green alternative. Therefore the proposed River Valley Intermodal Facility is consistent with Executive Order 11988 and satisfies the requirements of the Federal Emergency Management Agency for good flood plain management.

6. Digital Data Management

The following tables list the filenames for each of the HEC-RAS computer models developed for this study.

Existing	
Geometry File	Pool 9 - GAR Existing
Steady Flow File	Vertical change n-values profile check
Plan:	Existing
Short ID	Existing

Red Alternative	
10-year	
Geometry File	Pool 9 - GAR Existing
Steady Flow File	Vertical change n-values profile check
Plan:	Red Alternative 10-year event
Short ID	Red: 10-year
50-year	
Geometry File	Pool 9 - GAR Red Alternative 50-year event
Steady Flow File	Vertical change n-values profile check
Plan:	Red Alternative 50-year event
Short ID	Red: 50-year
100- & 500-year	
Geometry File	Pool 9 - GAR Red Alternative 100- & 500-year
Steady Flow File	Vertical change n-values profile check
Plan:	Red Alternative 100- & 500-year events
Short ID	Red: 100&500

Green Alternative	
10-year	
Geometry File	Pool 9 - GAR Existing
Steady Flow File	Vertical change n-values profile check
Plan:	Green Alternative 10-year event
Short ID	Green: 10-yr
50-year	
Geometry File	Pool 9 - GAR Green Alternative 50-year event
Steady Flow File	Vertical change n-values profile check
Plan:	Green Alternative 50-year event
Short ID	Green: 50-yr
100- & 500-year	
Geometry File	Pool 9 - GAR Green Alternative 100- & 500-year
Steady Flow File	Vertical change n-values profile check
Plan:	Green Alternative 100- & 500-year events
Short ID	Gren:100&500

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APPENDIX C – CULTURAL RESOURCES PROGRAMMATIC AGREEMENT (PA) AND WORK PLAN

C.1	CONSULTATION WITH THE SHPO AND NATIVE AMERICAN GROUPS REGARDING PHASE II REPORT AND THE DEVELOPMENT OF THE PROGRAMMATIC AGREEMENT (PA).....	C-2
C.2	PROGRAMMATIC AGREEMENT (PA).....	C-19
C.3	WORK PLAN FOR PHASE II NRHP EVALUATIONS OF 20 ARCHAEOLOGICAL SITES	C-43

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This Appendix C contains response letters from Native American Groups requesting to be participants in the development of the Programmatic Agreement (PA). It contains the PA among the Federal Highway Administration; Arkansas State Highway and Transportation Department; Little Rock District, Army Corps of Engineers; and Arkansas State Historic Preservation Office. The associated Work Plan for Phase II NRHP Evaluations of 20 Archaeological Sites in the Proposed River Valley Intermodal Facilities, Pope County, Arkansas is also contained in this Appendix.

**C.1 CONSULTATION WITH THE SHPO AND NATIVE AMERICAN GROUPS
REGARDING PHASE II REPORT AND THE DEVELOPMENT OF THE
PROGRAMMATIC AGREEMENT (PA)**



**The Department of
Arkansas
Heritage**

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

Arkansas Natural Heritage
Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum



**Arkansas Historic
Preservation Program**

1500 Tower Building
323 Center Street

Little Rock, AR 72201

(501) 324-9880

fax: (501) 324-9184

tdd: (501) 324-9811

e-mail:

info@arkansaspreservation.org

website:

www.arkansaspreservation.com

An Equal Opportunity Employer



July 25, 2012

Mr. Randal Looney
Environmental Coordinator
Arkansas Division
Federal Highway Administration
700 W. Capitol Avenue, Room 3130
Little Rock, Arkansas 72201-3298

RE: Multi County – General
Section 106 Review – FHWA
Report Titled “Phase II Testing of Archaeological Sites
at the River Valley Intermodal Facility Alternatives,
Johnson and Pope Counties, Arkansas”
AHPP Tracking Number 49225

Dear Mr. Looney:

My staff has reviewed the referenced Phase II archeological testing report. It is thorough, comprehensive, and well written. We also concur with the findings and conclusions presented therein. Specifically, eight archeological sites (3PP449/3PP611, 3PP610, 3PP681, 3PP682, 3PP729, 3PP733, 3PP740, and 3JO715) are eligible for inclusion in the National Register of Historic Places, while 22 sites discussed in the report are ineligible. Also, two properties (3PP722 and 3PP743) were not tested due to land owner access issues. Therefore, the National Register eligible properties in the selected alternative should be avoided and protected, or mitigated by archeological data recovery. No further work or protection is needed on the ineligible sites.

To move forward with the Section 106 review process, the Federal Highway Administration should develop a Programmatic Agreement to address land owner access issues and the two unevaluated sites, and develop a treatment plan for historic properties. We can then proceed with our review of this undertaking.

Thank you for your interest and concern for the cultural heritage of Arkansas. If you have any questions, please contact George McCluskey of my staff at (501) 324-9880.

Sincerely,

Frances McSwain
Deputy State Historic Preservation Officer

070157

RECEIVED
AHTD

JUL 26 2012

ENVIRONMENTAL
DIVISION

cc: Dr. John Eddins, Advisory Council on Historic Preservation
Mr. Chris Davies, U.S. Army Corps of Engineers, Little Rock District
Mr. Lynn P. Malbrough, Arkansas State Highway and Transportation
Department
Mr. Robert Cast, Caddo Nation
Dr. Richard Allen, Cherokee Nation of Oklahoma
Ms. Lisa Larue Baker, United Keetoowah Band of Cherokee Indians
Dr. Andrea Hunter, Osage Nation
Ms. Jean Ann Lambert, Quapaw Tribe of Oklahoma
Mr. C. Andrew Buchner, Panamerican Consultants, Inc.
Dr. Ann M. Early, Arkansas Archeological Survey



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

August 9, 2012

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6423

In Reply Refer To:
AHTD Job No. 080157
Arkansas River Valley Intermodal Facility
Johnson County, Arkansas

Mr. Robert Cast
Tribal Historic Preservation Officer
Caddo Nation
P.O. Box 487
Binger, OK 73009

Dear Mr. *Robert* Cast:

As part of continued consultation with the Caddo Nation on the Arkansas River Valley Intermodal Facility, a copy of the Phase II testing results for the project is enclosed for your review and comment. The Arkansas State Historic Preservation Officer (SHPO) reviewed the report and provided comments on July 25, 2012. A copy of that correspondence is also enclosed. The SHPO recommended our agency develop a Programmatic Agreement (PA) to address land owner access issues encountered during the Phase II field work, and also develop a treatment plan for historic properties and further, avoid National Register eligible properties and/or protect/mitigate them through data recovery. The FHWA intends to proceed in this fashion and invite tribal nations to participate in the development of the PA.

A Supplemental Draft Environmental Impact Statement (SDEIS) has been prepared for the project and due to the high number of archeological sites present in the project area, it was FHWA's decision to perform Phase II archeology prior to developing a PA so that more in-depth information would be available to share with tribal nations and aid in the identification of a preferred alternative location for the project. While no formal decision has been made at this time, the Green Alternative (Figure 1-01 of the enclosed report) is being considered as the preferred. This designation must be made prior to moving forward with the development of a Final EIS (FEIS), of which and the development of the PA and treatment plan will be major component.

Upon your review of the report and if this process as described above is acceptable to the Caddo Nation, we respectfully request that you respond within 30 days and we will submit for your review a draft PA and treatment plan.

Arkansas River Valley Intermodal Facility
Phase II Testing
Page 2

As always, we appreciate the input we receive from the Caddo Nation on our projects and look forward to working with you on the PA and treatment plan. If you have any questions or concerns, please do not hesitate to contact me at (501) 324-6430 or via email at Randal.looney@dot.gov.

Sincerely,



Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

August 9, 2012

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6423

In Reply Refer To:
AHTD Job No. 080157
Arkansas River Valley Intermodal Facility
Johnson County, Arkansas

Dr. Richard Allen
Historic Preservation Program
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah, OK 74465

Dear Dr. Allen:

As part of continued consultation with the Cherokee Nation of Oklahoma on the Arkansas River Valley Intermodal Facility, a copy of the Phase II testing results for the project is enclosed for your review and comment. The Arkansas State Historic Preservation Officer (SHPO) reviewed the report and provided comments on July 25, 2012. A copy of that correspondence is also enclosed. The SHPO recommended our agency develop a Programmatic Agreement (PA) to address land owner access issues encountered during the Phase II field work, and also develop a treatment plan for historic properties and further, avoid National Register eligible properties and/or protect/mitigate them through data recovery. The FHWA intends to proceed in this fashion and invite tribal nations to participate in the development of the PA.

A Supplemental Draft Environmental Impact Statement (SDEIS) has been prepared for the project and due to the high number of archeological sites present in the project area, it was FHWA's decision to perform Phase II archeology prior to developing a PA so that more in-depth information would be available to share with tribal nations and aid in the identification of a preferred alternative location for the project. While no formal decision has been made at this time, the Green Alternative (Figure 1-01 of the enclosed report) is being considered as the preferred. This designation must be made prior to moving forward with the development of a Final EIS (FEIS), of which and the development of the PA and treatment plan will be major component.

Upon your review of the report and if this process as described above is acceptable to the Cherokee Nation of Oklahoma, we respectfully request that you respond within 30 days and we will submit for your review a draft PA and treatment plan.

Arkansas River Valley Intermodal Facility
Phase II Testing
Page 2

As always, we appreciate the input we receive from the Cherokee Nation of Oklahoma on our projects and look forward to working with you on the PA and treatment plan. If you have any questions or concerns, please do not hesitate to contact me at (501) 324-6430 or via email at Randal.looney@dot.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Looney', with a stylized flourish at the end.

Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

August 9, 2012

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6423

In Reply Refer To:
AHTD Job No. 080157
Arkansas River Valley Intermodal Facility
Johnson County, Arkansas

Dr. Andrea A. Hunter
Osage Nation Historic Preservation Office
Osage Nation
627 Grandview
Pawhuska, OK 74056

Dear Dr. Hunter:

As part of continued consultation with the Osage Nation on the Arkansas River Valley Intermodal Facility, a copy of the Phase II testing results for the project is enclosed for your review and comment. The Arkansas State Historic Preservation Officer (SHPO) reviewed the report and provided comments on July 25, 2012. A copy of that correspondence is also enclosed. The SHPO recommended our agency develop a Programmatic Agreement (PA) to address land owner access issues encountered during the Phase II field work, and also develop a treatment plan for historic properties and further, avoid National Register eligible properties and/or protect/mitigate them through data recovery. The FHWA intends to proceed in this fashion and invite tribal nations to participate in the development of the PA.

A Supplemental Draft Environmental Impact Statement (SDEIS) has been prepared for the project and due to the high number of archeological sites present in the project area, it was FHWA's decision to perform Phase II archeology prior to developing a PA so that more in-depth information would be available to share with tribal nations and aid in the identification of a preferred alternative location for the project. While no formal decision has been made at this time, the Green Alternative (Figure 1-01 of the enclosed report) is being considered as the preferred. This designation must be made prior to moving forward with the development of a Final EIS (FEIS), of which and the development of the PA and treatment plan will be major component.

Upon your review of the report and if this process as described above is acceptable to the Osage Nation, we respectfully request that you respond within 30 days and we will submit for your review a draft PA and treatment plan.

Arkansas River Valley Intermodal Facility
Phase II Testing
Page 2

As always, we appreciate the input we receive from the Osage Nation on our projects and look forward to working with you on the PA and treatment plan. If you have any questions or concerns, please do not hesitate to contact me at (501) 324-6430 or via email at Randal.looney@dot.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Looney', is positioned above the printed name.

Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

August 9, 2012

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6423

In Reply Refer To:
AHTD Job No. 080157
Arkansas River Valley Intermodal Facility
Johnson County, Arkansas

Jean Ann Lambert
Tribal Historic Preservation Officer
Quapaw Tribe of OK
P.O. Box 765
Quapaw, OK 74363

Dear Ms Lambert:

As part of continued consultation with the Quapaw Tribe of Oklahoma on the Arkansas River Valley Intermodal Facility, a copy of the Phase II testing results for the project is enclosed for your review and comment. The Arkansas State Historic Preservation Officer (SHPO) reviewed the report and provided comments on July 25, 2012. A copy of that correspondence is also enclosed. The SHPO recommended our agency develop a Programmatic Agreement (PA) to address land owner access issues encountered during the Phase II field work, and also develop a treatment plan for historic properties and further, avoid National Register eligible properties and/or protect/mitigate them through data recovery. The FHWA intends to proceed in this fashion and invite tribal nations to participate in the development of the PA.

A Supplemental Draft Environmental Impact Statement (SDEIS) has been prepared for the project and due to the high number of archeological sites present in the project area, it was FHWA's decision to perform Phase II archeology prior to developing a PA so that more in-depth information would be available to share with tribal nations and aid in the identification of a preferred alternative location for the project. While no formal decision has been made at this time, the Green Alternative (Figure 1-01 of the enclosed report) is being considered as the preferred. This designation must be made prior to moving forward with the development of a Final EIS (FEIS), of which and the development of the PA and treatment plan will be major component.

Upon your review of the report and if this process as described above is acceptable to the Quapaw Tribe of Oklahoma, we respectfully request that you respond within 30 days and we will submit for your review a draft PA and treatment plan.

Arkansas River Valley Intermodal Facility
Phase II Testing
Page 2

As always, we appreciate the input we receive from the Quapaw Tribe of Oklahoma on our projects and look forward to working with you on the PA and treatment plan. If you have any questions or concerns, please do not hesitate to contact me at (501) 324-6430 or via email at Randal.looney@dot.gov.

Sincerely,



Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

August 9, 2012

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6423

In Reply Refer To:
AHTD Job No. 080157
Arkansas River Valley Intermodal Facility
Johnson County, Arkansas

Ms. Lisa Larue-Baker
Historic Preservation Officer
United Keetoowah Band of Cherokee Indians
P.O. Box 746
Tahlequah, OK 74465

Dear Ms Larue-Baker:

As part of continued consultation with the United Keetoowah Band of Cherokee Indians on the Arkansas River Valley Intermodal Facility, a copy of the Phase II testing results for the project is enclosed for your review and comment. The Arkansas State Historic Preservation Officer (SHPO) reviewed the report and provided comments on July 25, 2012. A copy of that correspondence is also enclosed. The SHPO recommended our agency develop a Programmatic Agreement (PA) to address land owner access issues encountered during the Phase II field work, and also develop a treatment plan for historic properties and further, avoid National Register eligible properties and/or protect/mitigate them through data recovery. The FHWA intends to proceed in this fashion and invite tribal nations to participate in the development of the PA.

A Supplemental Draft Environmental Impact Statement (SDEIS) has been prepared for the project and due to the high number of archeological sites present in the project area, it was FHWA's decision to perform Phase II archeology prior to developing a PA so that more in-depth information would be available to share with tribal nations and aid in the identification of a preferred alternative location for the project. While no formal decision has been made at this time, the Green Alternative (Figure 1-01 of the enclosed report) is being considered as the preferred. This designation must be made prior to moving forward with the development of a Final EIS (FEIS), of which and the development of the PA and treatment plan will be major component.

Upon your review of the report and if this process as described above is acceptable to the United Keetoowah Band of Cherokee Indians, we respectfully request that you respond within 30 days and we will submit for your review a draft PA and treatment plan.

Arkansas River Valley Intermodal Facility
Phase II Testing
Page 2

As always, we appreciate the input we receive from the United Keetoowah Band of Cherokee Indians on our projects and look forward to working with you on the PA and treatment plan. If you have any questions or concerns, please do not hesitate to contact me at (501) 324-6430 or via email at Randal.looney@dot.gov.

Sincerely,



Randal Looney
Environmental Coordinator

Enclosure



TRIBAL HISTORIC PRESERVATION OFFICE

Date: September 27, 2012

File: 1112-1211AR-9

RE: AHTD Job No. 080157; River Valley Intermodal Facility PA development

Mr. Randal Looney
Environmental Coordinator
Arkansas Division
Federal Highway Administration
700 W. Capitol Ave., Room 3130
Little Rock, Arkansas 72201-3298

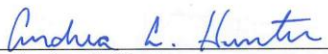
Dear Mr. Looney,


On August 14th, 2012 the Osage Nation received the report titled: "Phase II Testing of Archaeological Sites at the River Valley Intermodal Facility Alternatives, Johnson and Pope Counties, Arkansas" and agree with the SHPO that it is thorough, comprehensive and well-written. We concur with the SHPO that FHWA should develop a Programmatic Agreement to address land owner issues and the two unevaluated sites, and develop a treatment plan for historic properties. The Osage Nation requests to participate in the development of the Programmatic Agreement and the treatment plan as a consulting party.

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S.C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred to in S101 (d)(6)(A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

Please contact the Osage Nation Historic Preservation Office with your response to this request. Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation.

Sincerely,


Dr. Andrea A. Hunter
Tribal Historic Preservation Officer


Barker Fariss, Ph.D.
Archaeologist I

627 Grandview, Pawhuska, OK 74056, (918) 287-5328, Fax (918) 287-5376

From: Lisa LaRue-Baker - UKB THPO [<mailto:ukbthpo-larue@yahoo.com>]
Sent: Wednesday, August 29, 2012 11:00 PM
To: Looney, Randal (FHWA)
Cc: lstapleton@unitedkeetoowahband.org
Subject: RE: Arkansas River Valley Intermodal Facility

Yes, please! Or if it's on a PDF, you could send me that :-)
Thanks!

Lisa LaRue-Baker

Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952 f 918.458.6889
ukbthpo-larue@yahoo.com

--- On Wed, 8/29/12, Randal.Looney@dot.gov <Randal.Looney@dot.gov> wrote:

From: Randal.Looney@dot.gov <Randal.Looney@dot.gov>
Subject: RE: Arkansas River Valley Intermodal Facility
To: ukbthpo-larue@yahoo.com
Cc: lstapleton@unitedkeetoowahband.org
Date: Wednesday, August 29, 2012, 7:39 AM

Will do Lisa and thank you. When you say information on the "archeological sites", do you want a copy of the Phase II testing report? We look forward to working with you all on the PA as well. Thanks - Randal

From: Lisa LaRue-Baker - UKB THPO [<mailto:ukbthpo-larue@yahoo.com>]
Sent: Tuesday, August 28, 2012 8:15 PM
To: Looney, Randal (FHWA)
Cc: lstapleton@unitedkeetoowahband.org
Subject: Arkansas River Valley Intermodal Facility

The UKB would like to take part in the development of the Programmatic Agreement for this project.

Can you please send me the SHPO comments, and information on the archeological sites, as they were somehow separated from the letter by the time it reached my desk. FOR THIS CORRESPONDENCE ONLY, please send to the following address, so I can be sure and receive it in a timely manner: Lisa LaRue-Baker, 4283 Murietta Ave., #9, Sherman Oaks, CA 91423 ALL OTHER CORRESPONDENCE should continue to be sent to the UKB tribal headquarters.

Thank you, and the UKB looks forward to working with you on this project.

Lisa LaRue-Baker

Acting THPO

United Keetoowah Band of Cherokee Indians in Oklahoma

PO Box 746

Tahlequah, OK 74465

c 918.822.1952 f 918.458.6889

ukbthpo-larue@yahoo.com

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C.2 PROGRAMMATIC AGREEMENT (PA)

**PROGRAMMATIC AGREEMENT
AMONG THE
FEDERAL HIGHWAY ADMINISTRATION;
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT;
LITTLE ROCK DISTRICT, ARMY CORPS OF ENGINEERS;
RIVER VALLEY REGIONAL INTERMODAL FACILITIES AUTHORITY;
ARKANSAS STATE HISTORIC PRESERVATION OFFICE
REGARDING THE CONSTRUCTION OF THE RIVER VALLEY INTERMODAL FACILITIES,
RUSSELLVILLE, ARKANSAS**

WHEREAS, the Federal Highway Administration (FHWA) has determined that the proposed River Valley Intermodal Facilities located near Russellville, Arkansas is necessary to promote economic development in central Arkansas; and

WHEREAS, a Preferred Alternative for the Undertaking was selected and consists of approximately 882 acres located in the floodplain of the Arkansas River which constitutes the Area of Potential Effects (Attachment A); and

WHEREAS, the FHWA has determined that the Undertaking will have an effect on properties that are listed in or eligible for inclusion in the National Register of Historic Places (NRHP) and in accordance with 36 Code of Federal Regulations (CFR) Part 800 Protection of Historic Resources, regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), must address these effects; and

WHEREAS, the FHWA is the Lead Federal Agency for this undertaking (36 CFR Part 800.2(a)(2)); and

WHEREAS, the Advisory Council on Historic Preservation (the Council) has been invited to participate and has chosen not to be a signatory to this agreement; and

WHEREAS, identification and evaluation surveys were conducted within portions of the proposed River Valley Intermodal Facilities to identify resources listed, or eligible for inclusion, in the NRHP and seven archaeological sites (sites 3PP449/3PP611, 3PP610, 3PP681, 3PP682, 3PP729, 3PP733, and 3PP740) were determined eligible (Attachment B); and

WHEREAS, previous cultural resources investigations indicate that twenty archaeological sites occur in portions of the River Valley Intermodal Facilities not yet subject to evaluation survey (Attachment C), and some of these resources may be considered NRHP-eligible and may be affected by the Undertaking; and

WHEREAS, the Caddo Nation, Cherokee Nation of Oklahoma, Quapaw Tribe of Oklahoma, the Osage Nation, and the United Keetoowah Band of Cherokee Indians (Tribes) have been included through consultation and in drafting this agreement and have been invited to be signatories to this Programmatic Agreement (PA); and

WHEREAS, the consultations stipulations with the Arkansas State Historic Preservation Office (SHPO), the Tribes, and other consulting parties as set forth in 36 CFR Part 800.4 through 800.6 shall apply in this PA; and

NOW, THEREFORE, the signatories agree that the following stipulations will be implemented to take into account the effect of this undertaking on these historic properties.

STIPULATIONS

FHWA will ensure that the following stipulations are carried out prior to taking any action that could have an effect on historic properties.

I. NRHP EVALUATION OF CULTURAL RESOURCES

FHWA, in consultation with the Arkansas SHPO, the Tribes, and other consulting parties as appropriate, will ensure that Phase II investigations to determine eligibility for listing on the NRHP of twenty archaeological sites located in the southern portion of the project area (Attachment C) will be conducted prior to construction.

A. A Phase II research design and work plan has been prepared in consultation with the Arkansas SHPO, the Tribes, and other consulting parties as appropriate (Attachment D). The Phase II research design and work plan will be approved by the Arkansas SHPO and reviewed by the Tribes and other consulting parties prior to implementation.

B. At the completion of fieldwork, FHWA will notify the Arkansas SHPO of the preliminary findings and submit the Phase II technical report detailing the eligibility recommendations for review and concurrence within 120 days.

C. In the event that any archaeological site is determined NRHP-eligible and cannot be avoided through project redesign, FHWA will follow the procedures described in Stipulation II.B.

II. TREATMENT OF HISTORIC PROPERTIES

Those individual historic properties that FHWA and the Arkansas SHPO agree are eligible for listing in the NRHP and that will be adversely affected by the Undertaking, will be treated by FHWA in the following manner:

A. Avoidance through project redesign and preservation in place will be the preferred treatment.

B. Although avoidance and preservation are preferred, if FHWA determines, in consultation with the Arkansas SHPO, that no other actions are feasible to avoid and minimize effects to historic properties, then FHWA, the Arkansas SHPO, the Tribes, and

other consulting parties will determine the appropriate mitigation measure(s) to resolve the “Adverse Effect” to historic properties.

C. FHWA will ensure that treatment plans are developed, which may include archaeological data recovery, and implement the treatment plans in consultation with the Arkansas SHPO, the Tribes, and other consulting parties.

D. If data recovery is the agreed upon treatment, individual data recovery plans for each site will be prepared and each plan will address substantive research questions developed in consultation with the Arkansas SHPO. It shall specify, at a minimum, the following:

1. The property, properties, or portions of properties where the treatment plan is to be carried out;
2. The research questions to be addressed, with an explanation of research relevance and importance;
3. The methods to be used, with an explanation of methodological relevance to the research questions;
4. Proposed methods of disseminating results of the work to the interested public; and
5. A proposed schedule for the submission of progress reports to the Arkansas SHPO.

E. FHWA shall submit the treatment plan to the Arkansas SHPO, the Tribes, and other consulting parties for a 30-day review and comment to determine whether the measures are sufficient to reduce or mitigate adverse effects to historic properties. FHWA will take into account the Arkansas SHPO comments, and shall ensure that the data recovery plan is implemented. The Arkansas SHPO may monitor this implementation. Should there be a disagreement between FHWA and the Arkansas SHPO that cannot be resolved, FHWA shall contact the Council and request comment on the dispute in accordance with Stipulation IX of this PA.

F. FHWA will ensure that adequate provisions, including personnel, time, and laboratory space, are available for the analysis and curation of recovered materials from historic properties.

G. FHWA will develop and implement an adequate program in consultation with the Arkansas SHPO to secure historic properties from vandalism during data recovery.

III. DATA RECOVERY FOR SITES 3PP449/3PP611, 3PP610, 3PP681, 3PP682, 3PP729, 3PP733, AND 3PP740

Archaeological sites 3PP449/3PP611, 3PP610, 3PP681, 3PP682, 3PP729, 3PP733, and 3PP740 have been determined eligible and are within the limits of the project. If the sites cannot be avoided through project redesign, FHWA, in consultation with the Arkansas SHPO, the Tribes, and other consulting parties as appropriate, will ensure that data recovery investigations for these seven sites will be conducted prior to construction.

A. Data recovery plans for sites 3PP449/3PP611, 3PP610, 3PP681, 3PP682, 3PP729, 3PP733, and 3PP740 have been prepared in consultation with the Arkansas SHPO, the Tribes, and other consulting parties as appropriate (Attachment E).

B. FHWA shall submit the data recovery plans to the Arkansas SHPO, the Tribes, and other consulting parties for a 30-day review and comment to determine whether the measures are sufficient to reduce or mitigate adverse effects to historic properties. FHWA will take into account the Arkansas SHPO comments, and shall ensure that the data recovery plans are implemented. The Arkansas SHPO may monitor this implementation. Should there be a disagreement between FHWA and the Arkansas SHPO that cannot be resolved, FHWA shall contact the Council and request comment on the dispute in accordance with Stipulation IX of this PA.

C. FHWA will ensure that adequate provisions, including personnel, time, and laboratory space, are available for the analysis and curation of recovered materials from historic properties.

D. FHWA will develop and implement an adequate program in consultation with the Arkansas SHPO to secure historic properties from vandalism during data recovery.

IV. PROFESSIONAL QUALIFICATIONS STANDARDS

FHWA will ensure that all cultural resources work is conducted under the direct supervision of an individual, or individuals, who meet the *Secretary of the Interior's Professional Qualifications Standards* for an archeologist (48 FR 44716).

V. REPORTING STANDARDS

FHWA will ensure that all work plans, data recovery plans, and archeological technical reports meet the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716-39) and the *Guidelines for Archeological Fieldwork and Report Writing in A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early, 2010).

VI. HUMAN REMAINS

Human remains, burial furniture or sacred items, as defined in the Native American Graves Protection and Repatriation Act (NAGPRA), the Archaeological Resources Protection Act (ARPA), and the Arkansas burial law (Act 753 of 1991, as amended) may be present in the project area. If they are encountered, the procedures outlined below will be followed.

A. The treatment of human remains and associated funerary objects will be in compliance with NAGPRA, the Archaeological Resources Protection Act (ARPA), the recommended guidance set forth in the Council's *Policy Statement Regarding the Treatment of Burial Sites, Human Remains, and Funerary Objects* published February 23, 2007, and the Arkansas burial law (Arkansas Act 753 of 1991, as amended). Other than a crime scene, no human remains will be removed or excavated without first securing a burial excavation permit from the Arkansas Historic Preservation Program (AHPP).

B. If human remains are discovered, FHWA will ensure that all activities in the area that could disturb the remains, associated burial furniture, or sacred items are suspended. The remains will be left as found and reasonable measures taken to protect the find until the proper authorities can be notified. A ten (10) meter buffer area will be established surrounding the remains and no ground disturbance will occur therein.

C. FHWA will immediately contact the appropriate law enforcement agency, as required by federal and state law. If it is obvious that the remains are non-Indian, or if law enforcement officials assume jurisdiction of the remains (as in the case of a homicide, missing persons case, or unreported death), then there will be no need to contact the Tribes for further consultation. FHWA will notify the Arkansas SHPO and appropriate next of kin, if known, and comply with the relevant requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, ARPA, and the Arkansas burial law (Act 753 of 1991, as amended).

D. If preliminary evaluation of the find indicates that the remains are not a crime scene and are, or could be, Native American, then FHWA will contact the Arkansas SHPO and the signatory Tribes within 24 hours. The parties will consult as per the regulations set forth in 36 CFR Part 800, the Council's *Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects*, ARPA, NAGPRA, and the guidelines for the Arkansas burial law (Act 753 of 1991, as amended). If the remains are not Native American, FHWA will consult with the Arkansas SHPO, living descendants, or other interested parties.

E. In cases of uncertain cultural affiliation of Native American remains, FHWA will consult with the Arkansas SHPO and the signatory Tribes in the Section 106 review process regarding the treatment and disposition of the remains. All decisions will be made in compliance with NAGPRA, ARPA, Section 106 (36 CFR Part 800), the

Council's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects and the Arkansas burial law (Act 753 of 1991, as amended).

VII. TRIBAL CONSULTATION

FHWA consultation with the signatory Tribes will remain open throughout the review of this undertaking. Consultation methods will vary depending on the needs of the Tribes. These may include phone calls, emails, formal written correspondence, on-site meetings, and providing various levels of documentation for review.

VIII. POST REVIEW DISCOVERIES

If either FHWA or the Arkansas SHPO determines, at any time, that the undertaking will affect a previously unidentified property that may be eligible for inclusion in the NRHP, or affect a known historic property in an unanticipated manner, they will address the discovery or unanticipated effect in accordance with 36 CFR Part 800.13.

IX. DISPUTE RESOLUTION

Should any signatory object to any findings, proposed actions or determinations made pursuant to this agreement, FHWA will consult with the objecting party to resolve the objection. If FHWA determines that the objection cannot be resolved, it will request comment from the Council pursuant to 36 CFR Part 800.6. Any Council comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR Part 800.6(b) (2) with reference only to the subject of the dispute. FHWA responsibility to carry out all other actions under this PA that are not subject to the dispute shall remain unchanged.

X. AMENDING THE AGREEMENT

Should any signatory to this agreement believe that the terms are not being met or cannot be met, that party will immediately notify FHWA and request consultation to amend this agreement in accordance with 36 CFR Part 800. The process to amend this agreement will be conducted in a manner similar to that leading to the execution of this agreement.

XI. TERMINATING THE AGREEMENT

Any signatory to this agreement may terminate it by providing 30 calendar days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, FHWA will comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this agreement.

XII. FAILURE TO CARRY OUT THE AGREEMENT

In the event FHWA does not carry out the terms of this agreement, FHWA will comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this agreement.

XIII. FULLFILLMENT OF SECTION 106 RESPONSIBILITIES UNDER THE NHPA

Execution and implementation of this PA evidences that FHWA has afforded the Council a reasonable opportunity to comment pursuant to 36 CFR Part 800 and has taken into account the effect of this undertaking on historic properties.

SIGNATORIES

RIVER VALLEY REGIONAL INTERMODAL FACILITIES AUTHORITY

Roy Reaves, Chairman
River Valley Regional Intermodal Facilities Authority

Date

SIGNATORIES

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett,
Director of Highways & Transportation

Date

SIGNATORIES

ARKANSAS STATE HISTORIC PRESERVATION OFFICE

Cathie Matthews,
Arkansas SHPO

Date

SIGNATORIES

FEDERAL HIGHWAY ADMINISTRATION

Randal J. Looney,
Environmental Coordinator

Date

SIGNATORIES

U.S. Army Corps of Engineers, Little Rock District

Randy Hathaway
Deputy District Engineer

Date

SIGNATORIES

CADDO NATION

Brenda Shemayne Edwards,
Tribal Chairperson

Date

SIGNATORIES

CHEROKEE NATION OF OKLAHOMA

Bill John Baker,
Principal Chief

Date

SIGNATORIES

QUAPAW TRIBE OF OKLAHOMA

John Berrey,
Tribal Chairperson

Date

SIGNATORIES

THE OSAGE NATION

John D. Red Eagle,
Principal Chief

Date

SIGNATORIES

UNITED KEETOOWAH BAND OF CHEROKEE INDIANS

George Wickliffe,
Chief

Date

ATTACHMENT A

PREFERRED ALTERNATIVE (AREA OF POTENTIAL EFFECTS)



ATTACHMENT B

NRHP-ELIGIBLE CULTURAL RESOURCES

Site	Component(s)	Site Size (m ²)	Positive ST Frequency	Average artifact yield per + ST	Artifact Recovery
3PP449/ 3PP611	Late Archaic/Middle Fourche Maline, Historic Cherokee, Historic Tenant period	20,100	77	3.1	687
3PP610	Late Archaic, Terminal Late Archaic/Early Fourche Maline, Late Fourche Maline/Mississippian-Caddo, Historic Cherokee, Historic Tenant period	36,000	259	7.0	9,008
3PP681	Late Fourche Maline (Plum Bayou)	4,200	16	1.4	76
3PP682	Fourche Maline, Late Fourche Maline (Plum Bayou), Historic Tenant period	2,200	13	2.2	354
3PP729	Late Archaic, Late Archaic/Middle Fourche Maline, Late Fourche Maline/Mississippian-Caddo, Plum Bayou, Mississippian	15,600	66	2.5	637
3PP733	Archaic, Fourche Maline, Late Fourche Maline/Mississippian-Caddo, Post-1300 Mississippian-Caddo, Historic Cherokee, Historic Tenant period	9,400	45	2.2	292
3PP740	Late Archaic/Middle Fourche Maline, Fourche Maline, Late Fourche Maline/Mississippian-Caddo, Historic Tenant period	15,900	58	4.6	1,792
		Totals:	534		12,846

ST = shovel test

Source: *Phase II Testing of Archaeological Sites at the River Valley Intermodal Facility Alternatives, Johnson and Pope Counties, Arkansas*, Prepared by Panamerican Consultants, Inc., June 2012

ATTACHMENT C
CULTURAL RESOURCES REQUIRING PHASE II EVALUATION

Site	Component(s)	Research Potential
3PP17	Prehistoric	Undifferentiated prehistoric; intact deposits
3PP669	Prehistoric	Low density Woodland (Plum Bayou Phase)
3PP671	Prehistoric/Historic	Intact deposits (Late Woodland)
3PP672	Prehistoric	Undifferentiated prehistoric; possible intact deposits
3PP673	Prehistoric/Historic	Low density Woodland (Late Woodland)
3PP674	Prehistoric/Historic	Possible intact deposits (late Woodland Fourche Maline)
3PP675	Prehistoric/Historic (20 th century)	Low density Woodland
3PP677	Prehistoric/Historic (20 th century)	Possible Cherokee
3PP678	Prehistoric/Historic (20 th century)	Possible Cherokee; possible intact deposits
3PP680	Prehistoric	Possible intact deposits (Late Woodland)
3PP684	Prehistoric/Historic	Low density Woodland
3PP685	Prehistoric/Historic	Undifferentiated prehistoric; intact deposits
3PP687	Prehistoric/Historic	Undifferentiated prehistoric; intact deposits
3PP688	Prehistoric/Historic (20 th century)	Possible Cherokee
3PP689	Prehistoric/Historic	Intact deposits (Plum Bayou)
3PP690	Prehistoric/Historic	Undifferentiated prehistoric; intact deposits
3PP720	Prehistoric	Low density Woodland
3PP722	Prehistoric/Historic	Historic Cherokee, Prehistoric Isolated Find
3PP728	Prehistoric/Historic	Possible Cherokee
3PP743	Prehistoric	Undifferentiated Prehistoric

Source: *Archaeological Survey of the Proposed River Valley Intermodal Facility, Pope County, Arkansas*. Prepared by Mid-Continental Research Associates, Inc., 2005

ATTACHMENT D
WORK PLAN FOR PHASE II NRHP EVALUATIONS OF 20 ARCHAEOLOGICAL SITES
IN THE PROPOSED RIVER VALLEY INTERMODAL FACILITY,
POPE COUNTY, ARKANSAS

The Work Plan contains archaeological site locations and is not included here in accordance with Section 304 of the National Historic Preservation Act to protect these archaeological sites from harm.

ATTACHMENT E
TREATMENT PLAN FOR ARCHAEOLOGICAL SITES 3PP449/3PP611, 3PP610, 3PP681,
3PP682, 3PP729, 3PP733, AND 3PP740, WITHIN THE RED/GREEN ALTERNATIVE OF THE
RIVER VALLEY INTERMODAL FACILITIES, POPE COUNTY, ARKANSAS

Data Recovery Plan in progress


The Treatment Plan contains archaeological site locations and is not included here in accordance with Section 304 of the National Historic Preservation Act to protect these archaeological sites from harm.

DRAFT

C.3 WORK PLAN FOR PHASE II NRHP EVALUATIONS OF 20 ARCHAEOLOGICAL SITES

**WORK PLAN FOR
PHASE II NRHP EVALUATIONS OF 20 ARCHAEOLOGICAL SITES
IN THE PROPOSED RIVER VALLEY INTERMODAL FACILITIES,
POPE COUNTY, ARKANSAS**

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Revised October 18, 2012

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INTRODUCTION

Panamerican Consultants, Inc. (Panamerican) is pleased to submit this Work Plan to the River Valley Regional Intermodal Facilities Authority (Authority), the Federal Highway Administration (FHWA), Arkansas Highway and Transportation Department (AHTD), the Little Rock District, U.S. Army Corps of Engineers (USACE), and the Arkansas State Historic Preservation Office (SHPO) to conduct Phase II testing of twenty (20) archaeological sites in portions of the Green Alternative at the proposed River Valley Intermodal Facilities (RVIF) in Pope County, Arkansas. Panamerican is a small business (NAICS code 541720), founded in 1989, that specializes in cultural resource management and archaeological research. Additional information regarding Panamerican can be obtained by visiting our home page on the Internet www.panamconsultants.com or the “About Panamerican” tab in the Lamar Terrace Archaeology web page <http://www.lamarterracedig.com/panamerican.htm>.

This work plan details the level of work necessary to complete Phase II archaeological investigations in compliance with Section 106, and be compliant with the Appendix B of the Arkansas State Plan: *Guidelines for Archeological Fieldwork and Report Writing in Arkansas* (Revised Version in effect as of 1 January 2010). This Work Plan is similar in approach to the Work Plan that was utilized during the 2011-2012 Phase II testing efforts that were conducted at multiple sites within the Red-Green Alternative overlap and one site within the Purple Alternative (Buchner et al. 2012).

More generally, the Phase II will be in compliance with all appropriate Federal and State laws, regulations, guidelines and policies pertaining to the identification, evaluation and treatment of cultural resources. These include but are not limited to the National Historic Preservation Act (Public Law 89-665), Executive Order 11-593 (Protection and Enhancement of the Cultural Environment), the Secretary of the Interior’s “Standards and Guidelines for Archeology and Historic Preservation” (48 FR44716-39), the National Environmental Policy Act of 1969 (Public Law 91-190), the Archaeological Resources Protection Act of 1979 (Public Law 96-95), and the Advisory Council on Historic Preservation, Procedures for the Protection of Historic and Cultural Properties’ (36 CFR Part 800), Arkansas Act 58 of 1967, Arkansas Act 480 of 1977, Arkansas Act 753 of 1991, Arkansas Act 1533 of 1999 and the standards and guidelines set forth Appendix B of the Arkansas State Plan: *Guidelines for Archeological Fieldwork and Report Writing in Arkansas* (Revised Version in effect as of 1 January 2010).

PROJECT PURPOSE

The primary purpose of the project is to assess the National Register of Historic Places (NRHP) eligibility status of 20 archaeological sites in accordance with the Memorandum of Agreement (MOA), and to make recommendations for appropriate management and treatment of the NRHP-eligible sites. The site testing data will then be included in the cultural resources portion of an Environmental Impact Statement (EIS) that will be prepared by Parsons. The sites to be tested are summarized below (Table 1).

The proposed project is an example of a “compliance” driven archaeological study, as the effects the proposed intermodal facility will have on identified resources must be assessed and recommendations made to comply with Section 106 of the National Historic Preservation Act. The Advisory Council of Historic Preservation’s (ACHP) Section 106 regulations (36 CFR 800) were amended August 5, 2004, and can be viewed on-line at <http://www.achp.gov/regs.html>.

The main objective in conducting the investigations of these sites is to make a formal determination of each site’s NRHP eligibility status via an archaeological field study. The investigations will be a “standard” Phase II cultural resources management (CRM) project, and the specific objectives of the fieldwork are to determine the following:

- The spatial limits (horizontal and vertical) of the site within the area of potential effects (APE);
- The cultural affiliation of the components represented;
- The presence or absence of undisturbed subsurface features or stratified deposits;
- The density and distribution of intact archaeological deposits within the APE; and
- The classes of archaeological remains that are recoverable.

Table 1. Archaeological Sites to Test for NRHP Eligibility.

Site	Components	Research Potential	Remarks
3PP17	Prehistoric	Intact deposits	
3PP669	Prehistoric	Low density Woodland	
3PP671	Prehistoric/Historic	Intact deposits	
3PP672	Prehistoric	Possible intact deposits	
3PP673	Prehistoric/Historic	Low density Woodland	
3PP674	Prehistoric/Historic	Possible intact deposits	
3PP675	Prehistoric/Historic	Low density Woodland	
3PP677	Prehistoric/Historic	Possible Cherokee	
3PP678	Prehistoric/Historic	Possible Cherokee; Possible intact deposits	
3PP680	Prehistoric	Possible intact deposits	
3PP684	Prehistoric/Historic	Low density Woodland	
3PP685	Prehistoric	Intact deposits	
3PP687	Prehistoric/Historic	Intact deposits	
3PP688	Prehistoric/Historic	Possible Cherokee	
3PP689	Prehistoric/Historic	Intact deposits	
3PP690	Prehistoric/Historic	Intact deposits	
3PP720	Prehistoric	Low density Woodland	
3PP722	Historic	Possible Cherokee	Landowner denied access during last Phase II
3PP728	Prehistoric/Historic	Possible Cherokee	
3PP743	Prehistoric	Possible intact deposits	Landowner denied access during last Phase II

Data after Lafferty et al. (2005:Table 80) except Historic component from 3PP685 was deleted and Prehistoric component at 3PP722 was deleted (Tabular data elsewhere in Lafferty et al. 2005 reveal no diagnostics for these components were recovered.).

PROJECT LOCATION

The RVIF Alternatives are located within the New Hope Bottoms area south of Russellville, which lies on the opposite bank of the Arkansas River from Dardanelle. This is a rural area that is used principally for agriculture, sand and topsoil mining, and hunting.

The Red Alternative consists of an 832-ac. tract located near Arkansas River Mile (RM) 203 along the left descending bank of the river and extends northward to State Highway 247 and south into the Arkansas River floodplain. The Green Alternative consists of an 882-ac. tract located adjacent to and including portions of the Red Alternative, near Arkansas RM 203 along the left descending bank of the river. The Red/Green Alternative overlap consists of the area where the Red Alternative and the Green Alternative overlap (see hatched area in Figure 1).

The twenty sites in this Phase II study are located primarily in the southern portion of the Green Alternative. Two sites (3PP722 and 3PP743) were originally scheduled for testing during the 2011-2012 Phase II testing efforts; however, permission was not obtained from the landowners for access and excavation.

Figure 1 contains archaeological site locations and is not included here in accordance with Section 304 of the National Historic Preservation Act to protect these archaeological sites from harm.

PREVIOUS INVESTIGATIONS

There have been eight previous archaeological investigations at the proposed River Valley Intermodal facility Alternatives in Pope County, Arkansas. These studies are reviewed below. The 2005 Mid-Continental Research Associates, Inc. (MCRA) survey should be noted, because the 20 sites to be tested were recommended for additional work as a result of that survey. The most recent work at the proposed facility was Panamerican's 2011-2012 multi-site testing project in the Red-Green Alternative overlap.

DARDANELLE RESERVOIR RBS

The Smithsonian Institution conducted the earliest work in the study area as one of their River Basin Survey projects that figure prominently in 1950s and 1960s US archaeology. During 1957, Greengo (1957) surveyed the Dardanelle Reservoir and documented 55 archaeological sites. Twenty-one of these sites were located in Pope County, including Site 3PP17, the Howell Farm site, a village that lies within the proposed Intermodal Facility tract and is among the sites to test during this study (see Table 1). This site is the most southeastern, or most downstream, site documented during the Dardanelle Reservoir River Basin Survey (Greengo 1957: Figure 1).

HOWELL FARM EXCAVATIONS

During 1970, the Arkansas Archeological Survey (AAS) conducted test excavations at the Howell Farm site (3PP17 site file). As noted above, this site is proposed to be tested during this study. Work conducted included the excavation of three 1-x-1 m test units, and two 1-x-1.5 m test units that formed a discontinuous trench (Cochran 1976: Figure 2). Nine Woodland period burials that lacked grave goods were identified within three pits (A, B, and C) exposed in the excavation units. Cochran's (1976) skeletal analysis resulted in the identification of the following burial population: one sub-adult of indeterminate sex; one adult male; three adult females; and four adults of indeterminate sex. The remains exhibited poor preservation and only limited anthropomorphic traits could be collected.

3PP449 EXCAVATIONS

During 1996, the AAS directed test excavations at 3PP449, an early nineteenth-century Cherokee site that is located within the Red-Green Alternative overlap (Stewart-Abernathy 1998). Work was conducted by Arkansas Archeological Society volunteers, and included the recovery a 100 percent controlled surface collection, the excavation of "nearly 140 cores" at 1 m intervals within primary site area, and excavation of four 1-x-2 m test units (Stewart-Abernathy 1998:45-46). Euro-American artifacts recovered are diagnostic for the period 1790-1835, and included English ceramics, dark green bottle glass, a cut shank nail, a bullet mold fragment, and two metal buttons. Distinctive artifacts that reveal the site's Native American occupation include two glass beads, a sherd of Overhill Curvilinear Complicated Stamped pottery, and pieces of sheet brass (Stewart-Abernathy 1998:50). The article detailing the 3PP449 excavations is notable for summarizing the archaeology and history of the Historic Cherokee occupation of Arkansas (Stewart-Abernathy 1998).

HPA RECORDS REVIEW

During 2002, Historic Preservation Associates (HPA) conducted a cultural resources records review for the proposed Intermodal Facility (Klinger et al. 2003). This involved a "desktop" study of two proposed locations for the Intermodal Facility, Alternative 2 and Alternative 3. Alternative 2 corresponds to the Red-Green Alternative, while Alternative 3 was located elsewhere along the Arkansas River in Pope County. HPA desktop suggested that as many as 102 sites could be located within both alternatives.

2003 MCRA 220 AC. SURVEY

During 2003, MCRA surveyed a 220 ac. tract slated for development as an industrial park (Sierzchula and Lafferty 2003). This is the 220 ac. tract later purchased by the Arkansas Valley Alliance for Economic Development, and most of it is within the Red-Green Alternative overlap. The site detection method employed by MCRA was a pedestrian (visual) survey supplemented with the excavation of shovel tests at unstated intervals. The tract was sub-divided into three areas for survey. In Area 1, 35 shovel tests were excavated, in Area 2 at least three shovel tests were excavated, and in Area 3, six shovel tests were excavated (Sierzchula and Lafferty 2003:17). MCRA's survey resulted in the identification of four newly recorded archaeological sites (3PP609, 3PP610, 3PP611, and 3PP612). These sites were "considered not eligible for nomination to the National Register of Historic places [and] MCRA recommends no further archaeological work" (Sierzchula and Lafferty 2003:i). Sierzchula and Lafferty (2003:19) could not re-locate 3PP449 and they concluded "... the site was misplotted . . . [or] destroyed."

SLACKWATER HARBOR SURVEY

Also during 2003, the Corps of Engineers Little Rock District archaeologist reported conducted a survey of the proposed slackwater harbor in the study area (Davies 2003). Because a copy of this report is not on file with the AAS we must rely on Lafferty et al.'s (2005:42) summary of this work that states that "no archaeological sites" were found and that "most of the area had been disturbed by a gravel pit." Thus this study yielded negative findings.

2005 MCRA 801 AC. SURVEY

During 2005, MCRA conducted a 801 ac. survey for the proposed Intermodal Facility (Lafferty et al. 2005). This survey tract also included most—but not all—of the 220 ac. industrial park tract previously surveyed by MCRA during 2003. The 2005 survey resulted in the identification of 80 archaeological sites, including four isolated finds that were assigned trinomials because they yielded diagnostic artifacts. The field methods employed were similar to those used during the 220 ac. tract survey, and indeed some of the same crewmembers conducted both projects (Sierzchula and Lafferty 2003:17). Again, a pedestrian (visual) survey was employed that was supplemented with the excavation of shovel tests at unstated intervals. However, a major difference between the 2003 and 2005 surveys is that the 2005 survey was conducted when surface visibility was excellent, while the during the 2003 study, surface visibility was more limited. During the 2005 survey, the agricultural fields that characterize most of the study area were freshly plowed and rain-washed, and 100 percent visibility was afforded over 45 percent of the study area (Lafferty et al. 2005:49). Another 10 percent of the study area offered fair surface visibility, while over 21 percent of the survey area was previously disturbed (Lafferty et al. 2005: Table 3). All but two sites were initially detected via surface survey; then limited shovel testing was conducted within their boundaries (which were determined by surface examination).

Table 2 below provides additional information about the 20 sites scheduled for testing that were identified during the MCRA 2005 survey.

Site size among the 20 sites is highly variable, and ranges from a low of 801 m² (3PP699) to a high of 30,121 m² (3PP690). Over half of the sites are greater than 5,000 m² in size. The site size listed in Table 2 is typically the area reported on the 2005 site form, but there are several exceptions:

- ★ The 3PP17 area listed in Table 2 is the area of the site to test; this site actually covers 25,000 m², but the portion south of Duffield Road is outside the RVIF and will not be tested.

- ★ The 3PP673 area is confusingly reported as 11,364 m² and as 1.96 ha on the site form, and we assume a site area of 1.96 ha because this is the area stated in the report (Lafferty et al. 2005:69).

Table 2. Archaeological data for the 20 sites to test (after Lafferty et al. 2005).

Site	Size (m ²)	Surface Recovery	Subsurface Recovery	Total Recovery	Maximum depth (cm)	Components	Remarks
3PP17	12,460	1	12	13	60	Woodland	Nine burials found in 1970 AAS excavation.
3PP669	801	0	16	16	0	Woodland (Plum Bayou)	
3PP671	6,459	40	101	141	90	Late Woodland; Historic isolate	Site may extend farther west; Prehistoric features likely.
3PP672	1,885	16	2	18	63	Late Archaic	
3PP673	19,600	29	0	29	0	Late Woodland; 20th Century isolate	Intact A horizon from 20-40 cmbs
3PP674	3,359	16	1	17	45	Late Woodland (Fourche Maline); weak 20th Century	
3PP675	19,600	31	0	31	0	Late Woodland; late 19th and 20th Century	Possible buried A horizon from 61-80 cmbs
3PP677	3,124	51	4	55	20	Early 19th Century; 20th Century; weak Undifferentiated Prehistoric	
3PP678	5,993	52	3	55	70	19th and 20th Century; Early 19th Century isolate; Prehistoric Isolate	
3PP680	7,219	43	4	47	40	Late Archaic/Woodland; Late Woodland	Intact A horizon from 13-25 cmbs in portions of site
3PP684	23,784	44	1	45	15	Late Woodland; 20th Century	
3PP685	1,902	17	34	51	100	Undifferentiated Prehistoric	No historic recovery, 2005 Table 80 is wrong
3PP687	9,057	42	5	47	75	Undifferentiated Prehistoric; 20th Century	
3PP688	2,500	46	13	59	55	early 19th to 20th Century; weak Woodland	Intact A horizon from 30-55 cmbs
3PP689	9,550	45	22	67	70	Late Woodland (Plum Bayou); weak 20th Century	
3PP690	30,121	277	90	367	75	Woodland; Mississippian; Historic isolate	"Bird Point Ridge"

Site	Size (m ²)	Surface Recovery	Subsurface Recovery	Total Recovery	Maximum depth (cm)	Components	Remarks
3PP720	1,699	28	0	28	0	Late Woodland (Fourche Maline)	
3PP722	5,835	40	12	52	20	early 19th Century (Cherokee)	No prehistoric recovery, 2005 Table 80 is wrong
3PP728	3,848	77	2	79	50	early 19th Century; late 19th/early20th Century; Prehistoric isolate	
3PP743	3,735	0	4	4	50	Undifferentiated Prehistoric	

- ★ The 3PP675 area is confusingly reported as 12,561 m² and as 1.96 ha on the site form, and we assume a site area of 1.96 ha because this is the area stated in the report (Lafferty et al. 2005:73). Also this site “extends west for an undetermined distance” (Lafferty et al. 2005:Figure 32).
- ★ The 3PP688 area is ambiguously reported as 9,057 m² and as 1.25 ha on the site form, and we assume a site area of 0.25 ha because this is the area stated in the report (Lafferty et al. 2005:96).
- ★ Site 3PP690, the “Bird Point Ridge” site, extends for 500 m along the ridge, but only the northern 350 m (north of Duffield Road) is within the RVIF. It is thought that the area in Table 2 represents the whole site rather than the portion that requires testing.

Total Recovery is variable and ranges from four (3PP743) to 367 at 3PP690, which is a relatively high density Late Woodland/Mississippian scatter known as “Bird Point Ridge” that is well known to local relic collectors. While relatively light, the 2005 recovery from these 20 sites on average is roughly twice that of the 32 sites in the previous testing program (61.1 artifacts per site versus 35.0). Lafferty et al. (2005:221) remarked that one of the most surprising findings of the 2005 survey was the low artifact density at the identified sites. Not reflected in Table 2 is 1970 excavation there by AAS, which resulted in the identification of nine burials that are curated at the University of Arkansas Curation Facility (UACF).

Another important pattern to note in Lafferty et al.’s (2005) site data is that most of the recovery was from the surface. Over 73 percent (895 of 1,221) of the recovered artifacts were collected from the surface. Surface recovery ranged from zero in one case (3PP743) to a high of 277 artifacts at the “Bird Point Ridge” site.

Subsurface recovery was typically light, and all but two sites produced 34 or less artifacts from shovel tests. Four sites failed to produce any subsurface artifacts (3PP669, 3PP673, 3PP675, and 3PP720). Two exhibit unusually high subsurface recovery: 3PP671 (n=101) and 3PP690 (n=90). Subsurface recovery was generally low because Lafferty et al. (2005) excavated only few judgmentally placed shovel tests at each site. However, given this, the 3PP671 and 3PP690 recoveries should be viewed as indicative of high-density subsurface deposits at these sites.

Maximum Depth of recovery ranges from 15 to 100 cmbs at the 16 sites that produced subsurface artifacts. Three of these sites appear to be shallow plowzone deposits (3PP684, 3PP677, and 3PP722). Four of these sites are moderately deep (50 cm or less). Importantly, nine of the sites are deeply buried (50 cm or greater in maximum depth). The maximum depth of recovery is illustrated as Figure 2 because this data has significant bearing on the Phase II testing work plan.

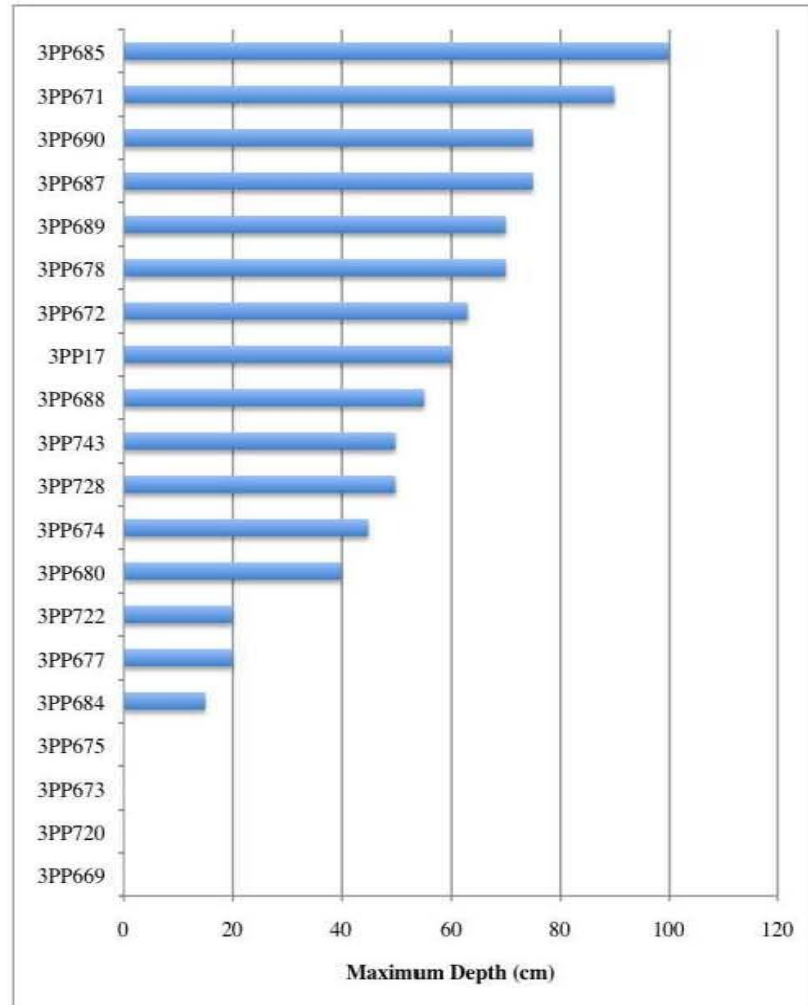


Figure 2. Chart for maximum depth of recovery among the 20 sites to be tested.

2011-2012 TESTING IN THE RED-GREEN ALTERNATIVE OVERLAP

The most recent archaeological investigation at the RVIF was Panamerican's 2011-2012 testing program in the Red-Green Alternative overlap (Buchner et al. 2012). During this study, seven sites in the Red-Green Alternative overlap were determined to be NRHP eligible

(3PP449/3PP611, 3PP610, 3PP681, 3PP682, 3PP729, 3PP733, and 3PP740), and two sites could not be tested because the landowners denied access (3PP722 and 3PP743). The methods employed during this recent testing program were successful and efficient, and we propose to utilize essentially the same approach during this 20 site testing package.

TESTING PROGRAM PROJECT DESIGN

The proposed Phase II testing project design is a multi-stage process that Panamerican successfully implemented during the 2011-2012 testing at the Red-Green Alternate overlap for the RVIF. The various major tasks are discussed below.

TASK 1—COORDINATION

Coordination will be conducted with Arkansas SHPO staff, and with other interested parties and stakeholders: AHTD, FHWA, U.S. Army Corps of Engineers (USACE), the River Valley Regional Intermodal Facilities Authority, and Parsons. It is anticipated that conference calls will be primary method of facilitating coordination.

TASK 2—RESEARCH QUESTIONS AND THEMES

A formal research design should accommodate the types of data the investigator expects to encounter in the field. Thus it is important to define broad research themes prior to commencing fieldwork on a large-scale project such as the Intermodal Facilities site testing. A review of the culture history for this area reveals that there are obvious gaps in our understanding and knowledge of the past, as there have been relatively few sites excavated. In general, the research issues to be addressed, used, and reinterpreted in the final report include: refinement of the culture history for the area, detailed ceramic and lithic identification to aid in determining site occupation periods, studies of ceramic and lithic technology, and site function and variability.

Research themes provide a valuable set of tools for problem-oriented research and can be used to weigh the significance level of certain sites. The APE is located in the “Middle Arkansas River Valley” archaeological region defined in the *State Plan* (Davis 1982). This region lies between two better-defined archaeological areas: the Arkansas Ozarks and Southwest Arkansas. As the *State Plan* was being prepared, it was noted that the area where the above two regions met—the so-called Middle Arkansas River Valley—was not being appropriately treated. As a result, the Middle Arkansas River Valley Archaeological Region was created, as this “part of the state was different enough culturally and physiographically, thus it should be treated separately...” (Davis 1982:II:SU5:1). It was planned that study units and research problems would be developed for this region at a later date.

Research themes and questions are presented and discussed below using a period-by-period format. Note that the object of the Phase II testing is not to answer all the questions, but to demonstrate that eligible sites contain data potentially useful to addressing the questions. It is possible that the Phase II testing program may not yield enough data to answer some of the proposed research questions; however, given that the *State Plan* offers little specific guidance in the way of Middle Arkansas River Valley study units, we offer this broad approach.

Paleoindian Period

No Paleoindian diagnostics were recovered during the recent testing at the RVIF (Buchner et al. 2012:356).

Paleoindian occupations represent the first well-accepted occurrence of humans in the Western Hemisphere. Recent research on Paleoindian diagnostics (Ledbetter et al. 1996) indicates that the period may be subdivided into early (ca. 9500–9000 B.C.), middle (ca. 9000–8500 B.C.), and late (ca. 8500–8000 B.C.) stages, based on changes in hafted biface morphology. No radiocarbon dates are available to confirm independently the accuracy of the subdivision.

Sabo et al. (1990:36) note that “the Paleo-Indian period is represented in the Ozark area primarily by isolated finds of Clovis or Clovis-like points,” and that examples have been recovered in several northern Arkansas counties. However as of 2006, no Paleoindian points are reported from Johnson or Pope counties (Morrow 2006:8). Lafferty et al. (2005) did not encounter any Paleoindian diagnostics at the Red Alternative, but noted that Archaic sites were clustered on Terraces (T) 4 and 5. If Paleoindian artifacts are found some pertinent themes are:

1. Do any of the terraces in the project area, in particular T-4 and T-5, contain evidence for Paleoindian occupation?
2. Could evidence for Paleoindian occupation be buried on T-4 or T-5?
3. What was the settlement pattern for Paleoindian, and did it differ from those of Archaic people? Do the project areas fall within a specific band’s foraging territory, or was the area utilized by a number of highly mobile groups?
4. What was the nature and density of local Paleoindian occupation?
5. What was the material technology of Paleoindians, and what classes of chipped-stone stools, other than projectile points, are characteristic of this period?
6. What is the nature of the fluted point to non-fluted point transition?
7. What are the Paleoindian lithic raw material utilization patterns?
8. What was the subsistence base of the local Paleoindians, and how did it differ (if any) from that of Archaic people?

If no Paleoindian diagnostics are recovered, which is a definite possibility, then there will be no data to answer any of these questions and these questions will be dismissed.

Dalton Period

No Dalton diagnostics were recovered during the recent testing at the RVIF (Buchner et al. 2012:356).

The Dalton period is considered transitional between the Paleoindian and Archaic traditions. The key distinguishing feature of the material culture is the unfluted, serrated Dalton point, but the Dalton tool kit includes a number of other diagnostics include awls, burins, and scrapers made on Dalton points, and a specialized woodworking tool: the Dalton adze (Morse 1997). Sabo et al. (1990:41) suggest a date range of 8500–7500 B.C for Dalton in the Ozarks. While technologically similar to Paleoindian, Dalton assemblages suggest an adaptive pattern more akin to later Archaic cultures. One of the most important game species from this time to the contact era seems to have been the white-tailed deer.

Dalton components are well-documented in the Ozarks from modern excavations at bluff shelters. Important regional sites with stratified deposits and Dalton components include the Albertson site (3BE) (Dickson 1991), the Breckenridge site (3CR2) (Wood 1963; Thomas 1969), and the Tom’s Brook Shelter (3JO1) in the Boston Mts. (Bartlett 1999 [1963]). No Dalton components are reported from the Intermodal facilities sites, but similar to Paleoindian they could exist, most likely on one of the older terraces.

Research themes for Dalton components, if any are identified, are similar to those proposed for Paleoindian. If no Dalton diagnostics are recovered, which is a definite possibility, then there will be no data to answer any Dalton research questions and these questions will be dismissed.

Early and Middle Archaic Periods

No Early or Middle Archaic diagnostics were recovered during the recent testing at the RVIF (Buchner et al. 2012:356).

Archaic lifeways are characterized by a hunter-gatherer economy designed to efficiently utilize Holocene natural communities (Caldwell 1958). An increasing human awareness of the seasonal availability of the local resources led to the development of cyclical patterns in behavior. The repetitive nature of the Archaic adaptive strategies is reflected in a number of archaeological attributes, including settlement patterns, technology, and diet.

In the Ozarks, the Early and Middle Archaic are combined “due to a lack of significant difference in the archeological record” (Sabo et al. 1990:48). The Early and Middle Archaic periods extends from 7,500-3000 B.C. following the Dalton period. During the Early and Middle Archaic periods, the key diagnostic artifacts remain projectile points, but the proliferation in point forms (and probably function) is suggestive of a major technological shift. Major regional sites include Calf Creek Cave, Albertson, Breckenridge, and Tom’s Brook shelter (Sabo et al. 1990:51).

Across the Southeast, the Middle Archaic period was marked by a shift in subsistence modes. This was possibly due to environmental changes caused by a climatic episode called the Altithermal Optimum, or Hypsithermal. This change resulted in restricted deciduous forest occurrence, limiting the availability of certain floral and faunal resources. The cultural impact of this warming trend appears to have been most strongly felt from 5500–3500 B.C. Several settlement models regarding human adaptation during the climatic optimum have been posited. Santeford and Lafferty (1994:117) recommend investigating the postulated diversity of site types within the Middle Archaic settlement system. Tom’s Brook culture is the dominant late Middle Archaic cultural manifestation in the northwest Arkansas and eastern Oklahoma.

Two Early to Middle Archaic points are reported from sites located in the proposed Intermodal facilities. Site 3PP689 on T-4 produced an Early Archaic Hidden Valley projectile point/knife (pp/k), and Site 3PP612 on T-5 produced a Middle Archaic Palmillas pp/k (Lafferty et al. 2005:199). Additionally, Site 3PP695 produced a full-grooved axe fragment that is considered a Middle Archaic diagnostic. Importantly Sites 3PP612 and 3PP695 will be tested, thus the following Archaic Research themes may be addressed via the result from there, including:

1. What was the density of Archaic populations at and near the project areas, and how did it change over time?
2. What is the settlement distribution, size, and function of Archaic sites through time?
3. How do local Archaic sites articulate with Archaic components in the rockshelters to the north? That is, are the project area’s Archaic sites logistical camps within a season round that emphasized aggregation sites located in the upland shelters, or vice versa?
4. What was the material technology of Archaic people and how did it change through time?
5. Can the existing projectile point typology for Archaic sites be improved? Would cluster analysis of large numbers of projectiles obtained from testing assist in refining the Archaic point sequence, especially the Late Archaic varieties?
6. What was the level of participation of the local populations within the extensive Late Archaic trade network?
7. Within the Archaic times, what were subsistence practices, and what changes occurred in these practices?
8. What is the nature of evidence for the initial domestication and cultivation of floral species in Archaic times?
9. Is there a local settlement shift from T-5 to T-4 and T-3 during the transition from the Late Archaic to the Woodland as Lafferty et al. (2005) suggest?

Late Archaic and Early Woodland Periods

The recent testing at the Red-Green Alternate overlap produced abundant evidence for Late Archaic and Late Archaic/Early Woodland utilization of the RVIF (Buchner et al. 2012:Table 7-

02). Five sites produced Late Archaic diagnostics, and nine sites produced Late Archaic/Early-Middle Woodland Fourche Maline diagnostics.

The Late Archaic and the Early Woodland (3000 B.C.–A.D. 200) are also combined for discussion because “evidence of the Early Woodland period in the Ozarks is so sparse” (Sabo et al. 1990:57). The Late Archaic period begins after the Hypsithermal period as the modern climate and natural communities became established. Regionally, there is a dramatic proliferation in the number of sites, cultural elaboration, and widespread trade. There is evidence for more sedentary lifeways and possibly limited horticulture was being employed, as sunflower, squash, and other cultivated native starchy seed annuals appear in the archaeo-botanical record at this time in other areas of the southeast. Late Archaic settlement models typically have a seasonal round aspect, and there is evidence that the substantial “winter” villages, typically located on major streams, were actually occupied year round. Both earthen and shell mounds appear in the archaeological record in the Southeast at this time. The most common Late Archaic features in this region are pits with quantities of fire-cracked rock. Late Archaic assemblages are found at open habitation sites, as well as bluff shelters.

Diagnostic chipped stone tools include a variety of projectiles (Sabo et al. 1990:57-58). Other chipped stone artifacts include triangular bifaces, double bitted axes, scrapers, perforators, drills, and knives. Ground stone artifacts include manos and nutting stones. Regionally, there is a significant increase in the use of novaculite during the Late Archaic. Novaculite quarries developed in the central Ouachita Mountains during the Late Archaic (Trubitt 2002).

At the Red Alternative, Lafferty et al. (2005:201) reported that “Late Archaic points comprise the greatest number of point types recovered.” Late Archaic pp/k types reported from sites there include an Epps pp/k from **3PP728**, an Edgewood pp/k from **3PP728**, Motley pp/ks from 3PP723 and 3PP728, a Williams pp/k from 3PP746, Gary var. Gary pp/ks from 3PP692, **3PP675**, and 3PP709, and Gary var. Leflore pp/ks from 3PP609, 3PP702, 3PP698, **3PP690**, 3PP747, 3PP727, 3PP730, 3PP701, 3PP733, and **3PP689** (Lafferty et al. 2005:202-204). Importantly, five of these sites [**bolded**] will be tested during this study. Lafferty et al. (2005:205) noted that the distribution of Gary var. Gary pp/ks was deviant from Gary var. Leflore; because var. Gary was restricted to higher terraces, while var. Leflore were better represented on T-3 and T-4. This may shift likely has chronological implications as the smaller var. Leflore likely date to the Woodland Period.

Research themes for Late Archaic components are essentially similar to those proposed for the Early to Middle Archaic, see above.

The initial Woodland period in the Arkansas River Valley is poorly understood, and the Early Woodland is described as “virtually non-existent” (Santeford and Lafferty 1994:125). Woodland components in the northern Ouachitas are generally referred to as Fourche Maline (Schambach 2001). Early Fourche Maline period assemblages are quite similar to Late Archaic assemblages with the additional of pottery (Imhoff et al. 1998:40). The dominant artifacts in Fourche Maline assemblages are grog-tempered Williams Plain ceramics, contracting stemmed (Gary) points, and chipped stone implements including double bitted axes (Schambach 2001).

Questions that are applicable to the Archaic, like those concerning subsistence, technology, settlements, etc., also are suited to the Woodland. The presence of ceramics provides for additional (non-stone) avenues of investigation into local technology. Some Woodland period research themes include:

1. What is the full range of Woodland site types: foraging stations; chipping stations/hunting camps; logistical/base camps; farmsteads; villages; burial mounds; etc.?

2. What are the specific environmental contexts of Woodland sites, i.e., what landforms (T-5 etc.), soil types, were used by Woodland populations at the Intermodal facilities?
3. What is the settlement pattern of Early, Middle, and Late Woodland sites at and near the project area?
4. Is the apparent decrease in sites from Late Archaic to Early Woodland real or a result of survey or other bias?
5. What trade movement occurred during the Woodland stage?
6. What are Woodland lithic utilization patterns? How do they articulate with Late Archaic and Mississippian-Caddo lithic exploitation patterns?
7. Can the ceramic technology be better understood?
8. What can be known about domestication of plants during Woodland times? Are dry caves the only settings where evidence for such can be retrieved?
9. Is there archaeological evidence for social organization and non-secular beliefs changing during Woodland times as compared to the preceding Archaic stage?

Middle and Late Woodland Periods

The recent testing at the Red-Green Alternate overlap produced weak evidence for Middle Woodland occupation (one site), but abundant evidence for Late Woodland utilization of the RVIF (Buchner et al. 2012: Table 7-02). Eight sites produced Late Woodland (Fourche Maline or Plum Bayou related) diagnostics.

Fourche Maline components in the Arkansas River Valley are poorly known “because so few well dated and/or sealed deposits have been studied, and even diagnostic artifact assemblages are difficult to identify” (Sabo et al. 1990:79; Schambach 2002:98). The Middle and Late Woodland periods (A.D. 200-1000) are “poorly represented in the Ozarks” (Sabo et al. 1990:67). As a result, it has been suggested that the Middle and Late Woodland Ozark rockshelter occupations are components of settlement system that includes habitation sites in larger river valleys (Sabo et al. 1990:72).

Middle Woodland components are recognized at Albertson, Prall, Rogers, Tom’s Brook, Falling Water Falls, and Breckenridge shelters. The Middle Woodland assemblage at Albertson included Snyders, Dickson, and Waubesa points, and dentate stamped sherds. This material appears affiliated with the Kansas City Hopewell, and thus suggests the Ozarks were a part of the Hopewellian interaction sphere.

Important contemporary sites in the Arkansas River Valley include Point Remove, Alexander, Gasfield and Spinach Patch. The latter two sites are associated with the Gober Complex, which Schambach (2002:99) suggests may not be Fourche Maline, which they are often considered. To the north, Late Woodland components are recognized by the presence of limestone-tempered cord marked ceramics. At the Albertson site, the Late Woodland represents a continuation of Middle Woodland traditions. By the end of the Late Woodland, the Ozarks “were occupied by local groups scattered along the some of the major waterways” (Sabo et al. 1990:82).

Importantly, one significant technology advance was introduced during the Late Woodland: the bow and arrow. Blitz (1988) proposes the bow and arrow was introduced in this area ca. A.D. 700, while Sabo et al. (1990:72) note it was introduced to the Ozarks before A.D. 900.

Lafferty et al. (2005:208) report that at the Red Alternative T-5 contains 17 sites with prehistoric pottery, T-3 and T-4 contains 15 sites with pottery, and T-1 contains only one site with pottery. The sites on T-3 and T-4 produced more sherds than the sites on T-5—which typically had less than 4 sherds each—thus Lafferty et al. (2005:208) remarked that “the highest density of pottery is concentrated” on T-3 and T-4. Interesting 11 sites on T-5 will be tested during this project, as

will six sites on T-3 and T-4. The test excavation of these sites should provide data for an examination of a number of Middle to Late Woodland themes, including:

1. Are the Middle/Late Fourche Maline components at the Intermodal facilities more akin to the Mulberry River people to the west or to the Plum Bayou culture to the east?
2. Can research at the Intermodal facilities lead to a better understanding of the proto-Spiroan Mulberry River culture?
3. Can Middle to Late Fourche Maline components be segregated from Early Fourche Maline components?
4. Is there a local settlement shift from T-5 to T-4 and T-3 during the Woodland? Is this a continuing part of a trend that began in the Late Archaic?
5. What are the specific environmental contexts of Middle to Late Woodland sites, i.e., what landforms, soil types, were used by Woodland populations at the Intermodal facilities?
6. Did the introduction of the bow and arrow technology contribute to a dispersal of the Late Woodland population over the preceding Woodland?
7. Did the introduction of bow technology contribute to any significant shift in the lithic resource procurement strategy?
8. Can mixed temper ceramic analysis aid in the refinement of the sequence?
9. Do the ceramic assemblages consist of plain, flat-bottomed, often flowerpot shaped, jars tempered with bone, grit, sand or grog?
10. Is there evidence for participation in the Hopewell Interaction sphere?
11. Do the local settlements resemble the 0.8-2.0 ha small villages with midden described by Schambach (2002)?
12. What types of houses and feature patterns characterize Middle and Late Fourche Maline settlements?
13. Are Fourche Maline houses not substantial enough to show up archaeologically, and do they not use storage pits as Schambach (2002) suggests?
14. Does the local Fourche Maline subsistence include a horticulture tradition based on the eastern North American starchy and oil seed complex?

Fourche Maline assemblages also contain coarsely chipped stone tools commonly referred to as “axes,” but which were most likely garden implements, as well as abundant stone grinding stones for processing nuts and seeds (Schambach 2002:93). Site 3PP696 at the Red Alternative has produced a crude axe/ho, but this site will not be tested.

The Terminal Late Woodland period marks a transition to more Mississippian-Caddo cultures. This trend is expressed as the Coles Creek period in the Lower Mississippi Valley. During the Coles Creek period, the dominant influence is Plum Bayou culture, which flourished in the Arkansas River Lowland around the Toltec Mounds site (3LN42). The Toltec Mounds is a large (40 hectare [ha]) site that includes 18 mounds arranged around two plazas, all surrounded by a D-shaped earthen embankment (Rolingson 1982). Mound construction at Toltec began ca. A.D. 700, and the site was abandoned before A.D. 1050 (Rolingson 2002:45-53).

The recent testing at the Red-Green Alternate overlap produced strong evidence for Late Woodland/Mississippian-Caddo occupation at the RVIF (seven sites contain such components) (Buchner et al. 2012:357).

Mississippian-Caddo Period

The recent testing at the Red-Green Alternate overlap produced weak evidence for post 1300 Mississippian utilization of the RVIF (one shell-tempered sherd from 3PP733) (Buchner et al. 2012:357-358).

Regionally, the Mississippian-Caddo period marks the final period of native cultural development. Diagnostic traits include shell-tempered ceramics, inter-regional exchange of exotic items, population nucleation on the floodplain, emphasis on corn agriculture, public architecture, the development of a distinctive elite iconography, and the rise of chiefdoms. There has been considerable archaeological research regarding Caddo culture (Pertulla et al. 1999). In eastern Oklahoma, the sequence of Mississippian-Caddo development has been the topic of considerable research due to interest in the Spiro Mound site. There are also significant Mississippian-Caddo sites in the Arkansas River Valley, for example the Carden Bottoms site (3YE14) near Dardanelle is well known for its outstanding pottery.

In Western Arkansas, the Mississippi period is sub-divided into three phases: Harlan (A.D. 900-1300), Spiro (A.D. 1300-1500) and Ft. Coffee (A.D. 1500-1700). The Harlan phase is defined by the development of sedentary habitations related to regional mound centers, and the rise of significant mortuary ceremonialism (Sabo et al. 1990). Shell-tempered pottery is a key diagnostic.

The Spiro phase is represented by a dramatic shift in settlement patterns, and has been described by some researchers as the “Arkansas Valley Caddo Tradition” (Brown 1984:252). Residential sites are concentrated in the bottomlands of the Arkansas, Grand, and Illinois rivers and appear to relate to one of several regional mound centers (Sabo et al. 1990). This is thought to be related to a rise in the power and influence of the Spiro mound center, located southwest of Fort Smith, Arkansas. Numerous types of sites have been attributed to the Spiro phase, these include: hamlets, farmsteads, villages, and a variety of specialized sites.

At the Red Alternative, Lafferty et al. (2005:209) reported only three sites with shell-tempered pottery (3PP721, 3PP729, and 3PP732), so the Mississippian-Caddo occupation of the study area appears limited. Three sites (3PP690, 3PP694, and 3PP733) also yielded arrow points that Lafferty et al. (2005:206) dates to after A.D. 1000. Additionally Site 3PP688 produced a ground stone celt made from Trace Creek siltstone that is considered a Mississippian diagnostic (Lafferty et al. 2005:211). Two of these Mississippian-Caddo components will be tested (3PP688 and “Bird Point Ridge” [3PP690]), thus this testing project could yield information pertinent to the following questions or themes:

1. What is the settlement pattern of Mississippian-Caddo sites at and near the Intermodal facilities; for example which terraces were utilized?
2. What is the full range of Mississippian site types and what function does each site type serve within the regional settlement system?
3. Is the Mississippian-Caddo occupation more influenced from the east (Lower Mississippi Valley) or the west (Caddo), and how does the local occupation fit with the regional sequence?
4. Are the red slipped grog-tempered sherds such as the one from 3PP690 in the Red Alternative Plum Bayou or Early Mississippian aged?
5. Was the Red Alternative part of a lightly occupied border zone between competing chiefdoms, and was the Carden Bottoms area (across the river to the southeast of the RVIF) the major Mississippian-Caddo occupation along this reach of the Arkansas River?
6. What types of arrow points were used, and do they reflect Caddo or other influences?
7. What are the local Mississippian lithic procurement patterns?
8. Is there evidence for craft specialization in Mississippian communities?
9. Is there evidence of Mississippian iconography or art?

Protohistoric Period

No Protohistoric diagnostics were recovered during the recent testing at the RVIF (Buchner et al. 2012:357).

The opportunity to use historic documents along with archaeological data makes virtually any new research important for protohistoric sites. This is because (1) so little research has been done for this stage in terms of comparing historical information to archaeological evidence, and (2) this period is a crucial interface between aboriginal and modern times, and understanding the crossover from Mississippian-Caddo lifeways to historic times.

The Fort Coffee phase (A.D. 1500-1700) is final Mississippian-Caddo phase for western Arkansas, and overlaps with the “protohistoric.” By this time, the social hierarchy represented during the preceding two phases had collapsed, and Spiro and other mound centers were no longer used for elaborate mortuary ceremonies (Sabo et al. 1990). Bison bone tools and food remains are found frequently at Fort Coffee phase sites suggesting a shift away from deer as the dominant source of meat. Unlike the Harlan and Spiro phase artifact assemblages, the elaborate ceremonial and burial artifacts are mostly absent, and utilitarian artifacts dominate.

1. All the previous questions related to subsistence, technology, settlement patterns, and the like apply here, with even greater emphasis on comparing Protohistoric data to earlier and later evidence.
2. Any new information on social organization, especially with regard to processes of acculturation, would be important; migration and trade are two examples.
3. Additional research of historic documents would be appropriate, not only with regard to finding new information, but also to better resolve various biases and interpretations that may be influencing current research.
4. Because smaller, dispersed sites that may reflect even single family homesites are possible in the Protohistoric, and new categories of artifacts may be present, various archaeological techniques such as shallow but wide area excavations, use of electronic remote-sensing devices, and innovative methods could be appropriate.
5. How are current survey techniques possibly missing these often minimal archaeological sites, and what modifications of both field and laboratory techniques might better identify them?

Historic Aboriginal—Cherokee Arkansas

During the recent testing in the Red-Green Alternative overlap, ten sites with Cherokee or possible Cherokee components were tested (Buchner 2012; Buchner et al. 2012). Site 3PP449/3PP611, the only previously excavated Cherokee farmstead in the Arkansas River Valley, was among these, and geophysical investigations were carried out as a part of the testing program there.

The Phase II Cherokee or possible Cherokee artifact recovery from the ten sites is summarized below (Table 3; after Buchner 2012). Site 3PP449/3PP611 produced the largest and most diverse early nineteenth century assemblage, and it is clearly the “premiere” Cherokee site in the New Hope Bottoms. 3PP610, another large multi-component site on T-5, produced the second largest Cherokee assemblage that included both ceramic and glass diagnostics. Site 3PP733 ranked third in recovery, but only yielded ceramic diagnostics. The other tested Cherokee components very low-density, and are interpreted as limited activity areas rather than habitation or cabin sites.

The study area is located within the “heartland” of Cherokee Arkansas, which is broadly defined as the Arkansas River corridor between Little Rock and Fort Smith (Stewart-Abernathy 1998:42). During the 1790s, Cherokee Indians began moving into the region, and they occupied it until 1828 when a treaty resulted in their relocation to Indian Territory (Oklahoma). The

largest number of Cherokee emigrated to Arkansas ca. 1817, and during the generation that they were in Arkansas, the population was probably four to five thousand. Also known as the Western Cherokee, they established scattered family farmsteads and farms complete with cattle, and some even owned slaves. The dispersed families were organized in traditional “towns,” spread out along tributaries on the north side of the Arkansas River, at places such as Galla Creek, Illinois Bayou, Piney Creek, Spadra Creek, Horsehead Creek, and Mulberry River (from Pope County to Franklin County respectively), as well as Dutch Creek and Spring Creek south of the river (in Yell County). Additionally, Presbyterians established Dwight Mission (3PP58) in 1820 near Russellville to educate Cherokee in American lifeways. In 1819, the naturalist Nutall (1999:129) met Cherokee leader John Jolly at Webber’s store (near what is now New London), and Nutall noted his appearance was that of an American, only his language was different.

Table 3. Cherokee or possible Cherokee diagnostic recovery during previous Phase II testing.

Site	Pearlware, plain	Pearlware, decorated	Whiteware, decorated	Redware	Bottle glass, dark green	Sheet copper scraps	Gunflint, tan	Metal button, Type 11	Totals
3PP449/3PP611	24	29	16	22	4	4	1	1	101
3PP610		3	9		7				19
3PP612			1						1
3PP692									0
3PP722	—	—	—	—	—	—	—	—	—
3PP730									0
3PP732	2								2
3PP733	2	6	1						9
3PP734			1						1
3PP736			5						5
<i>Totals:</i>	<i>28</i>	<i>38</i>	<i>33</i>	<i>22</i>	<i>11</i>	<i>4</i>	<i>1</i>	<i>1</i>	<i>138</i>

Data after Buchner (2012); — landowner denied access to site.

As noted in the “Previous Investigations” section, the only excavated Arkansas Cherokee habitation site (3PP449) is located within the Red-Green Alternative overlap (Stewart-Abernathy 1998). This site’s artifact assemblage is characterized by a mixture of Euro-American artifacts dating to the period 1790-1835—such as English ceramics, dark green bottle glass, a cut shank nail, a bullet mold fragment, and two metal buttons—combined with distinctive Native American artifacts—glass beads, Overbill Curvilinear Complicated Stamped pottery, and pieces of sheet brass. Importantly, 3PP449—now known as 3PP449/611—will be revisited during this investigation, and the condition of the site will be re-evaluated. Stewart-Abernathy (1998) reported a number of constraints during their investigation of 3PP449, including: difficulty locating Cherokee features due to the presence of a heavy Woodland midden, and erosion of the terrace edge. It was suggested that mechanized stripping might be employed to locate Cherokee features (Stewart-Abernathy 1998:46).

During Lafferty et al.'s (2005) survey of the Red Alternative, 13 sites with possible Cherokee components were reported. Diagnostics largely consists of ceramics including early annular wares, flow blue decorated, blue shell edge whiteware, sponged whiteware, and blue transfer prints. Five of these possible Cherokee components will be tested during this study (3PP677, 3PP678, 3PP688, 3PP722, and 3PP728). The mostly promising of these sites appears to be 3PP722, but access to this site was denied during the last testing project. Research themes that are applicable concern subsistence, technology, settlement patterns, trade, and site formation processes. Questions include:

1. What is the archaeological 'signature' of an Arkansas Cherokee site?
2. What types of artifacts should be considered Cherokee horizon markers?
3. Did Cherokee manufacture Overhill Curvilinear Complicated Stamped pottery at the project area?
4. What other traditional craft production continued and can be documented?
5. What types of subsurface features occur at these sites? Sheet middens, cellars, storage pits, and possibly burials can be expected, and could be generally similar to patterns at early nineteenth-century Euro-American cabin sites.
6. Is there one or more pit features (or filled cellars) located under each Cherokee house, as suggested by Stewart-Abernathy (1998)?
7. Can remote sensing be employed to locate Cherokee features?
8. Can the location of the historic settlements shown on archival maps be archaeologically identified?
9. Do Cherokee sites occur at fields shown on GLO plat maps?
10. Were the Cherokee settlements in the study area part of the Galla Creek town or the Illinois Bayou town?
11. Can the Cherokee town settlement pattern of scattered family farmsteads be delineated in the archaeological record?
12. Can historic individuals be attributed to any specific sites or site clusters in the project area?
13. What was the Cherokee subsistence base? Is there evidence for subsistence farming and hunting, as we suspect?
14. What was the nature and intensity of trade or exchange relations with Euro-American settlements?
15. How has modern agricultural activity affected the site formation process?

American Period

Pope County was founded in 1829, immediately after the Cherokee were relocated (Herndon 1922). Johnson County was created in 1833 from a portion of Pope County. With the removal of the Native Americans, Arkansas grew fairly rapidly in the 1830s and in 1836, Arkansas became the twenty-fifth state.

The American Pioneer Settlement Period (1803-1860) is roughly synonymous with Stewart-Abernathy and Watkins' (1982) pioneer activity period (1780-1850) in the *State Plan*. The Arkansas Cherokee occupation falls within the first half of this period. Sabo et al. (1990:149) view the settlement pattern of the American Pioneer Settlement Period in terms of a two-stage model with the period prior to the 1850s being viewed as an initial colonization stage, followed by a spreading phase dated post-1850s. During the initial colonization stage, a hunter-herder way of life was prevailed. This adaptive strategy was "focused on wild resources, with a minimal investment in permanent dwelling, land clearing, gardening or close management of stock" (Early 2000:8). Pioneer agriculturists followed the first wave (i.e., initial stage), but in some parts of the Ozarks, the hunter-herder persisted until the early twentieth-century. Pioneer agriculturists had a more complex and fixed impact on the landscape, as farmsteads, towns, and

service facilities were part of this settlement pattern. Few American Pioneer Settlement Period sites have been excavated in the Ozarks (Sabo et al. 1990:148).

The period from 1875 to 1930 is known as the Historic Developed Settlement Period (Sabo et al. 1990:158-170). During this period, the population density increased and there were significant changes in settlement patterns and agricultural practices. The Arkansas River Valley and the Ozarks transformed from Pioneer subsistence farming to general farming, and advances in the transportation infrastructure brought the region out of relative isolation. Numerous “small rural hamlets and communities sprang up throughout Ozarkia” (Sabo et al. 1990:161). As the railroad and road network improved, a logging boom spurred the development of numerous saw mills, and hardwood related industries (Sabo et al. 1990:164).

Regarding the archaeology of the Developed Settlement period, Sabo et al. (1990:166) have succinctly noted that “Although a large number of historic archaeological sites representing the Developed Settlement period have been identified in recent cultural resource management surveys, only a few of these studies have addressed these sites in a meaningful way, and even fewer of these sites have been intensively studied.” Thus the archaeological characteristics of Historic Developed Settlement Period sites in the Ozarks are best understood through excavations conducted at a few farmstead sites, such as Moser (3BE311) (Stewart-Abernathy 1986), the Dowell Homestead (3WA577) (Lafferty et al. 1997), the Lambert Farmstead (3SW674) (Cande 1995), and the Beckham Homestead (3NW919) (Cande 2000). Systematic differences between yeomen farms and tenant farms may influence the archaeological record of farmsteads in the Ozarks (Sabo et al. 1990:169-170).

Historic Developed Settlement Period sites in the Ozarks yield high frequencies Architectural Group artifacts, principally nail and window glass. Kitchen Group artifacts are less well represented, and include bottle glass and ceramics dating from the late-nineteenth century to the mid-twentieth century. The ceramics are typically cheaper types, often from mismatched sets, and many of these types can be identified following Price (1979). Mean ceramic dates are often not calculated for these sites due to the long span of whiteware production (1830 to present), as well as problems relating to temporal lag. Only trace frequencies of other artifact groups are found (Activities, Arms, Clothing, Personal, Biological), and in small assemblages these minority groups types are often not represented. The cultural materials at Historic Developed Settlement Period sites are typically recovered from near surface contexts, and structural features such as rock piers and depressions are common. Occasionally these sites are multi-component, i.e. co-occur with prehistoric material.

During the survey of the Red Alternative, Lafferty et al. (2005:213-214) identified 47 historic components, and 27 of these produced historic ceramics. Fourteen of these sites produced “substantial” quantities of ceramics and are postulated to be house or residential sites. Fourteen of the sites to be tested contain historic components (see Table 1). These sites may contain data and artifacts that can be used to address the following American Period research themes:

1. Do the pre- and post-Civil War settlement pattern models proposed for the lower and middle South (clustered versus dispersed) hold true for the study area?
2. What are the settlement patterns of the nineteenth century? Is there a settlement hierarchy based on the locations of trails, ferries, and later railroads, or are the settlement patterns more influenced by local physiographic features?
3. Can the nineteenth-century communities identified on historic maps be associated with clusters of archaeological sites?
4. Can artifact patterns and matrix ordering be utilized to infer ethnic and other socio-economic class at Historic Developed Settlement Period sites?

5. What are the archaeological characteristics of the various extractive industry sites that are possible within the project vicinity, such as sawmills?
6. What types of historic site formation processes (“yard sweeping,” razing, and refuse disposal in sinks) occur in the study area, and what are the resulting implications to archaeologists?
7. What additional information regarding the vernacular architecture of the Arkansas River Valley can be collected from further study of farmstead surface features?
8. Has the excavation of deep features, such as wells, cisterns, and privies, been overlooked as a potentially significant line of research at sites that are largely eroded or otherwise disturbed at near-surface levels?
9. Are mean ceramic date (MCD) calculations accurate, i.e., is there a “ceramic lag,” and if so, of what average duration is it?
10. Does the development of the rural road network parallel an increase in population?

TASK 3A—FIELDWORK

Landowner Permission

Panamerican will obtain written permission from all the landowners to conduct the Phase II excavations and associated fieldwork. Under Arkansas State Law, landowner permission must be obtained prior to conducting fieldwork.

Permission to test two sites in the Red-Green Alternative overlap was previously denied by the landowners (Buchner et al. 2012). They include 3PP722, owned by Craig Bailey, and Site 3PP743, owned by the Wharton Family.

The remaining 18 sites are located north of Duffield Road in the northeast ¼ of Section 4 or northwest ¼ of Section 3 of T6N R20W in the southern portion of the Green Alternative. A preliminary review suggests that these sites are located on parcels owned by the Ronnie Duffield Living Trust or the Ronnie Duffield Gravel Company. During the prior Phase II work, it took considerable effort and the assistance of the Authority to obtain permission from Mr. Duffield to test sites on their property.

Safety

In general, Panamerican will comply with safety standards for Phase II archaeological assessments. All Panamerican vehicles contain fire extinguishers and first aid kits, and all permanent personnel have current certifications from the American Red Cross in CPR and First Aid. Each Panamerican fieldwork session starts with a safety meeting, and each person in attendance signs the meeting log. The company’s Human Resources Officer maintains a log of these safety meetings.

Site Relocation

The site relocation methods will conform to those previously utilized by Buchner et al. (2012). The site locations will be identified using a handheld GPS receiver. The 2005 AAS site forms contain site sketch maps that show the UTM coordinates for centrally located points (typically this is where a shovel test was excavated by MCRA). These UTM positions appear accurate to the nearest meter.

Panamerican will stake a point at each of the 20 sites based on the 2005 UTM coordinates, and label them with the site number and UTM coordinate. This stake will become the datum for the Phase II excavations at each site. The position of the datum will be recorded using Panamerican’s sub-meter accurate GPS unit (a 2008 Trimble GeoExplorer).

Horizontal Control

The grid origin point will be designated the datum at each site (see above). All excavation units and features at the site will then be assigned binomial coordinate values (East and North,

abbreviated E and N) based on their metric position(s) relative to the datum/grid origin. The southwest corner of each excavation unit will be used as its reference point. Positions will be accurate to the nearest centimeter (0.01 m). All formal excavation units will be marked with their coordinates.

Because there are 20 sites to test, we will change the values of each datum/grid origin point at each site. For example, the grid origin point for the first tested site will be E1000 N1000, the second site's grid origin point will be E1100 N1100, and so forth. This will avoid redundant duplications of coordinates and is a quality control method we have used in multi-site testing programs in the past.

Vertical Control and Mapping

A contour map of each site will be generated using data collected from a company owned total station, or related equipment. The elevations of all shovel test locations and formal excavations will be recorded to the nearest 0.01 m. Some additional transit readings will be collected from beyond the site area in an effort to record each site's relationship to the larger topographic setting. The elevation values will be used with the E and N point coordinates to create an X, Y, and Z contour map for each site and its environs using a computer application.

The surface elevation at the grid origin will be arbitrarily established as 100 m. All elevations at each site will be vertically recorded to the nearest 0.01 m in relation to the grid origin. If possible, an open traverse will be worked back to a known USGS datum in an effort to establish the natural elevation of the grid origin (and thus all recorded points within a site).

Vertical control within the formal excavation units will be established "shooting in" the elevation of the each unit's datum (the ground surface the highest corner of each unit). Technicians excavating the units will record level depths in relation to this datum using traditional line level readings. Line level readings will be taken from a string pulled from datum.

Shovel Test Grids

A grid of shovel tests will be excavated at 10 m intervals at each of the 20 sites. This task is needed because there is currently limited subsurface data (one to three shovel tests) available regarding the deposits. This will provide data to produce subsurface density plots that will assist in the placement of the test units (see below).

The estimated number of shovel tests required at each site varies by its size. Each shovel test is assumed to cover 100 m², thus number of shovel tests represents the site area (see Table 2) divided by 100. Table 4 below summarizes our view of the required number of shovel tests at each of the 20 sites to test. In total 1,776 shovel tests are estimated. This estimation assumes that the site area reported by MCRA on the 2005 site forms is accurate, which was generally true during our last round of testing. If during the course of our fieldwork, it is determined that a site's subsurface deposit exceeds the previously reported site area by more than 5-10 percent, then a cost and/or labor adjustment may be requested.

A shovel test is defined as the excavation of a four-sided hole at least 30 cm to a side (0.09 square m). A standard shovel test will be excavated to 75 cm below surface (cm bs). At four sites where cultural deposits are greater than 70 cm deep (3PP671, 3PP685, 3PP687, and 3PP690; see Figure 2), the shovel tests will be excavated to 100 cm. To ensure consistent artifact recovery, all sediment will be hand screened through 0.25 in. mesh hardware cloth. All natural and cultural strata revealed in the individual shovel test profiles will be recorded using metric depth measurements, and described in terms of textural class and color (using the Munsell Soil Color Chart).

Table 4. Proposed Phase II Excavations by Site.

Site	Shovel tests	1-x-2 m Test Units	Remarks
3PP17	125	3	The Howell Farm Site. Only northern 180 m portion of site north of Duffield Road requires testing (see Lafferty et al. 2005:Figure 81).
3PP669	8	1	
3PP671	65	2	
3PP672	19	1	
3PP673	196	5	
3PP674	34	1	
3PP675	246	5	Added 50 extra shovel tests to cover 100-x-50 m area on west, because the site extends to west for an "undetermined distance" (see Lafferty et al. 2005:Figure 32).
3PP677	31	1	
3PP678	60	2	
3PP680	72	2	
3PP684	238	7	
3PP685	19	1	
3PP687	91	3	
3PP688	25	1	
3PP689	96	3	
3PP690	301	8	The Bird Point Ridge Site. Lafferty et al.'s (2005:Figure 46) map indicates the site extends 350 m north of Duffield Road, but text and AAS quad plot suggest 500 m.
3PP720	17	1	
3PP722	58	2	A promising probable Cherokee component.
3PP728	38	1	
3PP743	37	1	
"Flex" Units		5	
Totals:	1,776	54	

Test Units

Test units will be placed at each site in order to document the natural and cultural stratigraphy. The Principal Investigator will determine the placement of the units based on the results of the shovel testing, past experience, and geophysical findings. We will target "hot" spots (i.e., high-density locations) for formal excavation.

Formal excavations will consist of 1-x-2 m test units, the same unit size that was utilized during the 2011-2012 testing program. The number of 1-x-2 m units at each site will be partly based on site size and partly based on field results. At a minimum, one 1-x-2 m unit will be excavated at each site.

We propose to excavate fifty-four (54) 1-x-2 m units at 20 sites (Table 4). Forty-nine (49) 1-x-2 m units are planned at the 20 sites based on their surface area (i.e., larger sites get more units and we assume one unit per 60-x-60 m of site area). They include nine small sites where one 1-x-2 m unit is proposed; four sites where two 1-x-2 m units are proposed (3PP671, 3PP678, 3PP680, and 3PP722); three sites ("Howell Farm" [3PP17], 3PP687, and 3PP689) where three units are proposed; two sites (3PP673 and 3PP675) where five units are proposed; one site (3PP684) where seven units are proposed; and one site ("Bird Point Ridge" [3PP690]) where eight units are proposed.

Furthermore, we will excavate five (5) additional “Flex” units at sites to be determined based on the nature of the field results. It is likely that some of the small sites where only one unit is currently proposed will receive a second “flex” unit. These units can be viewed as “insurance” to be deployed at the discretion of the Field Director and/or Principal Investigator as necessary based on field findings. Additionally, should good evidence be found that a site is NRHP eligible within its first formal excavation unit, then any additional planned excavations will be redirected to other sites (because as additional excavations at that site would be unnecessary). To conclude, the formal excavation unit frequencies per site that are proposed in Table 4 should be viewed as flexible.

More generally, the 1-x-2 m units will be hand excavated in 10 cm arbitrary levels. Unit excavations will continue to at least the depth of previously recorded artifacts (see Table 2, Figure 2). Once that depth is achieved and two sterile levels are encountered, then excavations will cease. At the base of one unit at each site, a 50-x-50-x-50 cm “plug” will be excavated in one corner of each unit to test for more deeply buried deposits. The maximum depth of excavation is expected to be 1 m for the sites with previously reported artifacts from the upper 50 cm. The maximum depth for of unit excavations for the other sites (i.e., deeper sites; see Figure 2) is expected to be no deeper than 140 cm below surface.

All removed soil will be dry screened through 0.25 in. mesh to insure consistent artifact recovery. All recovered material will be separately bagged by unit and level. Formal excavations will be documented through use of standardized unit-level forms, plan and profile drawings, and photography. Sediments shall be described in terms of textural class and Munsell color value. Special samples will be removed directly from the unit excavations as dictated by the nature of the deposits. Special sample types include pollen and flotation.

Features

Features and/or artifact concentrations that are exposed in hand or mechanical excavations will be mapped, excavated, and recorded using standardized forms and scale drawings. Each feature will be assigned a unique feature number, and its basic size, shape, and matrix characteristics will be recorded. Following identification, all cultural features will be classified as either: (1) non-post feature; or (2) post mold. These feature classes will be differentially excavated and their sediment processed as follows:

- Non-post features will be cross-sectioned, and 50 percent excavated. Cross sectioning will provide information on feature shape and fill as well as initial information on integrity of material culture remains. Most of the removed fill will be dry screened through 0.25 in. mesh. A 2-liter sample will be processed by flotation. Flotation yields a heavy fraction (1/16-in. mesh) and two light fractions (1.40 mm and 0.335 mm). Once processed, the flotation samples will provide data regarding the presence or absence of micro artifacts (less than 1/4 in. mesh, but greater than 1/16 in. mesh in size) in the heavy fraction, and the nature and quantity of archae-botanical remains and charcoal in the light fractions.
- Postmolds or possible postmolds will be excavated without cross sectioning. Their fill will be processed by 0.25-in. mesh dry screening.

It is assumed that no more than 10 non-posts and 50 post molds will be encountered at each site. If more are encountered at a given site, then feature sampling or a budget modification will be necessary.

Our standardized feature form requires the following information: basic metric and location data, recovery methodology, fill Munsell color and textural class, types and density of recovered material; associated bag numbers; name of excavator and date; and feature class. Adequate space for additional particularistic comments by the excavators is provided. The elevation of the

top (i.e., point of origin) and base of each feature will be recorded. As noted above, scale plan and profile sketches and photography are a part of Panamerican's Standard Operating Plans (SOPs) for feature recording.

Documentation

Additional in field project documentation will include, but not be limited to the following type of records: (1) daily field notes of key project personnel (i.e., Field Director and Principal Investigator) that note general findings, excavation placement reasoning, and other key observations; (2) completion of various task oriented forms such as, shovel test records, unit-level forms, bag list, feature forms, feature log, and photographic logs; in addition to (3) various "in-house" paperwork, employee timesheets, expense reports, etc.

Photography

Digital photos will be taken in sufficient quantities to record significant data and information. All photographs will be recorded in a dedicated photographic log. The photo logs and digital images (.jpeg files) will become part of the permanent project records, and will be included with the curated material.

Human Remains

If potential human remains are encountered, work will cease in the immediate area of the discovery. The burial site will be flagged off (or otherwise physically delineated) as an "exclusion zone," and covered so as to prevent public viewing. The buffer zone around human remains will be 10 m in diameter.

Potential human burial locations will also be secured to prevent vandalism. Typically, this involves recovering them with soil, but other method(s) may also be employed. Panamerican will notify the Parsons archaeologist immediately upon encountering human burials or potential human burials. If the remains are human, Parsons will ensure that the appropriate Native American Tribes and the Arkansas SHPO are notified. Local law enforcement may be notified at the discretion of Parsons after consulting the SHPO/AHPP.

No human burials will be knowingly excavated nor will human remains and/or associated funerary artifacts be moved without the approval of the appropriate Native American Tribes and the Arkansas SHPO/AHPP. Field personnel will treat any human remains with the utmost respect.

Backfilling

Once the archaeological investigations are completed all hand excavations and any stripped areas will be backfilled. The site areas will be restored to its approximate original grade and drainage.

TASK 3B—REMOTE SENSING

Remote sensing was successfully employed at Site 3PP449/3PP611 during the 2011-2012 testing program (Buchner et al. 2012). We recommend that a geophysical survey be conducted at three sites in this package, and offer the following reasoning.

Howell Farm (3PP17)

Howell Farm (3PP17) is a Woodland village that was identified during the Dardanelle Reservoir survey (Greengo 1957) and was tested by the AAS in 1970. Importantly, testing revealed nine human period burials within three pit features. Sketch maps suggest that the burial pits were located south of Howell Road, and thus in a portion of 3PP17, is outside the RVIF. However, because 3PP17 is a large habitation or village, it is possible that similar pits or other Woodland features, such as structures, exist in the RVIF portion of the site. As a result, we recommend that a geophysical survey of 3PP17 be conducted. Test units can then be used to ground truth any geophysical anomalies.

Bird Point Ridge (3PP690)

Bird Point Ridge (3PP690) is a large prehistoric site well-known for yielding arrow points. The site contains a substantial Mississippian occupation at its southern end, while to the north it contains scattered Woodland farmsteads. There are likely human burials in the area of intensive Mississippian occupation. A geophysical survey would greatly enhance our ability to locate the Mississippian features, such as structures, pits, and burials, as well as individual Woodland farmsteads. Test units would be used to ground truth selected geophysical anomalies.

3PP722

Site 3PP722 is a moderate sized (0.58 ha) probable Cherokee habitation site. Geophysical investigations of 3PP722 could assist in identifying Cherokee cellar features or midden, similar to what was successfully done a nearby Cherokee component (3PP449/3PP611) during the recent testing.

The specific geophysical survey methods will be developed by the geophysical/remote sensing operator in consultation with the Principal Investigator and Parsons' archaeologist. Most likely a gradiometer will be initially employed at all three sites, and selected area could then be subjected to a Ground Penetrating Radar (GPR) survey. A target list will be generated, and the target locations will be reported using corrected UTM's.

TASK 4—ARTIFACT ANALYSIS AND CURATION

Artifacts collected as a result of the field investigations will be transported to Panamerican's office in Memphis, Tennessee for processing and analysis. Analyses will be accomplished under the supervision of our Laboratory Director and will adhere to regionally accepted standards for classification of cultural materials. Any recovered cultural material will be prepared for curation in accordance with 36 CFR Parts 79 and 800, and the *State Plan*.

The result of the recent Phase II testing in the Red-Green Alternate overlap can be used to estimate the number and classes of artifact that will be recovered during this testing program because the same testing methods will be employed. During the earlier testing, 28 sites produced artifacts (Buchner et al. 2012: Table 6-01). The average artifact recovery per site was 597, but there was considerable variation in assemblage size among the sites, thus the standard deviation is high ($\pm 1,722$). Using an estimated average recovery of 597 artifacts, we estimate that 11,940 artifacts will be recovered during testing of the 20 sites.

The bulk of the recovery is expected to consist of prehistoric artifacts, as during the earlier Phase II work, they represented over 90 percent of the recovery. Prehistoric artifacts will be typed or classified using standard regional typologies. Lithic artifacts will be sorted following our standard laboratory procedures (Buchner et al. 2012). Emphasis will be placed on identifying and typing diagnostic specimens. Native American ceramics will be typed following Stewart-Abernathy (1998) and Lafferty et al. (2005).

Historic artifacts will be sorted into functional groups and individual categories following South (1977).

The overall goal of any analysis is to provide the data by which the hypothesis or research topics identified can be addressed. Material will be analyzed within the constructs of the local and regional typologies, and special attention will be given to those aspects of the data that will provide chronological and functional insights into the site assemblages.

Initial analysis will proceed by provenience (site, excavation unit/level, feature, etc.) Standardized analysis forms and format will be used to record pertinent data as well as to maintain provenience information in conjunction with direct computer input of relevant information. Recovered materials are prepared for curation as analysis proceeds. All 0.25 in.

recovery will be sorted by appropriate analytical category, class, etc., and subjected to full analysis.

Standardized forms will be used to record data concerning cultural materials. This effort will be geared toward the compilation of tabular summaries of recovery (i.e., EXCEL® spreadsheets). All pertinent information including sample type, assigned catalog numbers, date of analysis, and initials of analysts are recorded on these forms. As analysis proceeds, summary tables can be generated to provide data on diagnostic and other pertinent material recovered. This provides rapid access to cultural, temporal, and in particular cases, functional information, thus aiding interpretations. Eventually, all material recovered will be tabulated. These data can be presented by site, intra-site provenience, or analytical categories (see above) in the report of investigations.

Special Samples

Soil and flotation samples may be processed in our lab using flotation and/or fine mesh (1/16 in.) water screening as appropriate. Preliminary analysis of any recovered archae-botanical remains or faunal remains will be conducted to the extent that preservation allows. Funding for archaeo-botanical zooarchaeological and pollen analysis is not provided. The goal of the Phase II is to establish that nature and kind of cultural material that is retrievable; complete analysis of such would constitute Phase III data recovery.

Curation

All artifacts and project records will be curated at the UACF in Fayetteville upon project completion. The assemblage and records—including computer files—will be prepared for curation in a manner acceptable to AAS and that conforms to 36 CFR Parts 79 and 800.

TASK 5—MANAGEMENT SUMMARY

A Management Summary will be submitted within one week of the completion of the fieldwork. It be approximately five page long and will include site maps. The Management Summary will summarize the most salient aspects of the field results and will offer preliminary NRHP recommendations for the tested sites in both alternatives.

TASK 6—AAS SITE FORM UPDATES

An updated AAS site forms will be completed and submitted the AAS Registrar for each of the 20 sites that will be tested.

TASK 7—DRAFT REPORT

The results of the investigations will be detailed in a draft report. The draft report will meet or exceed the guideline found in Appendix B of the Arkansas State Plan: *Guidelines for Archeological Fieldwork and Report Writing in Arkansas* (Revised Version in effect as of 1 January 2010) and conform to the *American Antiquity* Style Guide. More generally, the document will be a well-illustrated, scientifically sound, stand-alone document detailing all aspects of the project, from background information, to fieldwork, artifact analysis, and conclusions.

In the draft and final reports, NRHP recommendations will be explicitly stated. Each site will be recommended as either “eligible” or “not eligible.” If additional archaeological investigations are recommended at a given site (i.e., a site is recommended “eligible”), then preliminary assessments of Phase III field options may be provided in the recommendations.

After the completion of the test excavations, Panamerican will offer definitive recommendations regarding the NRHP status of each site investigated. Tested sites will be considered either “Eligible” or “Not Eligible;” no inconclusive determinations will be offered.

NRHP Criteria

The National Register of Historic Places outlines four criteria by which cultural resources should be evaluated:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

(a) that are associated with events that have made a significant contribution to the broad pattern of our history; or:

(b) are associated with the lives of persons significant in our past; or

(c) that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) that have yielded or may be likely to yield, information important in prehistory or history.

Criterion d is most often applied to archaeological sites. However, it can be very broadly applied, to the point that virtually all sites are potentially eligible. For this reason a more objective, locally specific set of evaluation criteria needs has been established.

Specific NRHP Evaluation Criteria

Because limited CRM work has been conducted in this region (see *Previous Investigations* section above), specific, unequivocal NRHP criteria for archaeological sites have not been developed for the Arkansas River Valley. Below we propose a set of eligibility criteria for sites at the Intermodal facilities. These criteria are based on other published evaluation models developed by Panamerican, but should be viewed as provisional and subject to modification, as necessary, as testing data accumulate at the Intermodal Facilities.

Eligible Properties

The presence of any of the following characteristics on a site at the Intermodal Facilities will automatically make them “Eligible” for inclusion on the NRHP:

1. Any prehistoric site with identifiable, well preserved cultural features, specifically post molds, pits, hearths, or burials, and that has well preserved material useful for radiocarbon dating, faunal analysis, and/or archaeo-botanical analysis.
2. Stratified deposits with multiple components identifiable to specific time period/archaeological cultures that can be isolated horizontally or vertically from one another. Such components must be in minimally disturbed strata. Additionally, individual components on such sites must exhibit horizontal clusters of demonstrably associated (i.e., through refitting, raw material, or other techniques) artifacts indicative of undisturbed occupation floors.
3. Artifact density and diversity within one or more of these stratigraphically isolated components must be such as to provide a useful information return. Such components should exhibit artifact densities greater than an average of 100 artifacts per cubic meter (calculated on all artifact bearing levels within the site boundaries, or units where the specific component occurs, if this can be determined), and more than three distinct tool, debitage, or ceramic artifact categories. Sites with lower artifact densities may be considered eligible, but explicit reasons must be provided.

4. Single component site assemblages identifiable to specific time periods/archaeological cultures that meet criteria 2, and that are in minimally disturbed deposits.
5. Historic sites with well preserved and minimally disturbed sub-plowzone features such as cellars, wells, privies, foundations, chimneys, etc.
6. Yield high artifact densities that can provide useful information return (i.e., greater than 250 artifacts per cubic meter, calculated over all artifact bearing levels within the site boundaries, or units where the specific component occurs, if this can be determined). Sites with lower artifact densities may be considered eligible, but explicit reasons must be provided.
7. Can be tied to specific individuals or businesses through historic archival research, and as such can be used to help reconstruct the history of settlement in the area.
8. Unique single component prehistoric or historic sites possessing information not available at other locations. These components must exhibit horizontal clusters of demonstrably associated (i.e., through refitting or other techniques) artifacts or features indicative of undisturbed or minimally disturbed occupation floors.

Not Eligible Properties

The presence of any of the following characteristics automatically make a site evaluated at the Intermodal facilities “Not Eligible” for inclusion on the NRHP:

1. Isolated artifacts. Little information beyond that obtained at the time of the collection can be derived from such assemblages. Care must be taken, however, to ensure that the presence of other deposits has been ruled out. Isolates may be the only detected evidence of a complex site.
2. Deflated surface scatters.
3. Sites damaged by cultural or natural factors to the extent that depositional integrity is destroyed; in particular, low-density plowzone deposits.
4. Any multiple component or stratified site that has been found, through controlled excavations to be mixed or disturbed to the extent that the horizontal or vertical resolution of individual components cannot be accomplished.
5. Recent (post 1961) historic debris scatters.

Sites meeting these characteristics may still be considered eligible for listing on the NRHP, if for example, unusually rare assemblages were documented (i.e., Paleoindian), but explicit reasons must be provided.

TASK 8—FINAL REPORT

Following SHPO review, a final report will be prepared that incorporates reviewer’s comments into the draft report.

REFERENCES CITED

- Bartlett, Charles S., Jr.
1999 The Tom's Brook Site—3JO1: A Preliminary Report. *The Arkansas Archeologist* 40:51-92. Originally published during 1963 in *Arkansas Archeology, 1962*, edited by C.R. McGimsey III, pp. 15-65. Arkansas Archeological Survey, Fayetteville.
- Blitz, John
1988 The Adoption of the Bow and Arrow in Prehistoric North America. *North American Archaeologist* 9(2):123-145.
- Brown, James A.
1984 Arkansas Valley Caddoan: The Spiro Phase. In *Prehistory of Oklahoma*, edited by Robert E. Bell, pp. 241-263. Academic Press, Orlando.
- Buchner, C. Andrew
2012 Historic Cherokee Settlements in the Arkansas River Valley. Paper presented to the Arkansas Archeological Society Annual Meeting in Little Rock, September 22, 2012.
- Buchner, C. Andrew, Eric S. Albertson, Karla Oesch, and Chester P. Walker
2012 *Phase II Testing of Archaeological Sites at the River Valley Intermodal Facility Alternatives, Johnson and Pope Counties, Arkansas*. Panamerican Consultants, Inc. Report No. 29200.2. Submitted to Parsons Infrastructure and Technology, Inc.
- Caldwell, J.R.
1958 *Trend and Tradition in the Prehistory of the Eastern United States*. Memoirs of the American Anthropological Associations No. 88, Menasha, Wisconsin.
- Cande, Kathleen H.
1995 *The Ozarks as Destination: Phase III Archeological Investigations at the Lambery Farmstead (3CW674) and Phase II Testing at the Dement Farmstead and Cemetery (3SW685), Crawford County, Arkansas*. Arkansas Archeological Survey, Fayetteville. Final report submitted to the Arkansas Highway and Transportation Department.

2000 *Spradley Hollow Habitations*. Arkansas Archeological Survey Research Series No. 56.
- Cochran, Roy
1976 Skeletal Analysis of the Howell Farm Site (3PP17). Ms. found in the 3PP17 AAS site form, Fayetteville.
- Davies, Christopher G.
2003 Russellville Slackwater Harbor, Pope County, Arkansas Project Information Form. U.S. Army Corps of Engineers, Little Rock District.

- Davis, Hester (editor)
1982 *A State Plan for the Conservation of Archeological Resources in Arkansas*. AAS Research Series No. 21. Arkansas Archeological Survey, Fayetteville.
- Dickson, Don R.
1991 *The Albertson Site: A Deep and Clearly Stratified Ozark Bluff Shelter*. Arkansas Archeological Survey Research Series No. 41. Fayetteville.
- Early, Ann. M.
2000 *Forest Farmsteads*. Arkansas Archeological Survey Research Series No. 57.
- Greengo, Robert E.
1957 *Appraisal of the Archeological Resources of the Dardanelle Reservoir, Arkansas*. River Basin Surveys, Smithsonian Institution. Ms. on file at the Arkansas Archeological Survey, Fayetteville.
- Herndon, Dallas T.
1922 *Centennial History of Arkansas, Volume I*. The S.J. Clarke Publishing Company, Chicago and Little Rock.
- Imhoff, S.M., R.H. Lafferty, III, L.G. Santeford and H. Wagner
1998 *Fort Chaffee Maneuver Training Center Integrated Cultural Resources Management Plan*. Mid-Continental Research Associates, Inc., Springdale, Arkansas.
- Klinger, Timothy C., and the HPA team
2003 *Russellville Intermodal Cultural Resources Records Review*. Historic Preservation Associates Report 03-07. Submitted to FTN Associates, Ltd. Little Rock. AMASDA Project no. 4934.
- Lafferty, Robert H., III, Robert H. Cande and Michael C. Sierzchula
2005 *Archaeological Survey of the Proposed River Valley Intermodal Facility, Pope County, Arkansas*. Mid-Continental Research Associates, Inc. MCRA Report 2005-5. Submitted to Parsons Infrastructure and Technology Group, Inc. Chesterfield, Missouri.
- Lafferty, R.H. III, M.C. Sierzchula, R.F. Cande, P.B. Mires, M.T. Oates, M.J. Guccione, N. Lopinot, L.G. Santeford, S. Scott, and M. Cleveland
1997 *Cato Springs, Archeology and Geomorphology, Archeological Data Recovery at 3WA539, 3WA577, and 3WA471 U.S. Highway 71 Relocation, Washington County, Arkansas*. Mid-Continental Research Associates, Springdale. Final Report 94-6 submitted to the Arkansas Highway and Transportation Department.
- Ledbetter, R.J., D.G. Anderson, L.D. O'Steen, and D.T. Elliot
1996 *Paleoindian and Early archaic Research in Georgia*. In *The Paleoindian and Early Archaic Southeast*, pp. 270-287, edited by D.G. Anderson and K.E. Sassaman. University of Alabama Press, Tuscaloosa.

- Morrow, J.
2006 The Paleoindian Period in Arkansas, between approximately 13,500 and 12,620 calendar years ago. *Fieldnotes* 331:3. Arkansas Archeological Society, Fayetteville.
- Morse, Dan F.
1997 *Sloan: A Paleoindian Dalton Cemetery in Arkansas*. Smithsonian Institution Press, Washington, D.C.
- Nuttall, Thomas
1999 A Journal of Travels into the Arkansas Territory During the Year 1819. Edited by Savoie Lottinville. The University of Arkansas Press, Fayetteville. Originally published 1821.
- Pertulla, T.K., A.M. Early, L.E. Albert, and J. Girard
1999 *Caddoan Bibliography: Archaeology and Bioarchaeology, Ethnohistory, and Ethnography, and History*. Arkansas Archeological Survey Technical Paper 10.
- Price, C.R.
1979 *19th Century Ceramics in the Eastern Ozark Border Region*. Monograph Series No. 1. Center For Archaeological Research, Southwest Missouri State University, Springfield.
- Rolinson, Martha Ann
1982 *Emerging Patterns of Plum Bayou Culture*. Research Series No. 18. Arkansas Archeological Survey, Fayetteville.

2002 Plum Bayou Culture of the Arkansas–White River Basin. In, *The Woodland Southeast*, edited by D.G. Anderson and R.C. Mainfort, Jr., pp. 44-65. The University of Alabama Press, Tuscaloosa.
- Sabo, G. III, A.M. Early, J.C. Rose, B.A. Burnett, L. Vogeles, Jr., and J.P. Harcourt
1990 *Human Adaptation in the Ozark and Ouachita Mountains*. Arkansas Archeological Survey Research Series No. 31.
- Santeford, L.G. and R.H. Lafferty, III
1994 *Windows Into the Past: Archeological Testing of 37 Prehistoric Native American Sites, Ft. Chaffee Military Garrison*. Mid-Continental Research Associates, Inc. Report submitted to the Little Rock District, U.S. Army Corps of Engineers.
- Schambach, Frank B.
2001 Fourche Maline and Its Neighbors: Observations on an Important Woodland Period Culture of the Trans-Mississippi South. *The Arkansas Archeologist* 40:21-50.

2002 Fourche Maline: A Woodland Period Culture of the Trans-Mississippi South. In *The Woodland Southeast*, edited by D.G. Anderson and R.C. Mainfort, Jr., pp. 91-112. University of Alabama Press.

Sierzchula, Michael C., and Robert H. Lafferty, III

- 2003 *Phase I Archeological Survey of 220 Acres for the City of Russellville Proposed Industrial Park, Pope County, Arkansas*. Mid-Continental Research Associates, Inc. MCRA Report 2003-7. Submitted to the Arkansas Valley Alliance for Economic Development, Russellville. AMASDA report No. 4131 on file at the AAS, Fayetteville.

South, S.

- 1977 *Method and Theory in Historic Archaeology*. Academic Press, New York.

Stewart-Abernathy, Leslie C.

- 1986 *The Moser Farmstead*. Arkansas Archeological Survey Research Series No. 26.
- 1998 *Some Archeological Perspectives on the Arkansas Cherokee*. *The Arkansas Archeologist* 37:39-54.

Stewart-Abernathy, Leslie C., and Beverly Watkins

- 1982 *Historical Archeology*. In *A State Plan for the Conservation of Archeological Resources in Arkansas*, edited by H.A. Davis. Arkansas Archeological Survey Research Series 21. Fayetteville.

Thomas, Ronald A.

- 1969 *Breckenridge: A Stratified Shelter in Northwest Arkansas*. M.A. thesis, University of Arkansas, Fayetteville.

Trubitt, Mary Beth

- 2002 *A Research Design for Investigating Novaculite Quarry Sites in the Ouachita Mountains*. *The Arkansas Archeologist* 43:17-62.

Wood, W. Raymond

- 1963 *Breckenridge Shelter—3CR2: An Archaeological Chronicle in the Beaver Reservoir Area*. In *Arkansas Archeology, 1962*, edited by C.R. McGimsey, III, pp. 67-96. Arkansas Archeological Survey, Fayetteville.

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