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;

- 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 Irretrievable 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 Authority[1] 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 approved12-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 coast and west coast while the combination of I-30 and 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

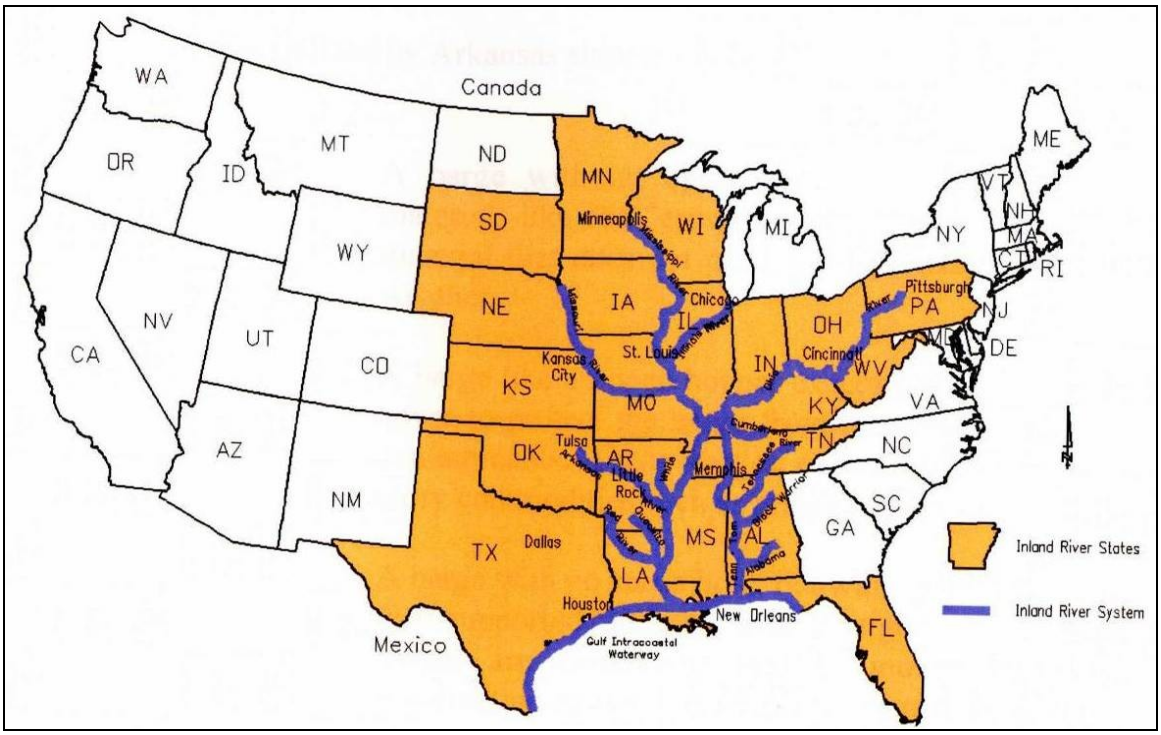
Water transportation offers greater opportunities for cost savings from lower fuel consumption and economies of scale (barges carry more cargo farther distances using less fuel than any other type of transportation). Water transportation also provides better environmental protection, because towboat 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 a12-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

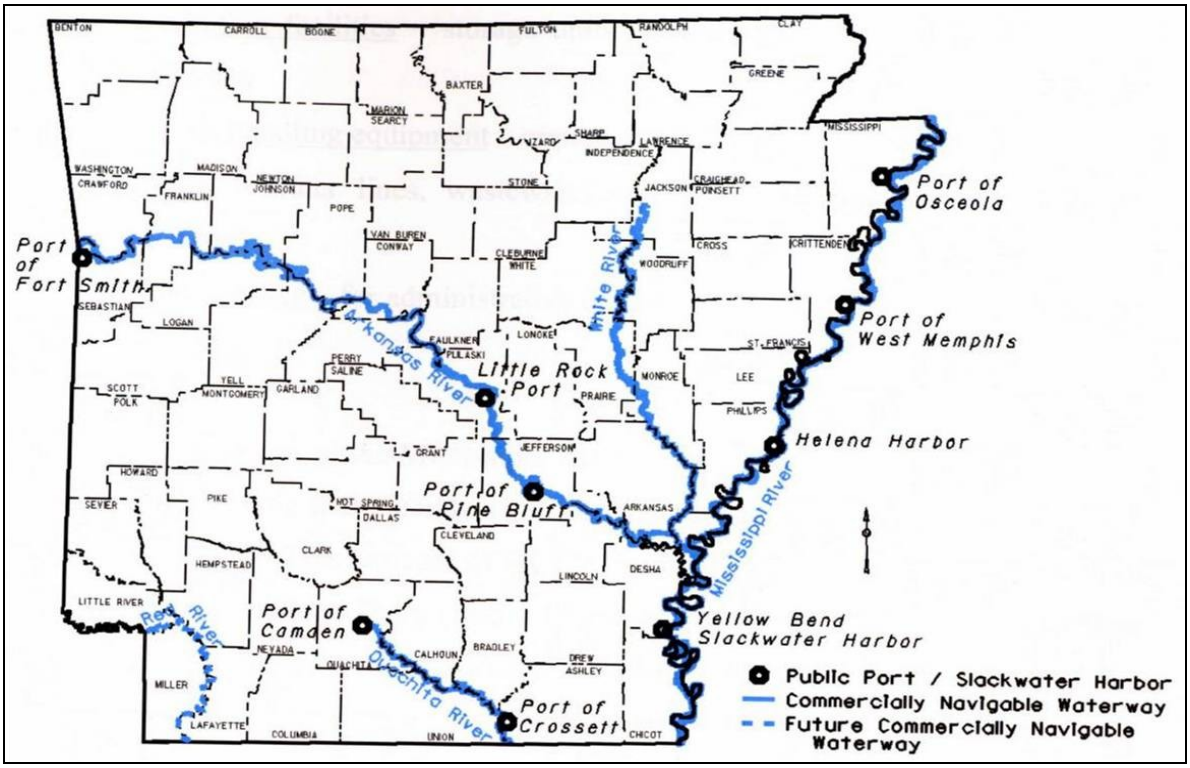
public ports in Arkansas. Cargo moved by the inland waterways system yields an average transportation savings of approximately $11 per ton over the cost of shipping by alternative means, translating into an annual savings of over $7 billion to the consumer (CARIA, 2007).

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.

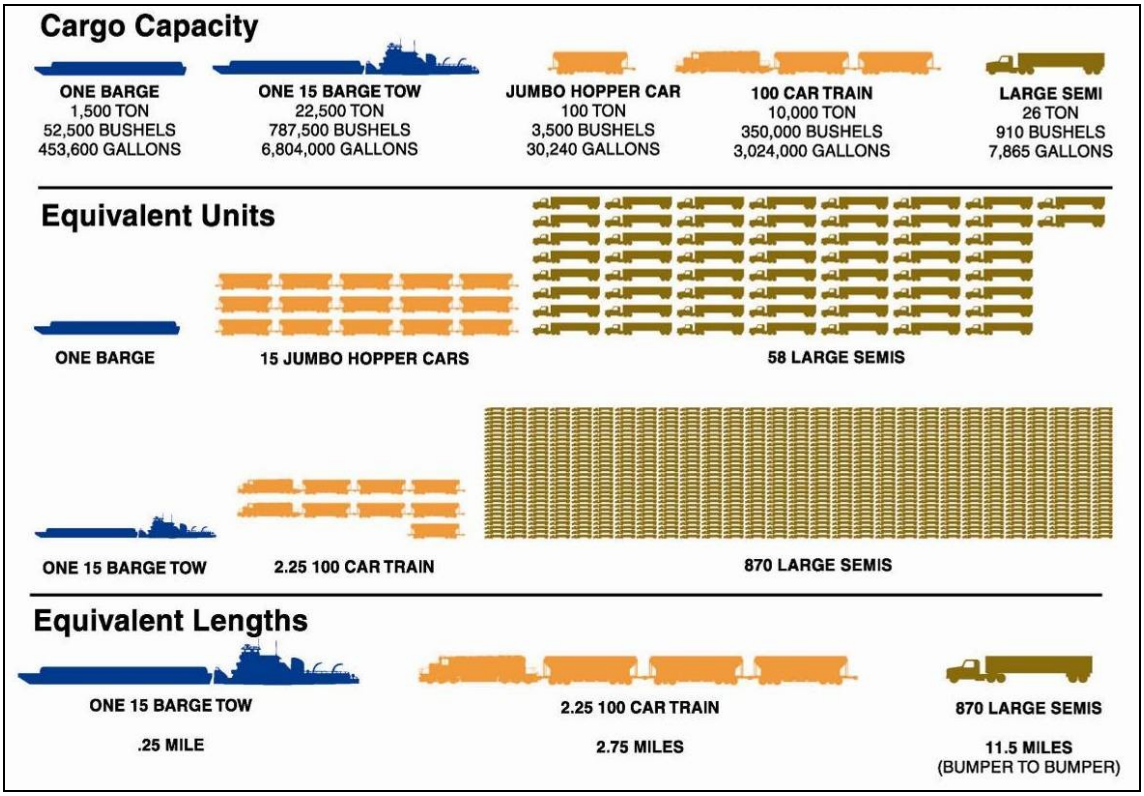
Table 2.3. Standard Modal Freight Unit Capacities

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



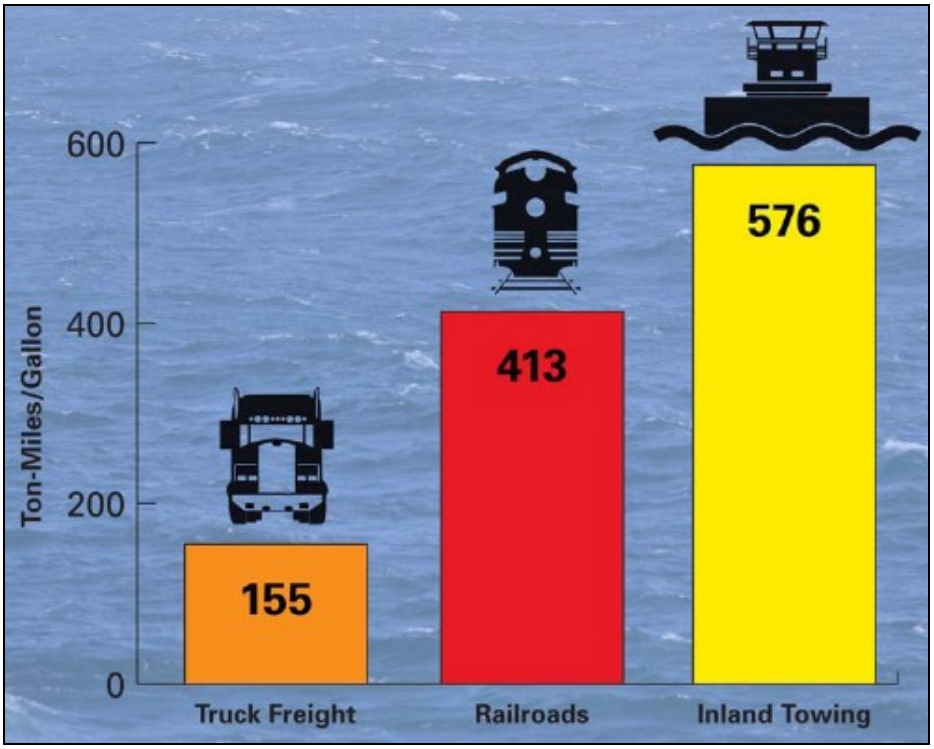
Source: IDOT, 2008.

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

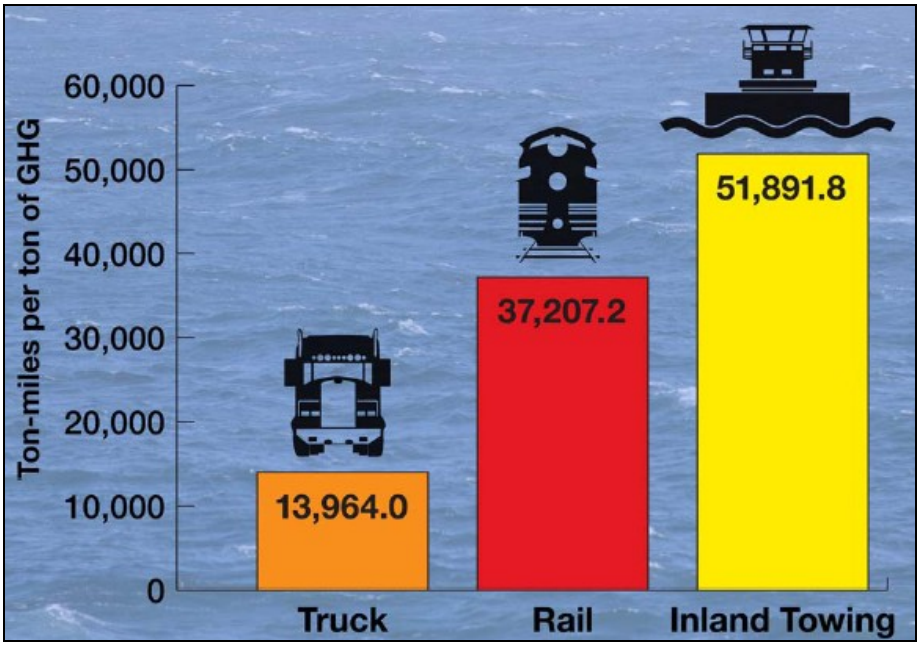
The fuel efficiency and emissions of rail, truck, and towing have different ranges as Illustrated in Figure 2.4, Figure 2.5, and Table 2.4. The Arkansas Long Range Intermodal Transportation Plan documented that Air Quality Impacts is an emerging transportation issue that should be addressed as part of 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

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

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

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

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

Source: U.S. Census Bureau, Census of Population and Housing, 1990 and 2000; American Community Survey, 2006-2010.

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
Source: ADWS, 2010 Civilian Labor Force Data		

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
Source: ADWS: Local Area Profile, 2011		

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.

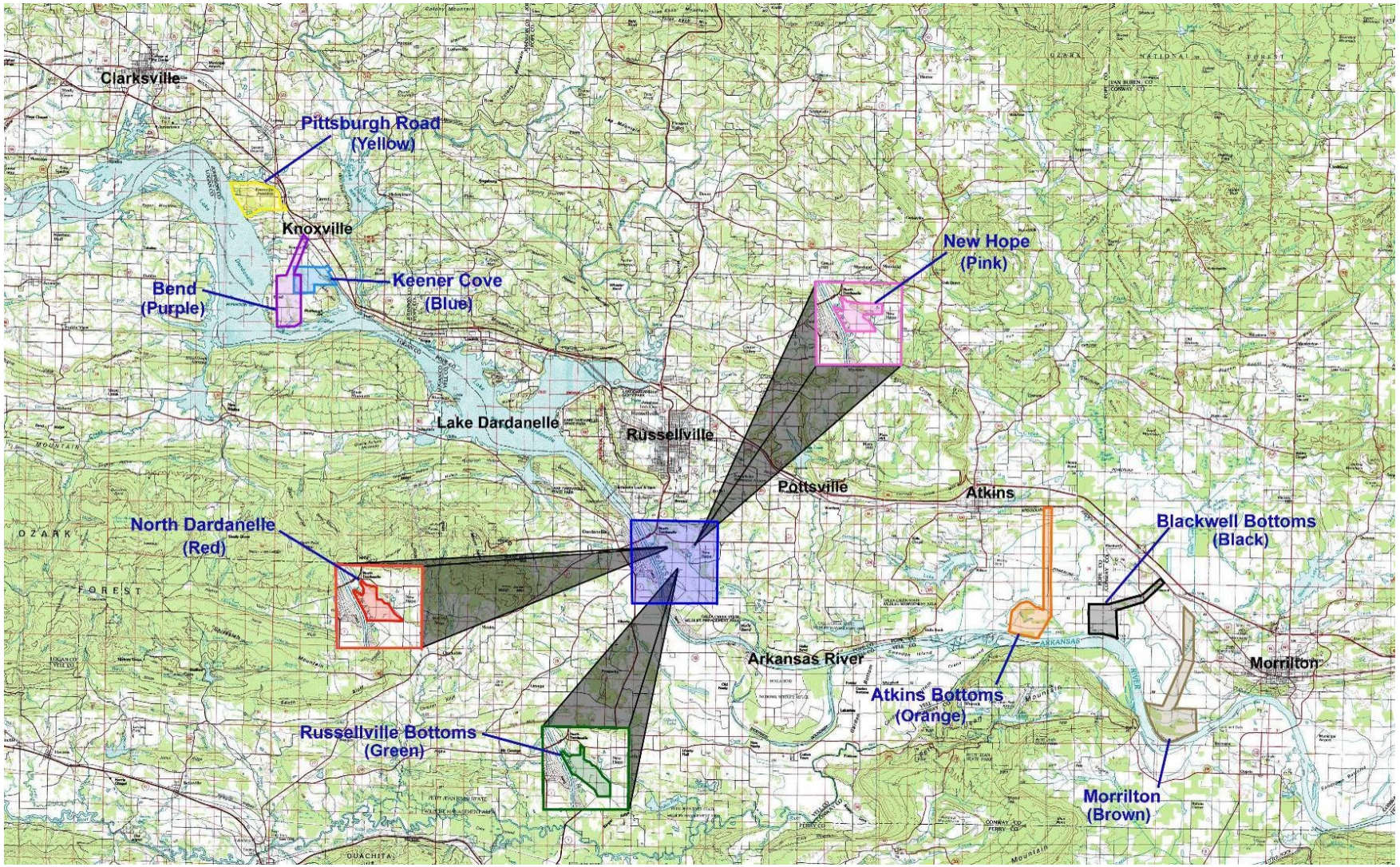
To estimate the costs of the slackwater harbor construction several general assumptions were made. It was assumed that the depth for harbor and access channels would be 14 feet (USACE, 2001) to be compatible with the approved

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 Re-locations (# of Resi-dences)**	**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**
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 (RM = River Mile)	Alternative Screening Criteria: 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.

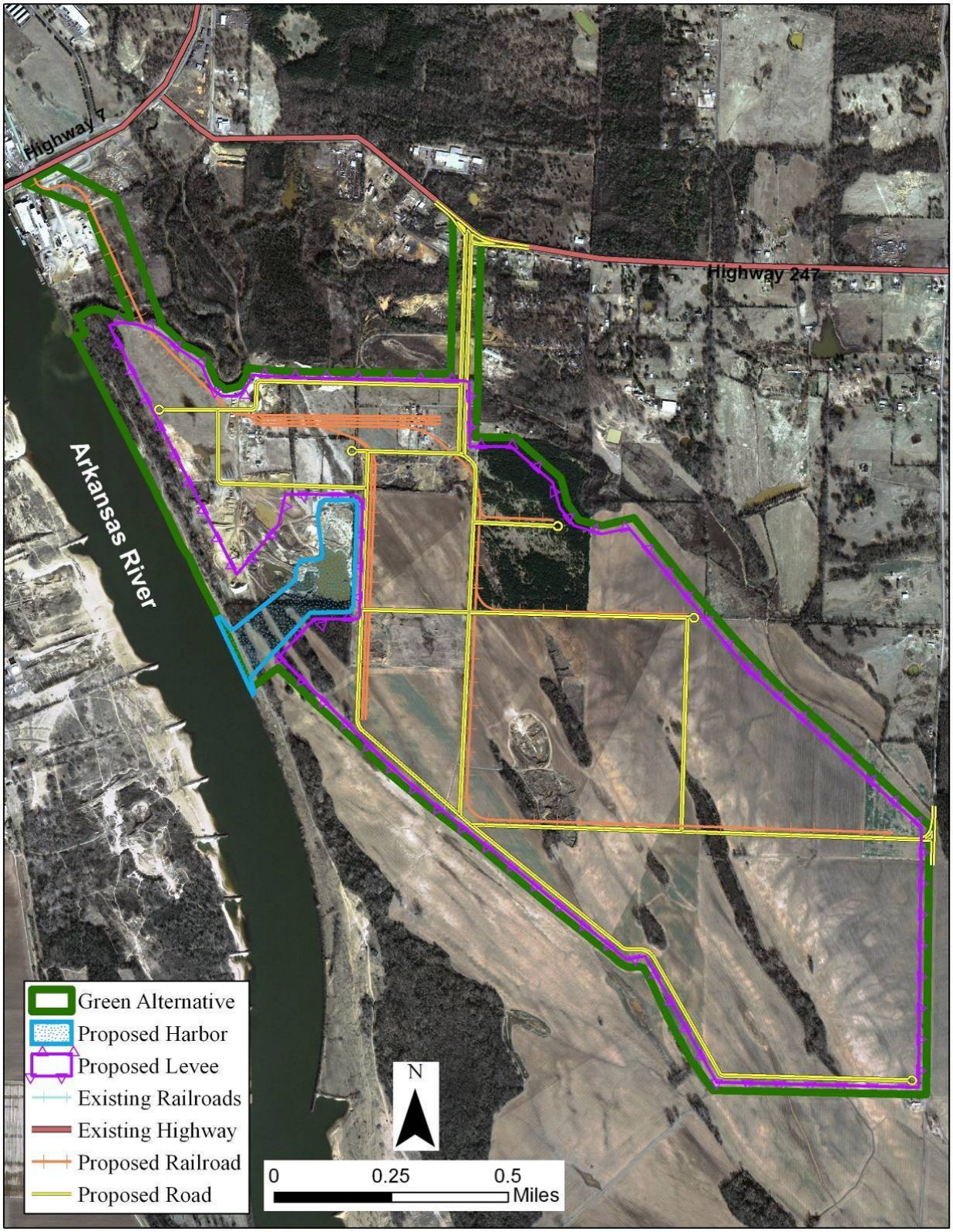
Limiting factors for this site include potential for adverse impacts to wetlands, floodplains, and cultural/historical resources. This site would reduce impacts to most of the streams and wetlands compared to other alternatives in the same general vicinity and using the same river access point. However, 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;

- 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;

- 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.