ARKANSAS STATE

PUBLIC RIVERPORT STUDY AND

NEEDS ASSESSMENT

March 2005

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Prepared by:

Planning and Research Division
Arkansas State Highway and Transportation Department

In Cooperation with:

Federal Highway Administration
Arkansas Waterways Commission
Arkansas' Public Riverports and Slackwater Harbors

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TABLE OF CONTENTS

TABLE OF CONTENTS--continued

Section **Page**

APPENDICES

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

Study Authorization

Waterborne transportation, via Arkansas' nine public riverports and slackwater harbors on its commercially active navigable waterways, is an important component of the State's freight transportation system, providing a cost-effective method for shipping bulk commodities and oversized cargo. However, the ports and harbors are currently underutilized with regard to their potential. Issues cited as hindering their development include inadequate funding sources for improvements, landside access impediments and deteriorating infrastructure.

In recognition of the need to help develop Arkansas' water transportation system, the Arkansas Highway Commission, by Minute Order 2002-069, authorized a comprehensive study of the State's public riverports and slackwater harbors.

This report was prepared in cooperation with the Arkansas Waterways Commission and the State's public riverports and slackwater harbors. The study provides an overall evaluation of the navigable waterway system in Arkansas and is divided into the following sections:

Section I <u>State Waterway System</u>
Overview of water transportation and Arkansas' navigable waterways.

Section II <u>Waterborne Cargo</u>
Analysis of existing commodities handled and potential cargo shipments.

Section III <u>Needs Assessment</u>
Evaluation of infrastructure, equipment and support facility needs.

Section IV <u>Economic Value</u>
Review of the economic value of the public ports and harbors.

Section V Development Issues and Improvement Strategies

Identification of the major issues related to port/harbor development and presentation of strategies to improve the State's public river terminals.

For discussion purposes the terms port, harbor and public river terminal are generally interchangeable.

To address the broad variation existing between the State's public ports, separate port studies have been or will be conducted to allow individual evaluations. Periodic updates of this report, *Arkansas State Public Riverport Study and Needs Assessment,* are planned to document changes in the waterway system.

Study Approach

A study team composed of personnel from the Arkansas Waterways Commission and the Arkansas State Highway and Transportation Department conducted site visits of each study port and harbor. Attending each session were the port director, members of their commission and the terminal stevedore company.

Data collected included the port service area, available services, types and quantities of commodities handled, present on-site tenants and off-site users, condition of the infrastructure, equipment and support facilities and the status of current operations. The assessment also involved a review of maps, charts and aerial photographs; an examination of river data (flood elevations for the major fixed structures); and the analysis of traffic counts taken at port service roads.

A questionnaire was used to obtain additional information in the following areas:

- Annual expenditures;
- Origin and destination of commodities;

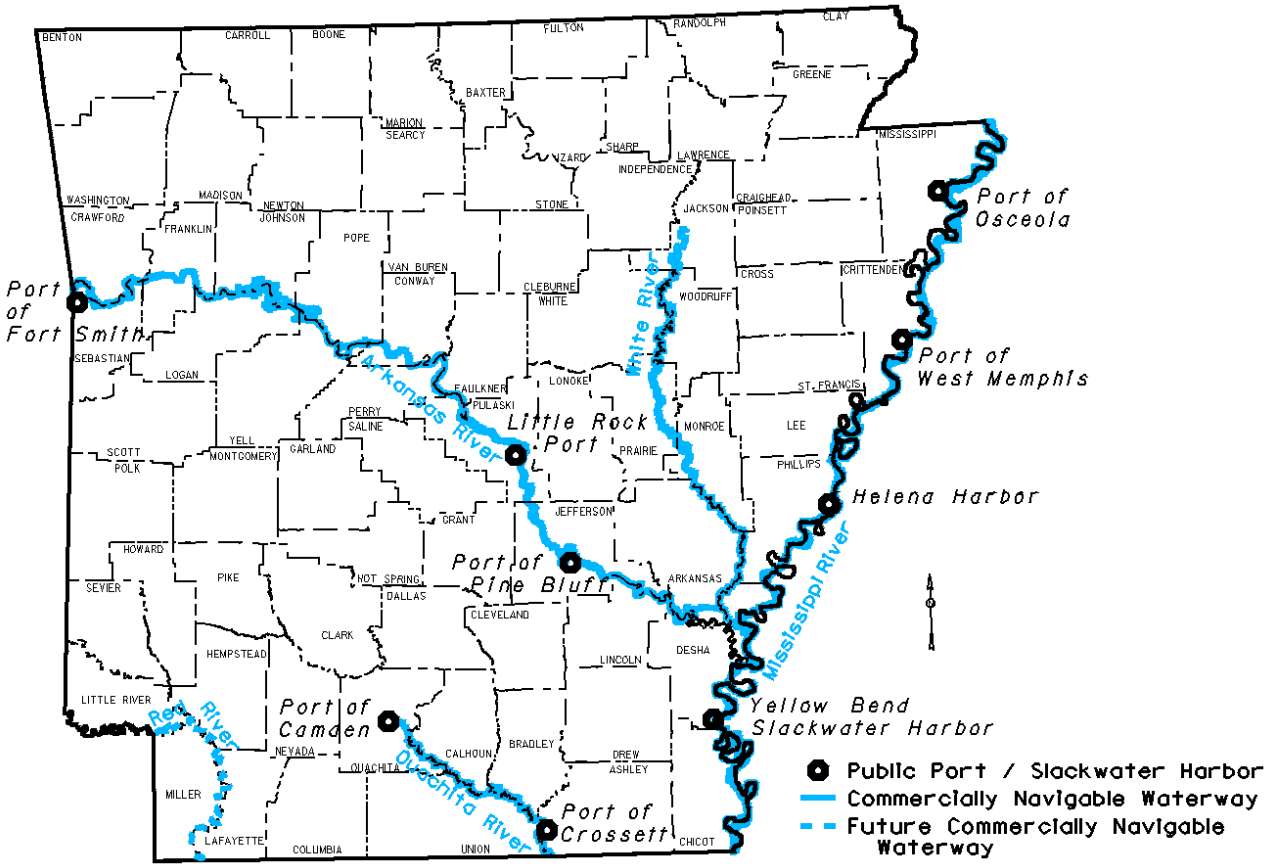
- Current and future needs for infrastructure, equipment and support facilities;
- Landside and waterside access issues; and
- Development constraints.

Major Findings

State Waterway System

Arkansas' waterway system consists of four commercially active waterways and one river (the Red River) designated as a future navigable waterway. There are nine public riverports and slackwater harbors located along the waterways as shown below.

Commercially Navigable Waterways,
Public Ports and Harbors

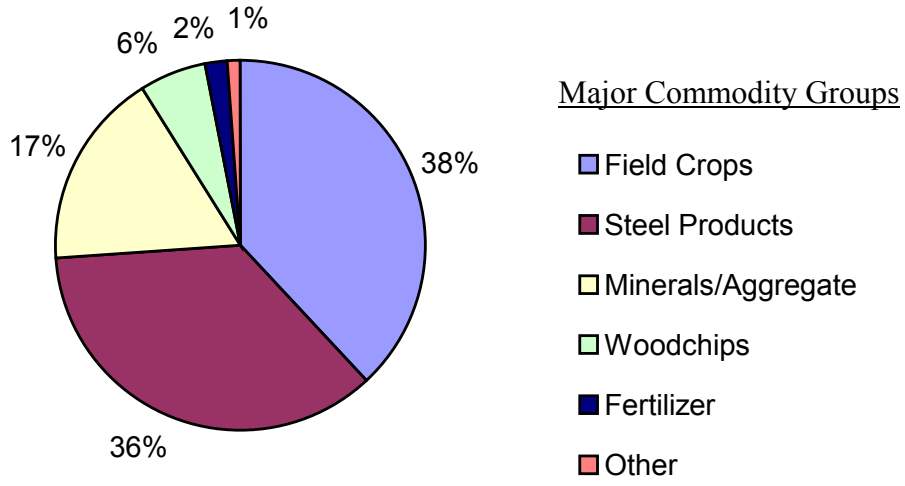


Waterborne Transportation

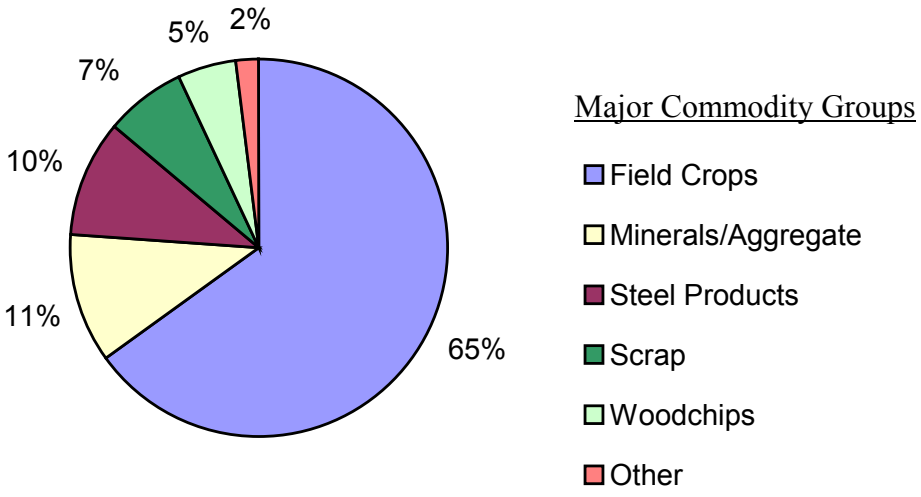
Annual freight tonnages handled at the public ports by major commodity groups are illustrated below. The leading commodity, both inbound and outbound, is field crops (e.g., rice, soybeans and wheat).

2004 Tonnage – Public Terminals Only

Inbound Tonnage = 800,000



Outbound Tonnage = 520,000



Total Tonnage = 1,320,000

Source: Port/Harbor Questionnaire

The top destinations for waterborne commerce from Arkansas are the States of Louisiana, Tennessee, Texas and Illinois. The leading origins of waterborne commerce to Arkansas are the States of Louisiana, Kentucky, Illinois and Tennessee.

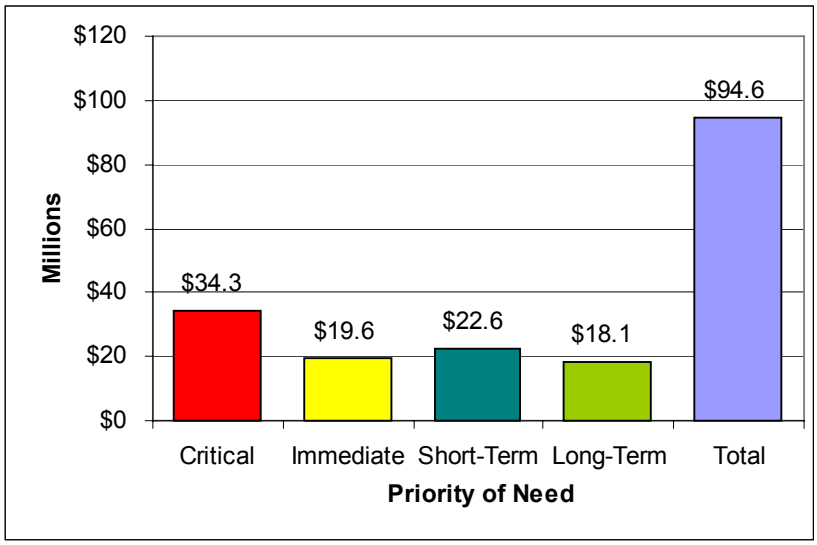
Needs Assessment

Special attention was given to assessing the conditions of and needs for port infrastructure, equipment and support facilities. The conditions of these were graded as Good, Fair or Poor and a priority rating process, shown below, was then applied to determine the level of need for future improvement.

Priority Rating

1) Critical – unsafe condition or could fail at any time.
2) Immediate (1-2 years) – required to maintain minimal port operations.
3) Short-term (3-5 years) – level of deficiency affects ability to serve customers needs.
4) Long-term – to support future growth and to attract new business.

Total Estimated Capital Needs



Almost $95 million is needed to satisfy all identified infrastructure, equipment and support facility needs. The table on the following page summarizes estimated costs for the needs. Most ports anticipate additional costs due to implementation of the "Maritime Transportation Antiterrorism Act of 2002." This act requires all ports to evaluate potential security risks. Costs for port security systems are presently unknown.

Estimated Costs for Port Needs
By Port, Priority of Need and Category

	Priority of Need				
	Critical	**Immediate**	**Short-Term**	**Long-Term**	**Total**
Port of Osceola					
Infrastructure	$940,000	$25,000	-	$365,000	$1,330,000
Equipment	-	-	$150,000	$120,000	$270,000
Support Facility	$1,545,000	-	-	$815,000	$2,360,000
Total	***$2,485,000***	***$25,000***	***$150,000***	***$1,300,000***	***$3,960,000***
Port of West Memphis					
Infrastructure	-	$150,000	-	-	$150,000
Equipment	$120,000	$120,000	-	-	$240,000
Support Facility	-	$1,000,000	-	-	$1,000,000
Total	***$120,000***	***$1,270,000***	***-***	***-***	***$1,390,000***
Helena Harbor					
Infrastructure	$750,000	-	$1,250,000	$500,000	$2,500,000
Equipment	$1,000,000	-	$2,500,000	-	$3,500,000
Support Facility	-	$500,000	-	-	$500,000
Total	***$1,750,000***	***$500,000***	***$3,750,000***	***$500,000***	***$6,500,000***
Yellow Bend Harbor					
Infrastructure	$15,200,000	$4,000,000	-	$500,000	$19,700,000
Equipment	-	$1,000,000	$150,000	$1,100,000	$2,250,000
Support Facility	$3,000,000	$2,700,000	$600,000	$4,400,000	$10,700,000
Total	***$18,200,000***	***$7,700,000***	***$750,000***	***$6,000,000***	***$32,650,000***
Port of Fort Smith					
Infrastructure	$770,000	$3,900,000	$400,000	-	$5,070,000
Equipment	$850,000	-	$200,000	-	$1,050,000
Support Facility	$280,000	$2,000,000	$500,000	-	$2,780,000
Total	***$1,900,000***	***$5,900,000***	***$1,100,000***	***-***	***$8,900,000***
Little Rock Port Complex					
Infrastructure	$3,920,000	$330,000	$3,100,000	$4,200,000	$11,550,000
Equipment	-	-	-	$1,200,000	$1,200,000
Support Facility	$230,000	$150,000	$50,000	$525,000	$955,000
Total	***$4,150,000***	***$480,000***	***$3,150,000***	***$5,925,000***	***$13,705,000***
Port of Pine Bluff					
Infrastructure	-	$550,000	$448,000	$25,000	$1,023,000
Equipment	$970,000	$90,000	$412,000	-	$1,472,000
Support Facility	$230,000	$55,000	$1,840,000	$250,000	$2,375,000
Total	***$1,200,000***	***$695,000***	***$2,700,000***	***$275,000***	***$4,870,000***
Port of Crossett					
Infrastructure	$950,000	-	$10,700,000	$1,700,000	$13,350,000
Equipment	$1,400,000	-	-	$2,400,000	$3,800,000
Support Facility	$2,150,000	$3,000,000	$300,000	-	$5,450,000
Total	***$4,500,000***	***$3,000,000***	***$11,000,000***	***$4,100,000***	***$22,600,000***
Total Estimated Needs	**$34,305,000**	**$19,570,000**	**$22,600,000**	**$18,100,000**	**$94,575,000**

Source: Port/Harbor Questionnaire

Note: The Port of Camden is currently closed.

Economic Value

The following table summarizes the direct economic value of Arkansas' public ports and harbors. The Gross State Product of $58 million includes benefits from employment and other activities such as sales tax generated and the value of goods produced. Other economic impacts of water transportation include transit cost savings, a higher cargo carrying capacity when compared to other freight modes and safer and more fuel efficient operation than other modes. It is also the most effective gateway to the global marketplace for import and export shipments.

Economic Value (Annual)

Category	Value
Direct Port Jobs	135
Annual Payroll	$3,016,000
Indirect Port Jobs	612
Statewide Supported Jobs*	16,315
Dependent Businesses	125
Gross State Product*	$58 million

*Source: University of Arkansas – Department of Industrial Engineering

Strategies for Future Growth

Seven issues that threaten the future growth and development of the State's public riverports were identified. These are:

Development Issues

- Poor landside access (roadway and railroad);
- Inadequate intermodal transportation capabilities;
- Deteriorated condition of infrastructure, facilities and equipment;
- Dredging and dock operation problems;
- Absence of a marketing plan;
- Unknown port security costs; and
- Lack of funding resources.

Strategies presented to counteract these issues include the establishment of grant and loan programs, public/private partnerships and marketing activities. These initiatives are aimed at assisting the ports with construction projects and service and image improvements.

- **Capital Improvement Grant Program.** Under this program, grants could be offered to develop port infrastructure. The funding mechanism, Act 1546 of 2001 or the "Arkansas Port Priority Improvement Program Act," is currently unfunded. An annual appropriation by the State would be required.
- **Revolving Loan Program.** This program would provide assistance in the form of low interest or interest-free loans to be used to replace existing facilities or enhance services. An initial State appropriation would be required; repaid monies would be loaned to other qualifying ports.
- **Public/Private Partnerships.** This non-traditional development option could be used for site-specific freight transportation improvements. Partnership examples include:
    - *Build-Own-Operate* – A private entity finances and builds a facility on public land and then owns, operates and collects revenues on the facility.
    - *Build-Operate-Transfer* – A private entity finances and builds a facility and then owns, operates and collects revenues on the facility on a temporary basis. Once the investment has been recovered, the facility is transferred to the public entity free of charge.
    - *Build-Transfer-Operate* – A private company finances and builds a facility then transfers ownership to the public entity. The public entity then repays the private company through a "lease-purchase" arrangement or allows the private company to operate

and collect revenue on the facility on a temporary basis until the investment is recovered.

- *Build-Improve-Operate* – Private enterprise buys an existing facility from a public entity, makes improvements and then operates and collects revenues on the facility.
- *Lease-Improve-Operate* – A private firm leases an existing facility, makes improvements and then operates and collects income on the facility for the duration of the lease.

- **Marketing Program.** Using various techniques, a statewide program to highlight the advantages of waterborne transportation and the services available could encourage waterway use.

Section I
State Waterway System

Water Transportation – An Overview

Water transportation is one of five modes that comprise Arkansas' freight transportation network. The other freight modes are truck freight service consisting of truckload (TL) and less-than-truckload (LTL) companies, local drayage companies and private carriers; Class I and Class III railroads; pipeline transportation involving natural gas, oil and product pipelines with ties to refineries, gasoline plants and fuel storage terminals and air cargo service. Statewide system maps of these freight modes are located in Appendix A.

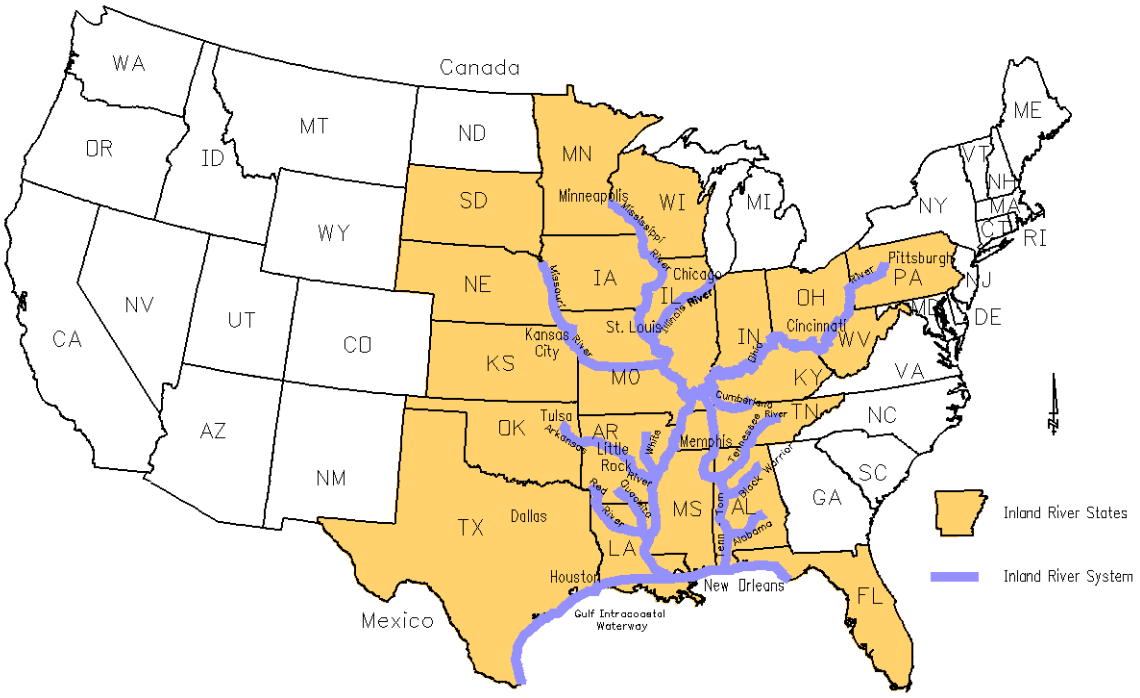
Waterborne transportation offers distinct benefits and advantages when compared to other freight modes. The opportunities include greater cost savings from lower fuel consumption and economy of scale (barges carry more cargo farther distances using less fuel than any other type of transportation); better environmental protection because water transportation (via towboat haulage) requires less fuel than truck or rail on a ton-mile basis resulting in less pollution being emitted; reduced freight rates, especially for bulk commodities moved long distances; and enhanced industrial recruitment opportunities because many large industries consider proximity to a riverport as a prime factor in their final location decision.

Inland Waterway System

The nation's inland navigable waterways provide a viable system for transporting bulk commodities within the United States and for accessing deepwater ports for overseas shipments. Arkansas is linked to this transportation system via its navigable waterways as illustrated in Figure 1-1.

Note: There are no Class II railroads in Arkansas.

Figure 1-1
Inland Waterway System



Water access to the ports of the Gulf of Mexico is very important to the growth of commerce, as Arkansas' business sectors become more involved with the global marketplace, especially with Latin American countries. The recently completed "Latin American Trade and Transportation Study" (LATTS) revealed significant freight flow patterns for Arkansas regarding trade with Latin American countries. A summary of the major findings relating to this study follows.

- Latin American trade is a chief segment of Arkansas' total international trade.
  - ✓ It is 25 percent of the State's overseas business.
  - ✓ Trade with Latin America could double or triple by the year 2025.
- Louisiana ports are Arkansas' gateway to Latin American trade.
  - ✓ Sixty-five percent of Latin American exports are shipped via Louisiana ports. Water is the primary freight mode used for this movement.
  - ✓ Over 30 percent of imports from Latin America enter through Louisiana ports. Most of this is shipped via inland waterways.

Barge Transportation

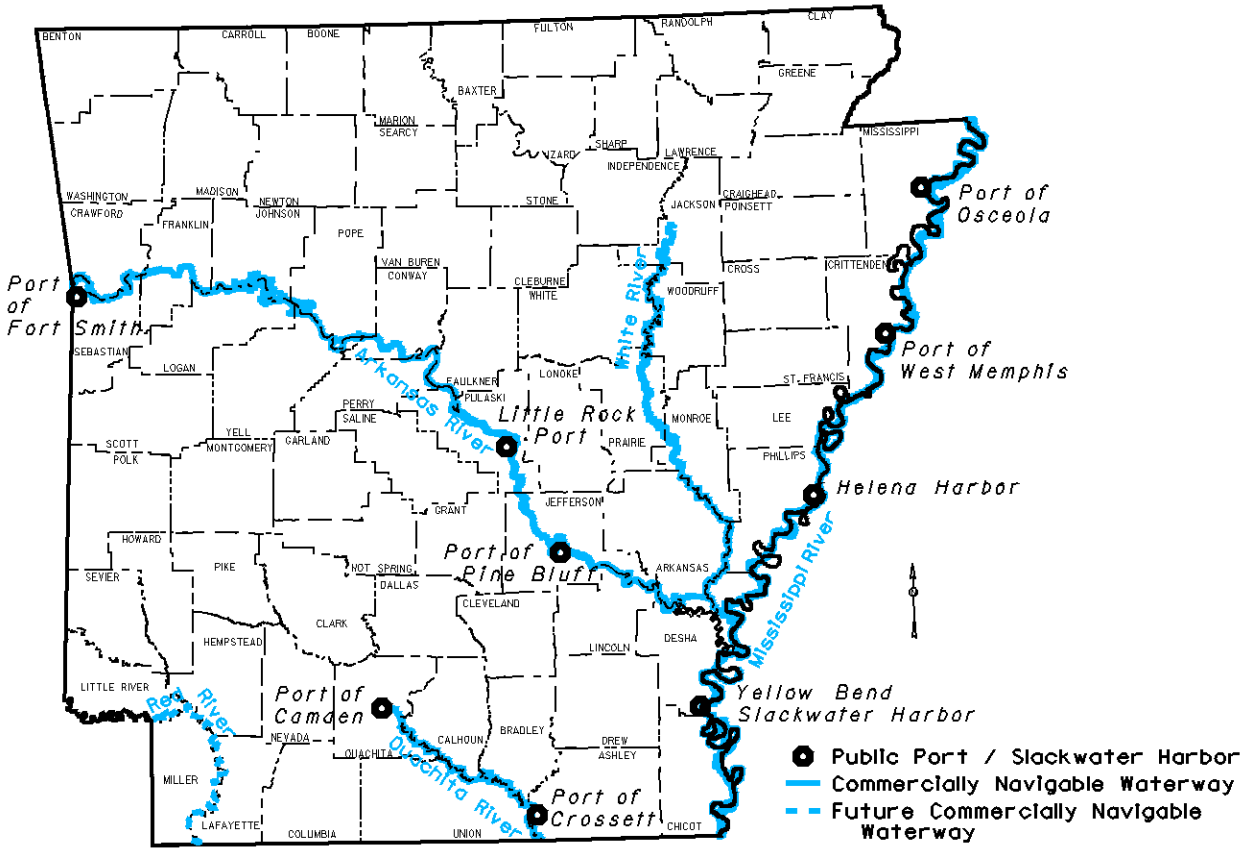
Many barges of various types and sizes are used in waterborne transportation. The most common types utilized by Arkansas shippers include:

- Open Hopper — A barge with an open cargo area used to carry materials like coal, crushed rock, scrap metal, or any material that does not need to be protected from the weather.
- Covered Hopper — A barge like an open hopper except with a watertight cover to protect the cargo from the weather or other contaminants. These barges commonly are used to carry commodities such as grains and dry chemicals.
- Deck — A barge with no cargo hold, but with a heavily plated, well-supported deck to which cargo is tied. Deck barges are commonly used to move machinery, construction materials, or heavy or large equipment.
- Tank — A barge designed to transport liquids like petroleum products and chemicals.

Commercially Navigable Waterways in Arkansas

There are four commercially active waterways and one river (the Red River) that is designated as a future navigable waterway in the State of Arkansas. The active waterways are the McClellan-Kerr Arkansas River Navigation System and the Mississippi, Ouachita and White Rivers. Nine public riverports and slackwater harbors are located along the State's inland waterways. The commercially navigable waterways of Arkansas and the public ports and harbors are shown in Figure 1-2.

Figure 1-2
Commercially Navigable Waterways, Public Ports and Harbors



Ports and Harbors

In Arkansas, city and/or county port authorities govern public ports and harbors. Private stevedore companies lease the cargo handling facilities and operate the public use terminal. All public ports in Arkansas are classified as General Purpose Terminals, which, in most cases, handle a wide variety of bulk commodities in large bags, coils, bundles and loose, voluminous forms.

The primary function of public ports is to act as a center for intermodal transportation and product distribution. A secondary activity is industrial production and processing.

A typical port or harbor consists of:

- Transportation facilities – roadways, railways and pipeline;
- Distribution facilities – storage units such as warehouses, transit sheds and bulk tanks;
- Material handling equipment – cranes, forklifts and conveyor systems;
- Utilities – water lines, wastewater collection and treatment and electrical power and
- Business office – for administrative duties.

Mississippi River

The Arkansas segment of the Mississippi River starts at the Missouri State Line in the vicinity of Blytheville and extends south to the Louisiana State Line near Eudora, a length of 321 miles. This segment of the Mississippi River is maintained to a width of 300 feet for barge traffic. The absence of locks and dams and unrestrained water flow during the winter months are significant advantages for barge transportation on the lower Mississippi River, allowing tows of 40 or more barges.

Table 1-1
Mississippi River Attributes
(Arkansas Segment)

• Channel Depth: 12 feet
• Channel Width: 300 feet
• Barge Tows: 40 plus barges
• System Maintenance – Corps of Engineers, Memphis and Vicksburg Districts
• Lock Size: N/A
• Length: 321 miles

The Memphis District of the Corps of Engineers is responsible for work on the river from the Arkansas/Missouri State line to the mouth of the White River (river mile 599). The Vicksburg District of the Corps of Engineers is responsible from this point

to the Arkansas/Louisiana State Line. Typical work on the river by the Corps of Engineers includes bank protection, levee construction and maintenance, dredging and construction of channel control structures. The U.S. Coast Guard provides maritime safety (search and rescue), maritime mobility (aids to navigation), maritime security (vessel inspection and treaty enforcement), national defense and environmental protection.

On the Arkansas side of the Mississippi River there are four public ports and harbors and several major private ports and terminals. Public use terminals are located at the Port of Osceola, the Port of West Memphis, the Helena Harbor and the Yellow Bend Harbor. A new public slackwater harbor, serving the Blytheville region, is proposed for the Hickman/Armorel area. Most large-scale private ports and terminals are associated with either steel production or farm products (e.g., rice and soybeans).

The major commodities, by tonnage, moved on the Mississippi River are petroleum products, crude materials and farm products.

McClellan-Kerr Arkansas River Navigation System

The commercially navigable portion of the McClellan-Kerr Arkansas River Navigation System begins at the Port of Catoosa near Tulsa, Oklahoma on the Verdigris River and ends at the White River entrance channel at the Mississippi River. The Arkansas part of the system starts at the Oklahoma State Line near Fort Smith and extends a distance of 308 miles.

The waterway system has a width of 250-300 feet, a minimum maintained depth of nine feet and is designed for eight barge tows but can accommodate up to 15 barge tows using double lockage. A feasibility study is underway by the Little Rock District of the Corps of Engineers to determine the possible impacts of maintaining the

Arkansas River as a 12-foot channel instead of the current nine-foot authorization. Funding for the study has been authorized by Congress.

On the Arkansas segment of the river, 12 locks and dams provide year round, ice-free navigation. A new lock was recently completed at the entrance channel to the Mississippi River (Montgomery Point Lock and Dam). The purpose of the project was to ensure uninterrupted barge navigation between the Arkansas and Mississippi Rivers during low water stages.

Table 1-2
McClellan-Kerr Arkansas River
Navigation System Attributes

• Channel Depth: 9 feet
• Channel Width: 250-300 feet
• Barge Tows: 8 to 15 barges
• System Maintenance: Corps of Engineers, Little Rock District
• Lock Size: 110 feet x 600 feet
• Length: 308 miles

The top commodities moved on the Arkansas River by tonnage are crude materials (wood chips, iron ore, sand and gravel), food and farm products and chemicals and kindred products.

There are three existing ports and three proposed facilities. The existing public river terminals are the Port of Fort Smith, the Little Rock Riverport/Slackwater Harbor Complex and the Port of Pine Bluff. Proposed facilities are the Van Buren Port, Fort Chaffee Harbor and the Russellville Harbor.

Foreign Trade Zone #14 is located at the Little Rock Port/Harbor Complex. A foreign trade zone is a domestic U.S. site that is considered outside U.S. Customs territory for import and export activities. Several sub-zones have been established around the State.

Ouachita River

Arkansas' commercially navigable portion of the Ouachita River begins at Camden and flows southeasterly to the Arkansas/Louisiana State Line. The river joins the Black and Red Rivers in Louisiana and eventually flows into the Mississippi River, a distance of 371 miles. The navigable segment in Arkansas is 116 miles long and is maintained to a depth of nine feet, with a channel width of 100 feet. There are two locks and dams located on this segment and the river can accommodate two- or four-barge tows.

Table 1-3
Ouachita River Attributes

• Channel Depth: 9 feet
• Channel Width: 100 feet
• Barge Tows: 2 to 4 barges
• System Maintenance: Corps of Engineers, Vicksburg District
• Lock Size: 84 feet x 655 feet
• Length: 116 miles

Two public riverports are located on the Ouachita River in Arkansas: the Port of Camden and the Port of Crossett. A major private petroleum terminal located near Smackover imports crude oil for processing at a nearby refinery. The development of a public port at Smackover has been discussed and could possibly serve to expand the waterborne capabilities of the area.

The chief commodities moved on the Ouachita River are petroleum products, crude materials and chemicals and related products.

White River

The White River is navigable from Newport south to the Mississippi River, a length of 254 miles. The river has a nine-foot approved depth but this draft is not maintained throughout the year. Although Congress has authorized a project to establish a nine-foot channel on the White River, funds have not been appropriated. There are no locks and dams on the navigable part of the river and currently, there are only private terminals. Several possible sites for a public port on the White River have been discussed with the most mentioned location near Newport. Barge movements range from tows of four to six barges. Grains, fertilizers and chemicals are the major commodities shipped on the river.

Table 1-4
White River Attributes

• Channel Depth: 9 feet (seasonal)
• Channel Width: Not maintained
• Barge Tows: 4 to 6 barges
• System Maintenance: Corps of Engineers, Memphis District
• Lock Size: N/A
• Length: 254 miles

Red River

The Red River is classified as a future navigable waterway from Index, Arkansas (Miller County/Texas State Line) to the Louisiana State Line, a length of 97 miles. There is no official designation of its depth or width and, as a result, there are no public ports or private terminals on this segment of the river. The Red River is now commercially navigable from Shreveport, Louisiana to the Mississippi River. The

Vicksburg District of the Corps of Engineers is conducting a study to determine the feasibility of improving the Red River for barge traffic between Shreveport, Louisiana and Index, Arkansas.

Locks and Dams

Through a system of locks and dams, barge navigation can be improved in areas where a river flows across a steep slope. Dams are used to create pools of water that have a constant depth and locks serve as stairs, moving vessels from one pool to the next. The general location of locks and dams on the commercially navigable waterways in Arkansas is shown in Figure 1-3. Figure 1-4 demonstrates the lock and dam system for the Arkansas portion of the McClellan-Kerr Arkansas River Navigation System.

Figure 1-3
Lock and Dam Locations

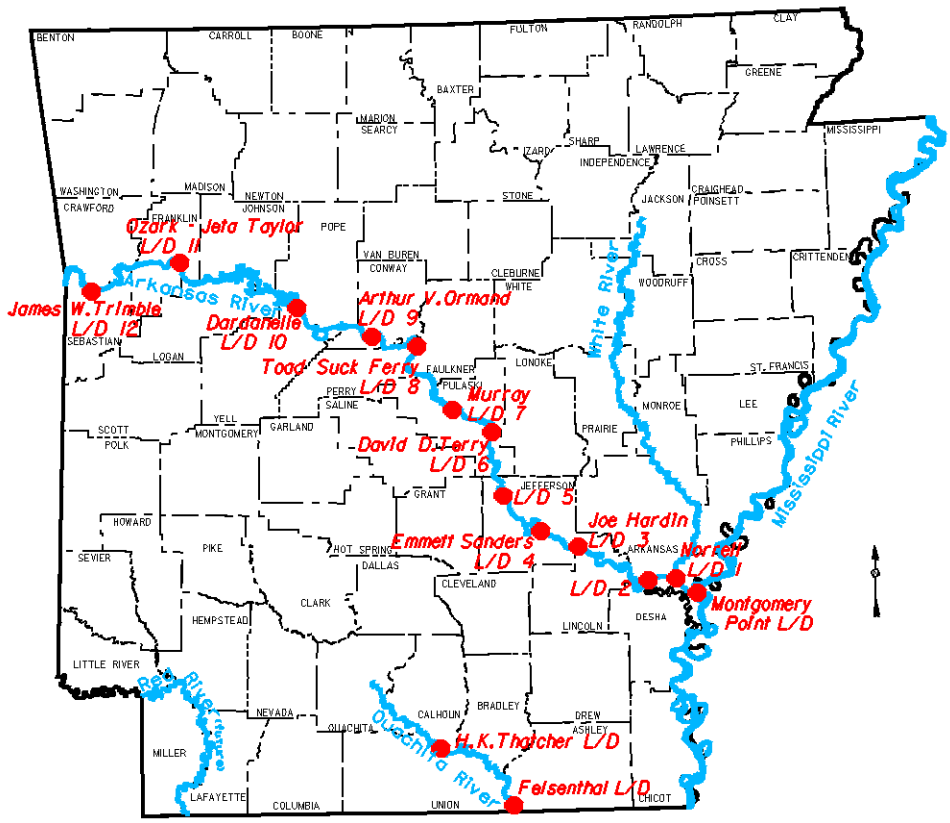
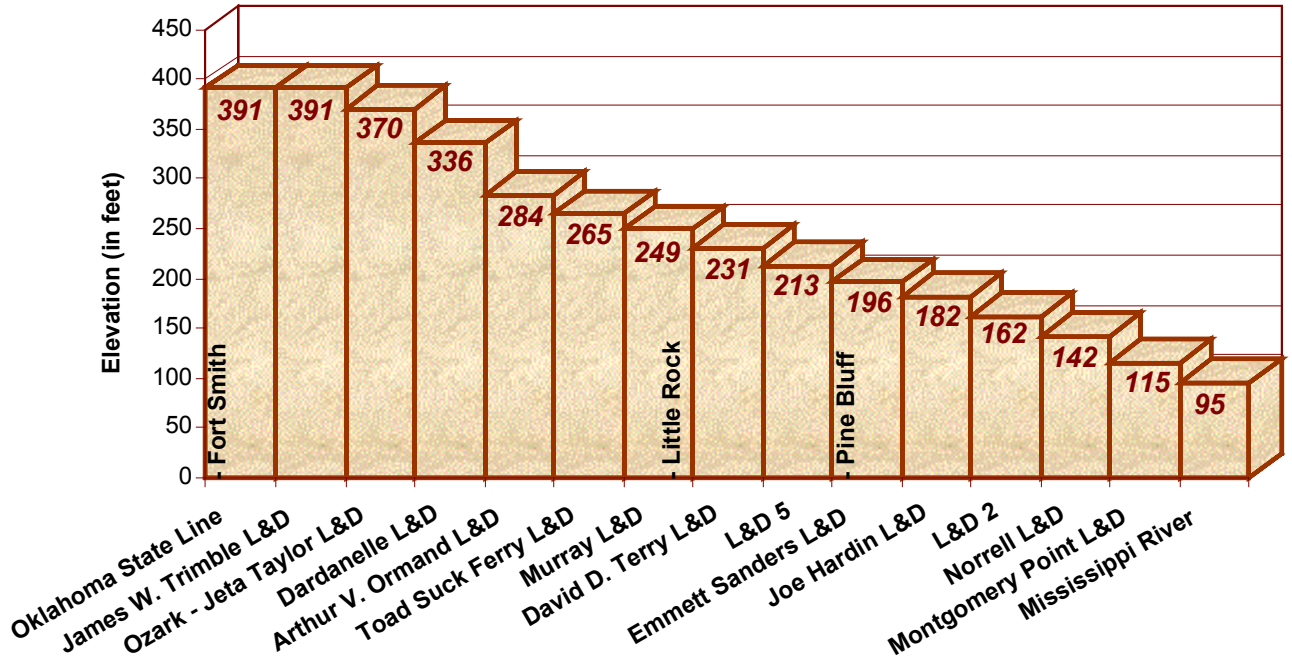


Figure 1-4
Locks and Dams on the McClellan-Kerr Arkansas River Navigation System



Section II
Waterborne Cargo

Existing cargo handled at the public ports and potential cargo shipments are examined in this section. Possible water transportation shipments include selected commodities that are now moved by rail or truck. Also included is a tonnage forecast by river system.

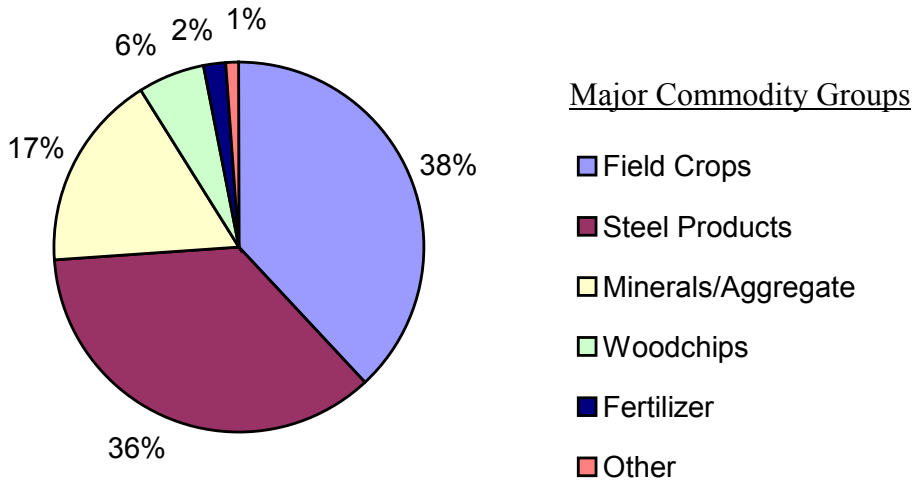
The assessment includes data on the general composition of shipments (e.g., commodities handled and seasonal fluctuations) and the origin and destination for commodities. Information was gathered from the Port/Harbor Questionnaire, the Waterborne Commerce Statistics Center and the Department's Freight Goods Movement Database. A description of the Department's freight database is included as Appendix B.

Public Port Tonnage

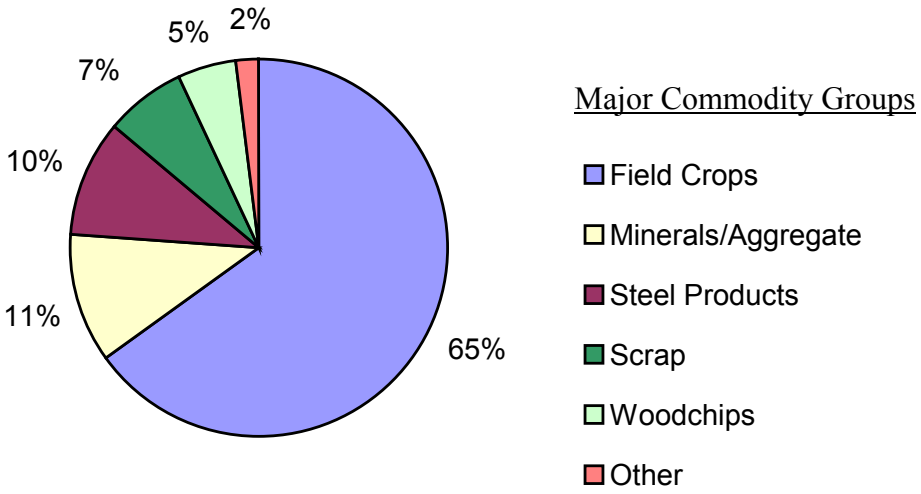
Total annual freight tonnages handled at the public terminals are shown in Figure 2-1. The leading inbound and outbound commodity is field crops (e.g., rice, soybeans and wheat). Two other important commodities are steel products (e.g., rods, coils and bars) and mineral/rocks (e.g., bauxite, vermiculite and riprap). Examples of commodities listed in the "other" category are bulk cement, newsprint and paper products. Peak periods for inbound shipments are the months of May and November and for outbound shipments the months of June and October.

Figure 2-1
2004 Tonnage – Public Terminals Only

Inbound Tonnage = 800,000



Outbound Tonnage = 520,000



Total Tonnage = 1,320,000

Source: Port/Harbor Questionnaire

The leading destinations for waterborne commerce from Arkansas are the States of Louisiana, Tennessee, Texas and Illinois. The main origins of waterborne commerce to Arkansas are the States of Louisiana, Kentucky, Illinois and Tennessee.

River Traffic Tonnage Forecast

Table 2-1 is a traffic tonnage forecast for the period of 2005 through 2014, by river system. All traffic, e.g., shipments through, to/from and within Arkansas, for the Arkansas, White and Ouachita Rivers is included. The Mississippi River is not included because data is not available by segment for Arkansas traffic only.

Table 2-1
Traffic Forecast by River System
(Annual Tonnage*)

	Year									
River	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Mississippi	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arkansas	11,600	11,800	11,900	12,000	12,200	12,300	12,500	12,600	12,800	12,900
	12,200	12,600	12,900	13,300	13,700	14,100	14,500	14,900	15,300	15,800
White	289	292	296	299	303	307	310	314	318	321
	304	313	322	331	340	350	360	371	381	392
Ouachita	277	281	284	287	291	294	298	301	305	308
	286	295	304	313	322	331	340	350	360	371

Base Projection
High Projection

***Thousands of short tons**

Note: Estimates based on data from the Waterborne Commerce Statistics Center.

A base case and a high case forecast are provided. The base forecast (1.2 percent average annual growth) is a conservative projection based on historical growth. The high forecast (2.9 percent annual increase) is based on a national freight forecast by

the Federal Highway Administration. The forecast assumes no capacity improvements, for example, increased channel depth, which could result in more tons per barge, or unknown factors such as changes in transportation or environmental policy. With the base forecast, total tonnage on the three rivers could increase almost 1.36 million tons from 2005 to 2014. During the same period, the high forecast shows an increase of over 3.7 million tons.

Potential Water Transportation Shipments

The examination of shipping patterns for the State revealed the potential for additional water cargo shipments at the public ports. The commodities listed below are presently shipped by truck or rail to and from locations with ready access to the nation's inland waterway system. While some of these products may already be shipped by water, the table below indicates that additional use of the waterways is possible.

Table 2-2
Potential Commodities for Waterborne Transportation
(Listed by 2-digit Standard Transportation Commodity Code)

01	Farm Products	**26**	Pulp, Paper, or Allied Products
08	Forest Products	**28**	Chemicals or Allied Products
10	Metallic Ores	**29**	Petroleum or Coal Products
11	Coal	**32**	Clay, Concrete, Glass, or Stone Products
14	Nonmetallic Minerals	**33**	Primary Metal Products
24	Lumber or Wood Products	**37**	Transportation Equipment

Source: Freight Goods Movement Database

Section III
Needs Assessment

An assessment of port infrastructure, equipment and support facility needs was made using a condition grading system that evaluated the conditions as good, fair or poor, combined with the priority rating process described below, which was used to determine the urgency for improvements. Information regarding needs and conditions for each port was collected through site visits and meetings that included the port directors, member of the port commission and port operators. A questionnaire was used to collect additional data. A copy of the questionnaire is included in Appendix C.

The estimated cost to upgrade or replace and, in some cases, the cost for new construction was provided by the ports. Factors considered in determining whether something should be upgraded or replaced included:

1) Would cargo throughput capacity be increased?
2) Could the port become more competitive with other modes?
3) Would efficiency be improved or operating costs reduced?
4) Would existing customers be better served?
5) Would new customers become more likely to locate at the port?

The anticipated cost for security systems due to national requirements (the "Maritime Transportation Antiterrorism Act of 2002") was mentioned as an unknown cost by most of the ports. In this section no amount has been included for port security since specific details are being developed and should be forthcoming. A complete list of the reported needs is provided by port in Appendix D.

Priority Rating

Critical – unsafe condition or could fail at any time. Needs included under this rating have the highest potential to cause disruption of port operations and/or present a defined safety hazard and should be addressed as soon as possible.

Immediate – required to maintain minimal port operations. Items listed in this category are typically associated with a port's ability to effectively handle cargo. These needs should be given attention within 1-2 years.

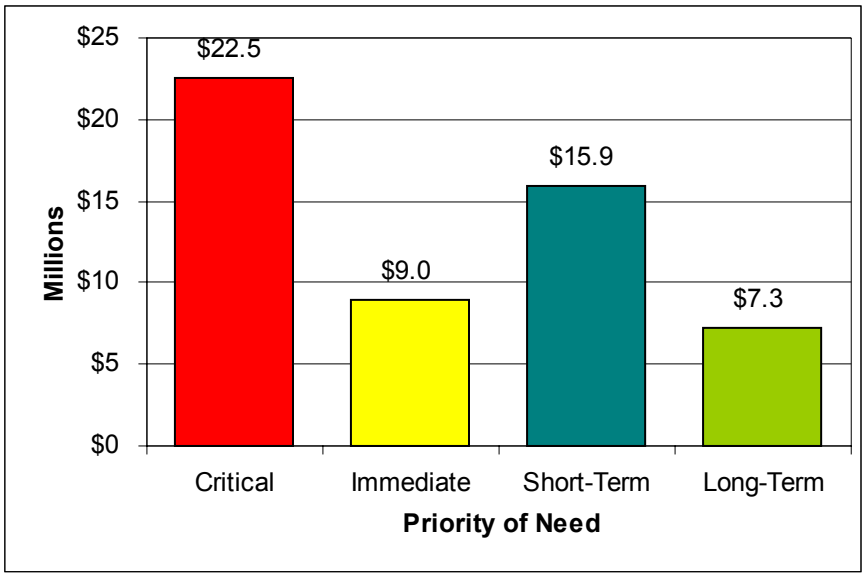
Short-Term – (3-5 years) level of deficiency affects a port's ability to properly serve customers and to be competitive with other freight modes.

Long-Term – to support growth and to attract new business. These unmet needs will, at some future time, prevent a port from retaining existing shippers or attracting new cargo shipments.

Infrastructure

As identified through the Port/Harbor questionnaire and interviews with port operators, $31.5 million is needed to meet the critical and immediate infrastructure needs of the State's public ports and harbors (see Figure 3-1). Total infrastructure improvement cost is estimated to be almost $55 million. Table 3-1 lists the estimated costs by priority of need and category.

Figure 3-1
Infrastructure Needs



Total Estimated Infrastructure Needs - $54,700,000

Source: Port/Harbor Questionnaire

Table 3-1
Estimated Costs for Infrastructure Needs
By Priority of Need and Category

	Priority of Need				
	Critical	**Immediate**	**Short-Term**	**Long-Term**	**Total**
Infrastructure Needs	**$22,530,000**	**$8,955,000**	**$15,898,000**	**$7,290,000**	**$54,673,000**
Port of Osceola					
Dock Operations					
Winching System	$545,000	-	-	-	$545,000
Mooring Dolphins Repair	$175,000	-	-	-	$175,000
Larger Pier	-	-	-	$365,000	$365,000
On-Site Road Improvements					
Pave Port Road	$220,000	-	-	-	$220,000
Port Operations					
Maintenance Shop	-	$25,000	-	-	$25,000
Total	***$940,000***	***$25,000***	***-***	***$365,000***	***$1,330,000***
Port of West Memphis					
Port Operations:					
Various On-Site Improvements	-	$150,000	-	-	$150,000
Total	***-***	***$150,000***	***-***	***-***	***$150,000***
Helena Harbor					
Dock Operations:					
Cover for Dock	-	-	$1,250,000	-	$1,250,000
Dock Extension	-	-	-	$500,000	$500,000
Rail:					
Rail Marshalling Yard	$750,000	-	-	-	$750,000
Total	***$750,000***	***-***	***$1,250,000***	***$500,000***	***$2,500,000***
Yellow Bend Harbor					
On-Site Road Improvements					
Pave Road and Parking Lot	$2,000,000	-	-	-	$2,000,000
Port Operations					
Harbor Expansion	-	$4,000,000	-	-	$4,000,000
New Office Building	-	-	-	$500,000	$500,000
Rail					
Railroad Line to Harbor	$10,700,000	-	-	-	$10,700,000
Rail Marshalling Yard	$2,500,000	-	-	-	$2,500,000
Total	***$15,200,000***	***$4,000,000***	***-***	***$500,000***	***$19,700,000***

Table 3-1 - continued
Estimated Costs for Infrastructure Needs
By Priority of Need and Category

	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Port of Fort Smith					
Dock Operations					
Dock Repairs and Expansion	-	$2,000,000	-	-	$2,000,000
On-Site Road Improvements					
Road Improvements	-	$800,000	-	-	$800,000
Port Operations					
Flood Protection for Warehouse	-	$400,000	-	-	$400,000
Various Other On-Site Improvements	-	-	$400,000	-	$400,000
Rail					
Repairs to Rail Spur Lines	$770,000	-	-	-	$770,000
Rail Line Extension	-	$700,000	-	-	$700,000
Total	***$770,000***	***$3,900,000***	***$400,000***	***-***	***$5,070,000***
Little Rock Port Complex					
Dock Operations					
Fuel Pier Depot	$320,000	-	-	$320,000	$640,000
Mooring Dolphins Repair	-	-	-	$500,000	$500,000
On-Site Road Improvements					
Highway/Railroad Crossing Repairs	-	$230,000	-	-	$230,000
Port Operations					
Expansion of Foreign Trade Zone Building	-	$100,000	-	-	$100,000
Office Building Expansion	-	-	-	$100,000	$100,000
Rail					
Railroad Main Line Repairs	$3,600,000	-	-	-	$3,600,000
Railroad Spur Line Repairs	-	-	$3,000,000	-	$3,000,000
Marshalling Yard Expansion	-	-	-	$3,100,000	$3,100,000
Utilities					
Electrical Line Expansion	-	-	$100,000	-	$100,000
Water Line Extension	-	-	-	$180,000	$180,000
Total	***$3,920,000***	***$330,000***	***$3,100,000***	***$4,200,000***	***$11,550,000***

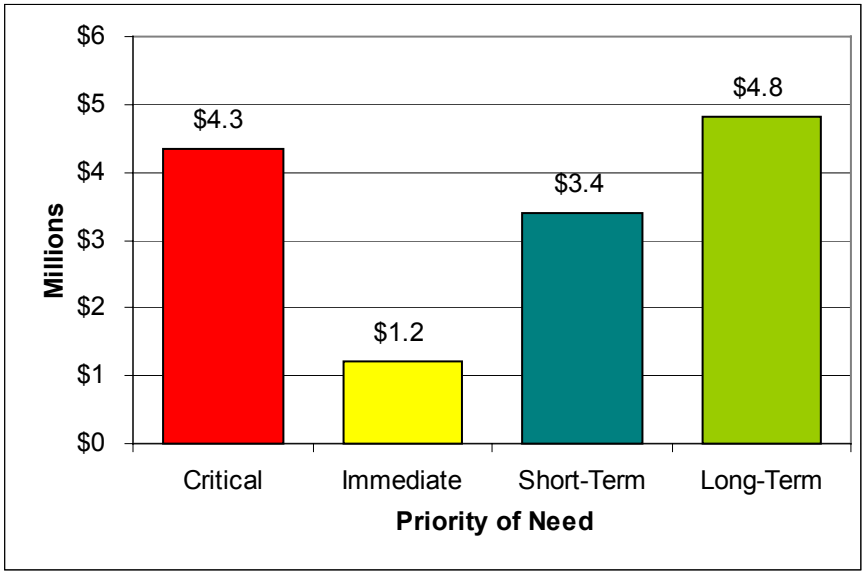
Table 3-1 - continued
Estimated Costs for Infrastructure Needs
By Priority of Need and Category

	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Port of Pine Bluff					
Dock Operations					
Mooring Dolphins Repair	-	-	$75,000	-	$75,000
Dock Extension	-	-	-	$25,000	$25,000
On-Site Road Improvements					
Truck Staging Area	-	-	$65,000	-	$65,000
Port Operations					
Office Building	-	-	$58,000	-	$58,000
Other On-Site Improvements	-	$250,000	$250,000	-	$500,000
Rail					
New Spur Rail Track	-	$150,000	-	-	$150,000
Rail Line Extension	-	$150,000	-	-	$150,000
Total	***-***	***$550,000***	***$448,000***	***$25,000***	***$1,023,000***
Port of Crossett					
Dock Operations					
Mooring Dolphins Repair	$950,000	-	-	-	$950,000
New Mooring Dolphins	-	-	$1,000,000	-	$1,000,000
Rail					
Rail Line to Port	-	-	$9,000,000	-	$9,000,000
Utilities					
Water Line Expansion	-	-	$700,000	-	$700,000
Electrical Line Extension	-	-	-	$1,000,000	$1,000,000
Sewer Line Extension	-	-	-	$700,000	$700,000
Total	***$950,000***	***-***	***$10,700,000***	***$1,700,000***	***$13,350,000***
Total Infrastructure Needs	**$22,530,000**	**$8,955,000**	**$15,898,000**	**$7,290,000**	**$54,673,000**

Equipment

Figure 3-2 shows equipment needs by priority. Estimated, as determined by the Port/Harbor Questionnaire and interviews, are shown in Table 3-2. Critical and immediate needs are estimated to cost about $5.5 million. Total anticipated cost for all equipment needs is $13.7 million.

Figure 3-2
Equipment Needs



Total Estimated Equipment Needs - $13,700,000

Source: Port/Harbor Questionnaire

Table 3-2
Estimated Costs for Equipment Needs
By Priority of Need and Category

	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Cargo Handling Equipment Needs	**$4,340,000**	**$1,210,000**	**$3,412,000**	**$4,820,000**	**$13,782,000**
Port of Osceola					
Mobile Crane	-	-	$150,000	-	$150,000
Telescoping Spout	-	-	-	$120,000	$120,000
Total	**-**	**-**	***$150,000***	***$120,000***	***$270,000***
Port of West Memphis					
To Support Floating Dock Operation	$120,000	-	-	-	$120,000
To Enhance Fixed Dock Operation	-	$120,000	-	-	$120,000
Total	***$120,000***	***$120,000***	**-**	**-**	***$240,000***
Helena Harbor					
Grain Hopper and Conveyor	$1,000,000	-	-	-	$1,000,000
Crane Extension to Railroad	-	-	$2,500,000	-	$2,500,000
Total	***$1,000,000***	**-**	***$2,500,000***	**-**	***$3,500,000***

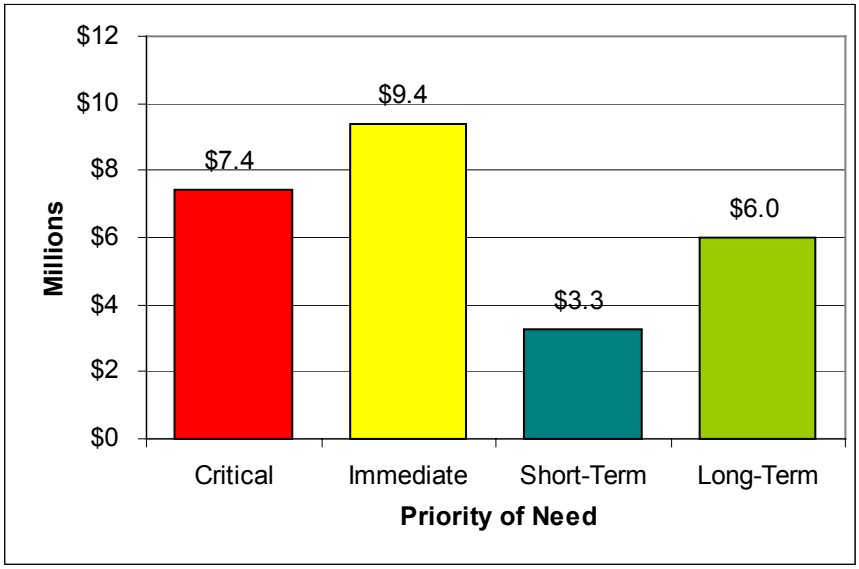
Table 3-2 – continued
Estimated Costs for Equipment Needs
By Priority of Need and Category

	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Yellow Bend Harbor					
Conveyor Belts and Loading and Unloading Hoppers	-	$1,000,000	-	$1,100,000	$2,100,000
Mobile Crane	-	-	$150,000	-	$150,000
Total	***-***	***$1,000,000***	***$150,000***	***$1,100,000***	***$2,250,000***
Port of Fort Smith					
Forklifts	-	-	$200,000	-	$200,000
Replace Existing Cargo Handling Equipment	$850,000	-	-	-	$850,000
Total	***$850,000***	***-***	***$200,000***	***-***	***$1,050,000***
Little Rock Port Complex					
Container Crane	-	-	-	$1,000,000	$1,000,000
Forklifts	-	-	-	$200,000	$200,000
Total	***-***	***-***	***-***	***$1,200,000***	***$1,200,000***
Port of Pine Bluff					
Covered Conveyor	$120,000	-	-	-	$120,000
Replace Existing Cargo Handling Equipment	$850,000	-	-	-	$850,000
Skid Loader	-	$90,000	-	-	$90,000
Forklifts	-	-	$270,000	-	$270,000
Crawler Crane	-	-	$142,000	-	$142,000
Total	***$970,000***	***$90,000***	***$412,000***	***-***	***$1,472,000***
Port of Crossett					
Overhead Bridge Crane	$1,400,000	-	-	-	$1,400,000
Open and Covered Conveyor	-	-	-	$2,400,000	$2,400,000
Total	***$1,400,000***	***-***	***-***	***$2,400,000***	***$3,800,000***
Total Equipment Needs	**$4,340,000**	**$1,210,000**	**$3,412,000**	**$4,820,000**	**$13,782,000**

Support Facilities

As shown in Figure 3-3 there are $16.8 million of critical and immediate support facility needs. The total cost for all support facility needs is estimated at $26.1 million. Table 3-3 lists the estimated costs.

Figure 3-3
Support Facility Needs



Total Estimated Support Facility Needs - $26,100,000

Source: Port/Harbor Questionnaire

Table 3-3
Estimated Costs for Support Facility Needs
By Priority of Need and Category

	Priority of Need				
	Critical	**Immediate**	**Short-Term**	**Long-Term**	**Total**
Support Facility Needs	**$7,435,000**	**$9,405,000**	**$3,290,000**	**$5,990,000**	**$26,120,000**
Port of Osceola					
Cargo Transfer Facilities:					
Truck-to-Barge Terminal	$580,000	-	-	-	$580,000
Truck Dump Pit	$150,000	-	-	-	$150,000
Storage Facilities					
Grain Storage Bins	$815,000	-	-	$815,000	$1,630,000
Total	***$1,545,000***	***-***	***-***	***$815,000***	***$2,360,000***
Port of West Memphis					
Storage Facilities					
Storage Facility	-	$1,000,000	-	-	$1,000,000
Total	***-***	***$1,000,000***	***-***	***-***	***$1,000,000***

Table 3-3 – continued
Estimated Costs for Support Facility Needs
By Priority of Need and Category

	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Helena Harbor					
Storage Facilities					
Climate Controlled Warehouse	-	$500,000	-	-	$500,000
Total	***-***	***$500,000***	***-***	***-***	***$500,000***
Yellow Bend Harbor					
Cargo Transfer Facilities					
Rail/Barge Terminal	$3,000,000	-	-	-	$3,000,000
Storage Facilities					
Warehouses with Rail Sidings	-	$2,700,000	-	-	$2,700,000
Bagging Facility	-	-	$600,000	-	$600,000
Climate Controlled Warehouse	-	-	-	$3,500,000	$3,500,000
Fertilizer Warehouse	-	-	-	$900,000	$900,000
Total	***$3,000,000***	***$2,700,000***	***$600,000***	***$4,400,000***	***$10,700,000***
Port of Fort Smith					
Storage Facilities					
Additional Warehouses and Outside Storage	$280,000	$2,000,000	$500,000	-	$2,780,000
Total	***$280,000***	***$2,000,000***	***$500,000***	***-***	***$2,780,000***
Little Rock Port Complex					
Cargo Transfer Facilities					
Truck-to-Barge Terminal (Harbor)	$30,000	-	-	-	$30,000
Storage Facilities					
Dry Bulk Tank	$200,000	-	-	-	$200,000
Transit Shed	-	$150,000	-	-	$150,000
Expansion of Bagging Facility	-	-	$50,000	-	$50,000
Warehouses and Outdoor Storage	-	-	-	$525,000	$525,000
Total	***$230,000***	***$150,000***	***$50,000***	***$525,000***	***$955,000***
Port of Pine Bluff					
Cargo Transfer Facilities					
Transload Facility	-	$55,000	-	-	$55,000
Truck Dump with Pit	-	-	$40,000	-	$40,000
Storage Facilities					
Dry Warehouse	$230,000	-	-	-	$230,000
Liquid Bulk Tanks	-	-	-	$250,000	$250,000
Other Storage Facilities	-	-	$1,800,000	-	$1,800,000
Total	***$230,000***	***$55,000***	***$1,840,000***	***$250,000***	***$2,375,000***

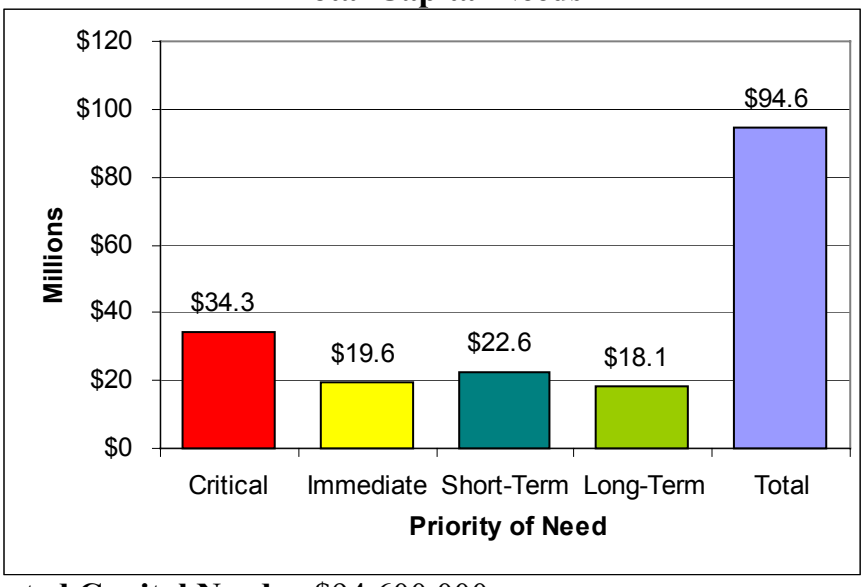
Table 3-3 – continued
Estimated Costs for Support Facility Needs
By Priority of Need and Category

	Priority of Need				Total
	Critical	Immediate		Long-Term	
Port of Crossett					
Cargo Transfer Facilities					
Container Yard with Container Crane	$990,000	-	-	-	$990,000
Truck-to-Barge Terminal	-	$600,000	-	-	$600,000
Storage Facilities					
Bagging Facility	$750,000	-	-	-	$750,000
Warehouses	$410,000	-	-	-	$410,000
Climate Controlled Warehouse	-	$2,400,000	-	-	$2,400,000
Liquid Terminal	-	-	$300,000	-	$300,000
Total	***$2,150,000***	***$3,000,000***	***$300,000***	***-***	***$5,450,000***
Total Support Facility Needs	**$7,435,000**	**$9,405,000**	**$3,290,000**	**$5,990,000**	**$26,120,000**

Total Capital Needs

Total capital needs (infrastructure, equipment and support facilities) for the State's public ports is shown in Figure 3-4. Arkansas ports need an infusion of $53.9 million just to meet critical and immediate needs. A total of $94.6 million is needed to satisfy all identified needs.

Figure 3-4
Total Capital Needs



Total Estimated Capital Needs - $94,600,000
Source: Port/Harbor Questionnaire

Table 3-4
Estimated Costs for All Needs
By Priority of Need and Category

	Priority of Need				
	Critical	**Immediate**	**Short-Term**	**Long-Term**	**Total**
All Reported Needs	**$34,305,000**	**$19,570,000**	**$22,600,000**	**$18,100,000**	**$94,575,000**
Infrastructure Needs	**$22,530,000**	**$8,955,000**	**$15,898,000**	**$7,290,000**	**$54,673,000**
Dock Operations	$1,990,000	$2,000,000	$2,325,000	$1,710,000	$8,025,000
On-Site Road Improvements	$2,220,000	$1,030,000	$65,000	-	$3,315,000
Port Operations	-	$4,925,000	$708,000	$600,000	$6,233,000
Rail	$18,320,000	$1,000,000	$12,000,000	$3,100,000	$34,420,000
Utilities	-	-	$800,000	$1,880,000	$2,680,000
Equipment Needs	**$4,340,000**	**$1,210,000**	**$3,412,000**	**$4,820,000**	**$13,782,000**
Support Facility Needs	**$7,435,000**	**$9,405,000**	**$3,290,000**	**$5,990,000**	**$26,120,000**
Cargo Transfer Facilities	$4,750,000	$655,000	$40,000	-	$5,445,000
Storage Facilities	$2,685,000	$8,750,000	$3,250,000	$5,990,000	$20,675,000

Several needs-related questions were asked on the Port/Harbor Questionnaire. The foremost responses are provided below.

What are your major disadvantages when competing for new cargo shipments or industrial development?

- Limited land for expansion
- Lack of ability to market port assets
- No rail service
- Poor on-site road conditions
- Absence of rail/truck/barge intermodal service
- Poor equipment condition
- Lack of storage space

What is needed for Arkansas' ports and harbors to effectively compete in the global economy?

- Foreign trade sub-zones
- Climate controlled warehouses
- Staging areas to handle large volumes of inbound and outbound commodities
- High capacity cargo handling equipment
- Logistics service like freight shipment tracking

Section IV
Economic Value

The economic value of the public river terminals may be measured by their direct and indirect economic impacts. Direct impacts are the jobs they support and payroll generated, their contribution to the Gross State Product and transportation savings. Indirect impacts include tax revenues, jobs dependent on port operations (e.g., warehousing and truck service jobs) and the key industry sectors whose economic viability depends on water transportation. Examples of these sectors are agricultural operations and forestry-based companies. For this analysis, only the direct impacts will be considered.

Jobs/Payroll

Combined, the nine public ports and harbors employ 135 people at an annual payroll of $3,016,000. It is estimated that 612 persons work at the river terminals, but are employed by others and 125 businesses directly depend on the ports for services. These jobs, in turn, create and sustain other jobs throughout the State. According to a recent study conducted by the University of Arkansas – Department of Industrial Engineering[1], this could be as high as 16,315 jobs.

Gross State Product

Employment data with associated activities and employee earnings are the factors used to calculate the direct value to the State. The Gross State Product (GSP) is the benchmark for estimating the value.

In the University of Arkansas study, it was determined that the water transportation industry directly impacts Arkansas by contributing $35 million annually to the GSP

[1] Economic Evaluation of the Impact of Waterways on the State of Arkansas – University of Arkansas, July 2002

through employment and related activities. The annual employee earning impact for the State was established at $23 million. The total direct annual value of water transportation is $58 million.

Transportation Savings

Waterborne transportation savings can be measured by shipment cost and cargo carrying capacity.

- **Shipment Cost**

  Water transportation is the most economical freight mode for moving commodities, as illustrated in Table 4-1.

Table 4-1
Typical Shipping Cost

Mode	Costs per ton-mile (cents)
Barge	0.97
Rail	2.53
Truck	5.35

Source: U.S. Army Corps of Engineers and Iowa Department of Transportation

- **Cargo Capacity**

  A barge provides economies of scale over a railcar and truck trailer through its ability to carry large cargo volumes. Table 4-2 compares cargo capacity for the three modes.

Table 4-2
Cargo Capacity Comparison

Unit of Measurement	Barge	15-Barge Tow	Jumbo Hopper Railcar	100 Railcar Unit Train	Large Semitrailer
Bushels	52,500	787,500	3,500	350,000	875
Gallons	453,600	6,804,000	30,240	3,024,000	7,500

Equivalent Units
1 barge = 15 jumbo hoppers = 60 large semitrailers
1 15-barge tow = 2 ¼ unit trains = 900 large semitrailers

Source: U.S. Army Corps of Engineers and Iowa Department of Transportation

Table 4-3 provides a summary of the economic value of Arkansas' river facilities and other benefits of water transportation.

Table 4-3
Economic Value (Annual)

Category	Value
Direct Port Jobs	135
Annual Payroll	$3,016,000
Indirect Port Jobs	612
Statewide Supported Jobs*	16,315
Dependent Businesses	125
Gross State Product*	$58 million

*Source: University of Arkansas – Department of Industrial Engineering

Other Waterways Benefits

- Has the effect of reducing shipping costs charged by other freight modes.
- Can minimize the movement of heavy and over-sized cargo over local highways, thus reducing road repair costs.
- Excellent recruiting tool for medium to heavy industries seeking low-cost transportation.
- Safest mode of transportation and most fuel efficient.
- Towboats, which are used to move barges, are more environmentally friendly than other modes of transportation by emitting less air pollution per ton-mile.
- Access to water transportation can enhance an industry's competitive position in the global marketplace.

- Waterways are multi-purpose. Along with serving navigation needs they provide recreational opportunities, water supply for municipalities, agricultural irrigation, flood protection and hydropower.

Transportation Savings

- Shipping costs (Less cost per ton-mile)
- Cargo capacity (Largest capacity)
- Indirect benefits and impacts
  - ✓ Enhance competitiveness
  - ✓ Excellent recruiting tool
  - ✓ Ideal for heavy and over-sized cargo
  - ✓ Safest and most fuel efficient mode
  - ✓ Environmentally friendly

Section V
Development Issues and Improvement Strategies

Arkansas' public ports and harbors encounter intense competition from other freight modes and from riverports in surrounding states. They must also contend with deteriorating infrastructure and equipment and insufficient funds to make needed improvements. Many lack adequate landside access and this causes freight delivery delays and impedes industrial recruiting efforts. This section will examine these issues and other concerns that threaten the viability of the State's public riverport facilities. Included are proposed strategies to develop port facilities and operational capabilities.

Development Issues

Development issues were determined through discussions with port directors and their board members, stevedore operators, water transportation users, Corps of Engineers personnel and from the responses to the Port/Harbor Questionnaire. The most commonly cited issues are: 1) poor landside access; 2) inadequate intermodal transportation capabilities; 3) lack of funding resources; 4) deteriorated condition of infrastructure, facilities and equipment; 5) dredging and dock operation problems; 6) absence of a marketing plan; and 7) unknown port security costs.

Landside Access

A common development issue for all ports is inadequate landside access (roadways and railroads). Poor landside access is considered a major impediment to industrial recruitment and causes higher operating costs and freight delays. For example, several ports experience truck traffic problems during harvest season. Long queues of trucks, waiting lengthy periods to be unloaded, are a common occurrence during this season. Other roadway access issues are load limits on county bridges, inadequate directional signage to the ports and absence of alternate routes to the terminal. Port-owned roads

are another concern. Many are composed of crushed rock and lack the strength to handle the heavier and larger trucks. Port-owned roads with a hard surface need pavement rehabilitation, widening and intersection turning radii improvements.

Ports with rail service state that improvements to the rail line and at-grade crossings are needed. Typical rail line problems are lightweight rail (85-90 lb. weight) that is susceptible to rail breaks which could cause train derailments, worn turnouts and crushed crossties. Another rail issue is recent railroad mergers and abandonments that have limited the ports' access to competitive Class I rail service. Class I railroads provide long haul service to major market areas like Dallas, Texas and Chicago, Illinois. Ports that are served by a single Class I railroad suggest that they may be at a disadvantage to ports with multiple rail carriers. Possible drawbacks are a lesser level of service and higher freight rates charged to port rail customers.

Intermodal Transportation

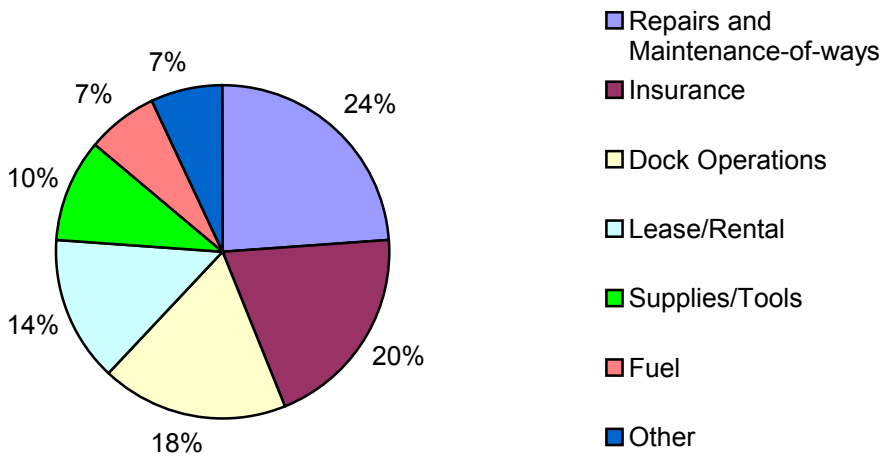
Efficient intermodal transportation was mentioned as an important component for future successful operation of Arkansas' ports and harbors. To accomplish this, intermodal transportation facilities are needed such as terminals where cargo can be transferred between modes, truck trailer and container yards, heavy lift equipment, warehouses and transit sheds and facilities for packaging goods. Seventy percent of the respondents to the Port/Harbor Questionnaire stated that the lack of rail/truck/barge intermodal service is a major impediment to their operation and growth.

Funding Resources

The State's ports operate in a tight financial setting with budget constraints that limit infrastructure improvements, equipment purchases and the construction of new support facilities. To better understand their financial condition, annual expenditures were obtained. This data, summarized in Figure 5-1, reveals that, excluding administration

and payroll costs, the leading expenses are repairs and maintenance-of-ways, insurance and dock operations. It appears that daily operations at the ports require significant investments, leaving very little funding available for any improvements. Adding to some ports' financial burden are high payments on loans for past development and costs for emergency replacements. Another funding issue is the current lack of public support for new taxes or revenue bonds.

Figure 5-1
Annual Expenditures
(Excluding Administration and Payroll Costs)*



*Administration and payroll account for over 60% of annual costs.

Every port indicated that an influx of funds is necessary to sustain current operations and for growth and development. Several suggested that some form of State funding assistance is needed. Help in identifying and securing funds from Federal agencies was mentioned as a critical need. Additionally, they could benefit from technical assistance in developing and implementing capital expenditure plans.

Infrastructure, Facilities and Equipment

Adequate infrastructure, better facilities and enhanced cargo handling capabilities must be provided at the public ports and harbors if they are to retain existing cargo shipments, accommodate growth of these shipments and capture new shipments.

In previous sections, port needs and their inability to generate the capital necessary for repairs and new purchases was discussed. Chief funding obstacles cited were increasing costs for basic services, payment on past improvements and lack of public support for new taxes or revenue bonds. The major needs identified are:

- Facilities and services to capitalize on the growing number of overseas shipments;
- Adequate freight transfer facilities and integrated support services;
- Sufficient infrastructure (roads and railroad lines) to support growth and development; and
- Modern facilities and equipment to load, unload and store cargo (e.g., cranes with heavy lifting capacity, climate controlled warehouses and secured open storage areas).

Dredging and Dock Operations

Routine dredging of a slackwater harbor basin and channel is necessary to maintain sufficient depth for loading and unloading barges and for towboat movement. Some harbors experience persistent silting that increases the cost for dredging. Finding suitable sites to dispose of dredged materials is also an issue.

Dock operations are an on-going problem area at all public river terminals. Typical problems are damaged mooring dolphins, increasing maintenance-of-way costs, poor surface conditions and deteriorating substructure conditions. A concern that is specific to riverports is dock operation during high or low water events.

Marketing Plan

The creation of a comprehensive and coordinated marketing plan for the State's public river terminals has been cited as a necessity, due to the intense competition with the trucking and rail industries and with adjoining states that have inland riverports.

Suggested elements of a marketing plan are:

1. Brochures – that highlight the terminal's facilities and services;
2. Trade Journals – selective advertisement in regional and national magazines and periodicals; and
3. Videos – that present the ports and harbors as regional freight shipping centers, which offer a wide variety of cost-effective transportation services.

Port Security

An issue that could affect the future development of the ports and harbors is the unknown cost for port security as required by the "Maritime Transportation Antiterrorism Act of 2002." This act mandates that each public water terminal assess its vulnerability and prepare plans to prevent catastrophic events resulting from terrorism threats. Port security improvements will have to be weighed against the benefits of funding much needed infrastructure improvements.

General Issues

Other issues mentioned that threaten the viability of the State's public river terminals are listed below.

- Warehouses and transit buildings at or near capacity.
- Shortage of land for expansion and developable industrial sites.
- Inadequate harbor width, length and depth.
- Labor constraints. At some ports there is simply not enough business on a regular basis to support an adequate skilled labor force.

Table 5-1 summarizes the major development issues identified.

Table 5-1
Development Issues

- **Landside Access**
  - ✓ Congested roads during peak periods (on-site facilities are unable to handle truck volumes)
  - ✓ Load limits on county bridges
  - ✓ Poor condition of port-owned roads
  - ✓ Distressed rail lines
  - ✓ Substandard at-grade crossings
- **Intermodal Transportation**
  - ✓ Lack of freight transfer capability
- **Funding Resources**
  - ✓ Limited funds for improvements
  - ✓ Lack of public support for new revenue resources
- **Infrastructure, Facilities and Equipment**
  - ✓ Inadequate capital available to meet needs
- **Dredging and Dock Operations**
  - ✓ High costs for dredging
  - ✓ Lack of suitable disposal sites
  - ✓ Deteriorating dock conditions
- **Marketing Plan**
  - ✓ Absence of a comprehensive and coordinated plan
- **Port Security**
  - ✓ Unknown requirements and costs

Several questions on the Port/Harbor Questionnaire dealt with development issues. Responses are provided below.

What would it take for your Port/Harbor to develop to its maximum potential?
- Higher capacity cargo handling equipment
- More storage
- Additional funds to make improvements

How can State government best support growth and development of the public ports?

- Marketing assistance
- Funding program for improvements
- Assistance in establishing a relationship with coastal ports, trade organizations and in-State business leaders

What is the best way to market the advantages of Arkansas' public ports?

- Preparation of a marketing plan by the State
- National and regional trade organizations
- Local economic development groups

Improvement Strategies

Major capital investment is needed at the public ports to replace obsolete facilities and equipment and for additional capacity to accommodate future shipping requirements. A comprehensive marketing program is needed to detail the many advantages that ports have to offer to businesses.

Strategies to assist the ports with facility construction and other infrastructure support, service improvement and intermodal transportation project development are offered and discussed below.

Capital Improvement Grant Program

Grants would be offered under this program to develop port infrastructure. The funding mechanism would be Act 1546 of 2001. This Act, cited as the "Arkansas Port Priority Improvement Program Act" (Appendix F), is currently unfunded and would require an annual appropriation from the State.

Revolving Loan Program

A revolving loan program would require an initial State appropriation that could be used for replacing or enhancing existing facilities and for service improvements. Assistance could be in the form of low interest or interest-free loans; repaid monies would be loaned to other qualifying ports.

Public/Private Partnerships

This non-traditional development option could become a valuable tool for funding much needed port improvements. Some examples of public/private transportation partnerships include:

- *Build-Own-Operate* – A private entity finances and builds a facility on public land and then owns, operates and collects revenues on the facility.
- *Build-Operate-Transfer* – A private entity finances and builds a facility and then owns, operates and collects revenues on the facility on a temporary basis. Once the investment has been recovered, the facility is transferred to the public entity free of charge.
- *Build-Transfer-Operate* – A private company finances and builds a facility then transfers ownership to the public entity. The public entity then repays the private company through a "lease-purchase" arrangement or allows the private company to operate and collect revenue on the facility on a temporary basis until the investment is recovered.
- *Build-Improve-Operate* – Private enterprise buys an existing facility from a public entity, makes improvements and then operates and collects revenues on the facility.
- *Lease-Improve-Operate* – A private firm leases an existing facility, makes improvements and then operates and collects income on the facility for the duration of the lease.

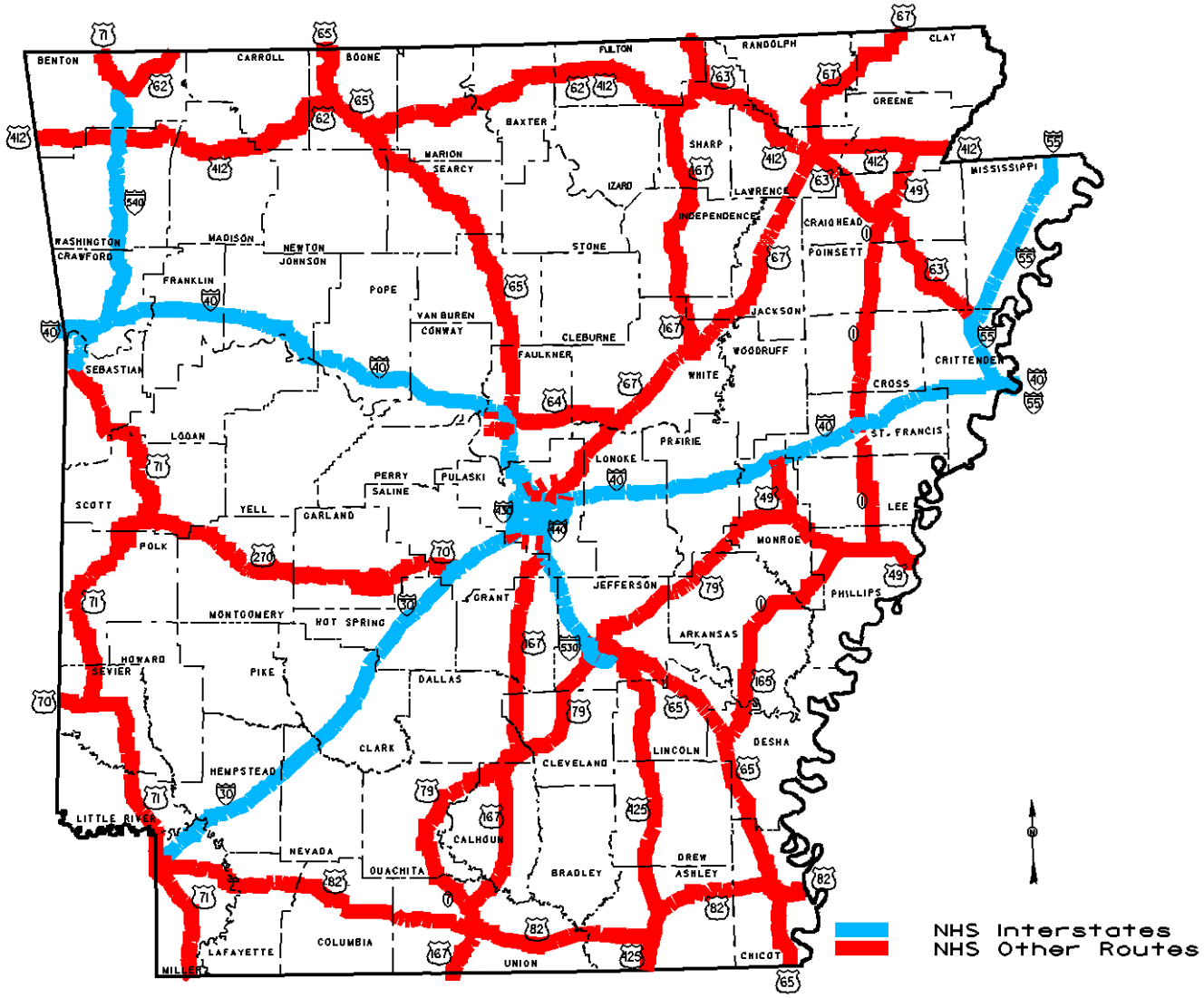
Marketing Strategies

Marketing assistance in the form of promotion material, market research and data analysis would be very beneficial in fostering future growth of the ports. Other components could be the development of a media kit for the press, television and radio stations and websites for educational material. A comprehensive marketing plan along with a proactive program for establishing relationships with coastal ports and trade groups could be very beneficial.

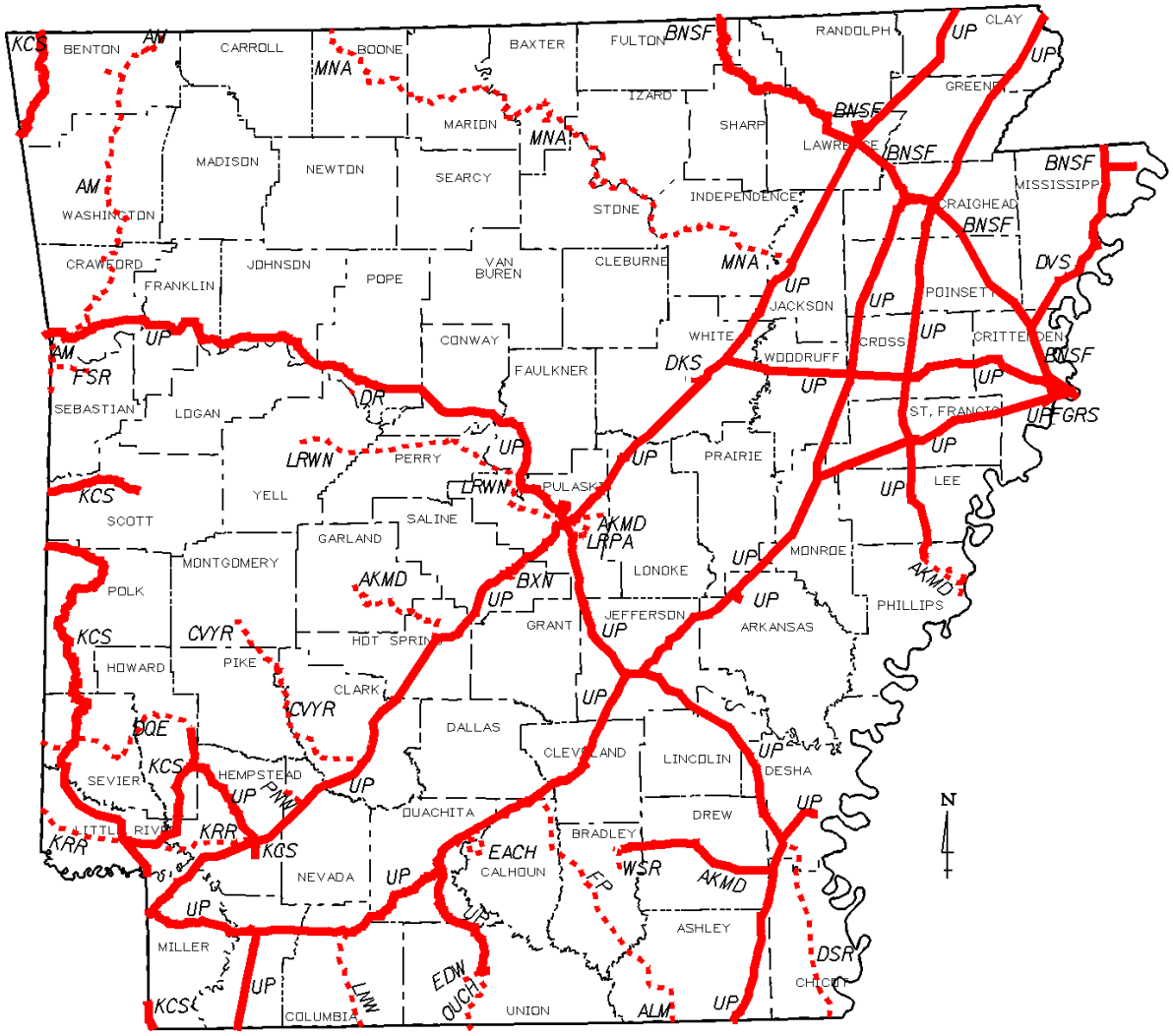
Appendix A

Arkansas' Freight Transportation Modes

National Highway System



Railroads in Arkansas

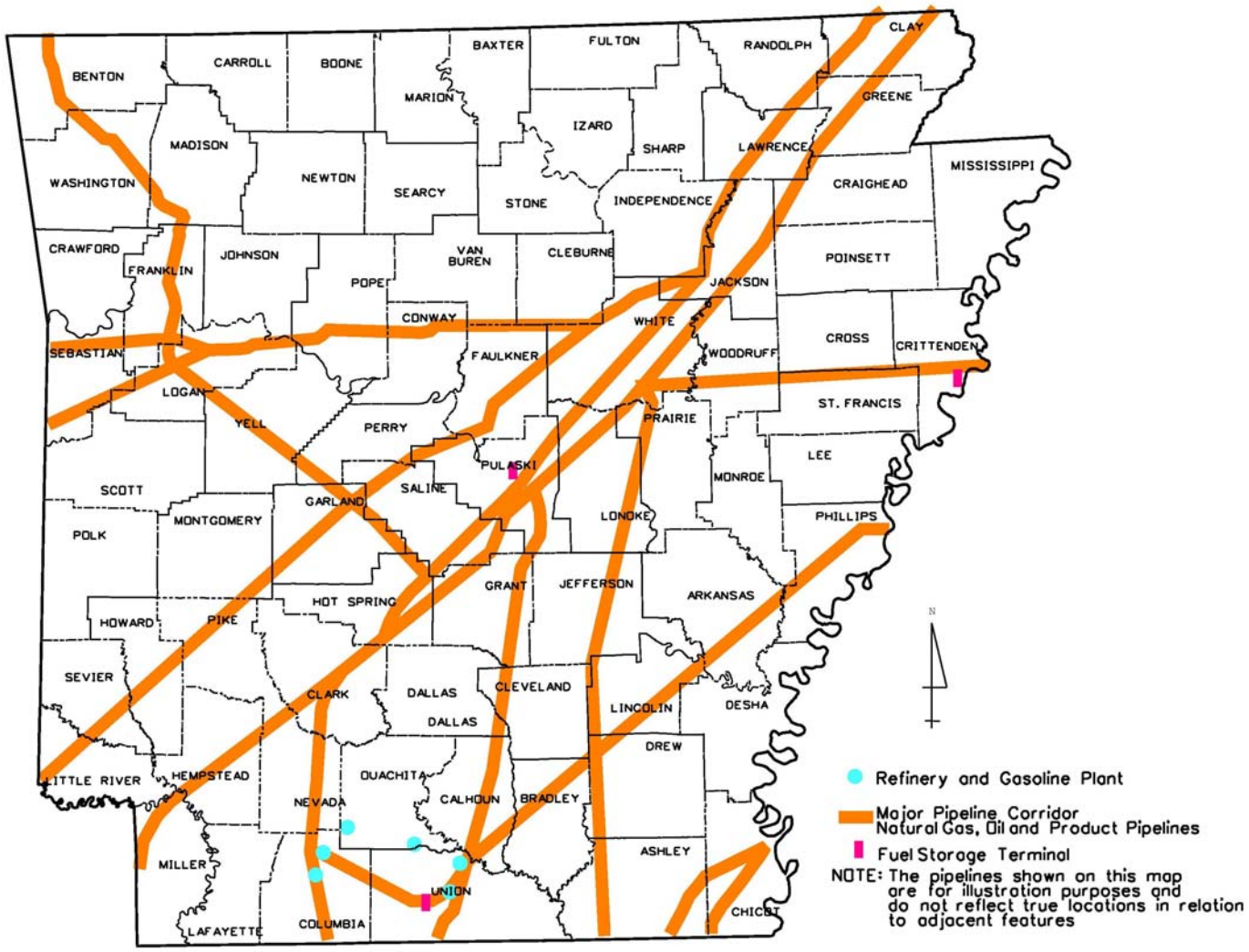


INDEX OF RAILROADS

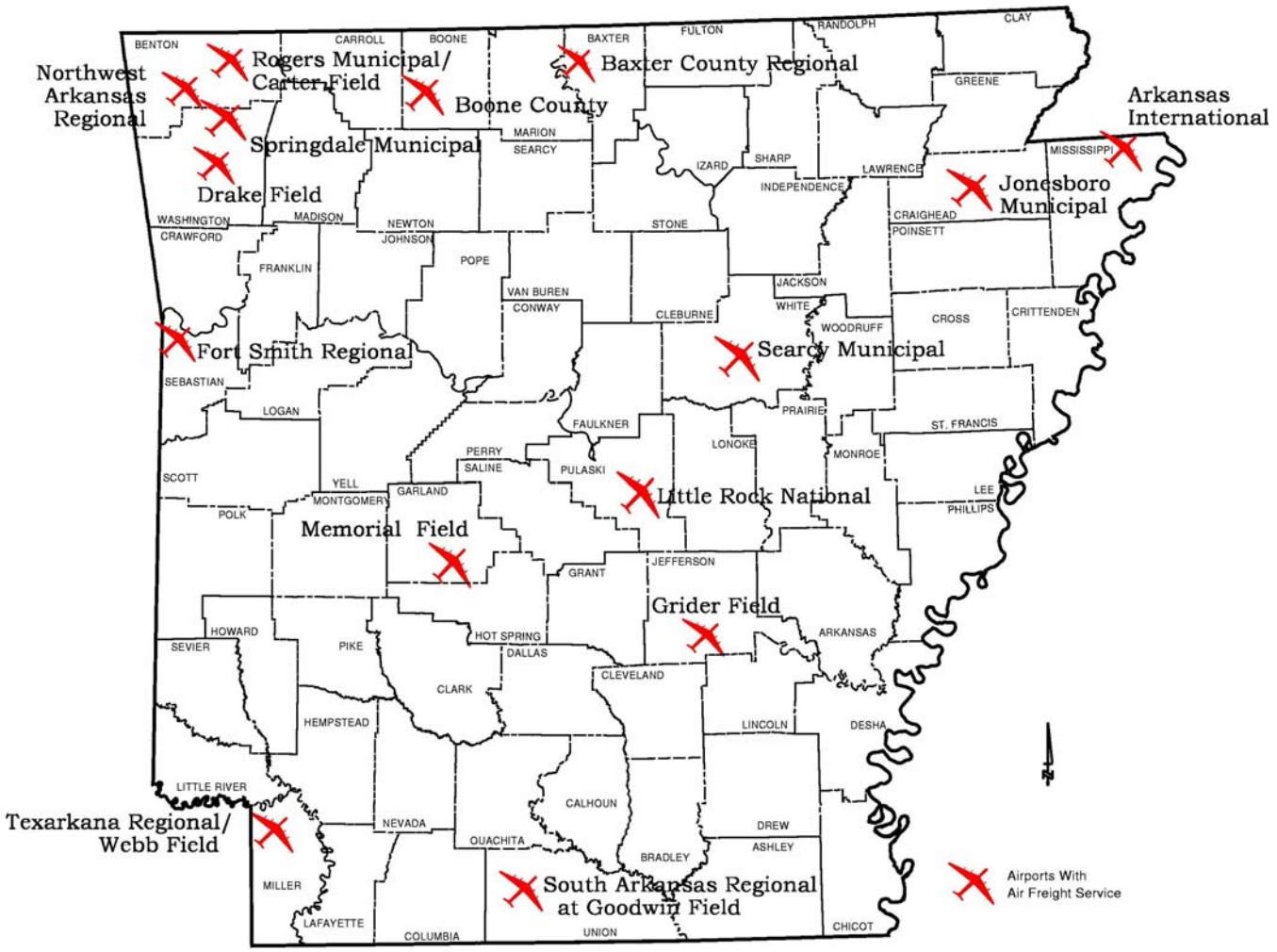
Alpha Code	Railroad
AKMD	Arkansas Midland Railroad
ALM	Arkansas, Louisiana, and Mississippi Railroad
AM	Arkansas and Missouri Railroad
BNSF	Burlington Northern and Santa Fe Railway
BXN	Bauxite and Northern Railroad
CVYR	Caddo Valley Railroad
DKS	Doniphan, Kensett, and Searcy Railway
DQE	DeQueen and Eastern Railroad
DR	Dardanelle and Russellville Railroad
DSR	Delta Southern Railroad
DVS	Delta Valley and Southern Railway
EACH	East Camden and Highland Railroad
EDW	El Dorado and Wesson Railway

Alpha Code	Railroad
FGRS	Friday - Graham Rail Spur
FP	Fordyce and Princeton Railroad
FSR	Fort Smith Railroad
KCS	Kansas City Southern Railway
KRR	Kiamichi Railroad Company
LNW	Louisiana and North West Railroad
LRPA	Little Rock Port Authority Railroad
LRWN	Little Rock and Western Railway
MNA	Missouri and Northern Arkansas Railroad
OUCH	Ouachita Railroad Company
PNW	Prescott and Northwestern Railroad
UP	Union Pacific Railroad
WSR	Warren and Saline River Railroad

Pipeline/Refinery/Fuel Storage Terminals



Airports with Air Freight Service

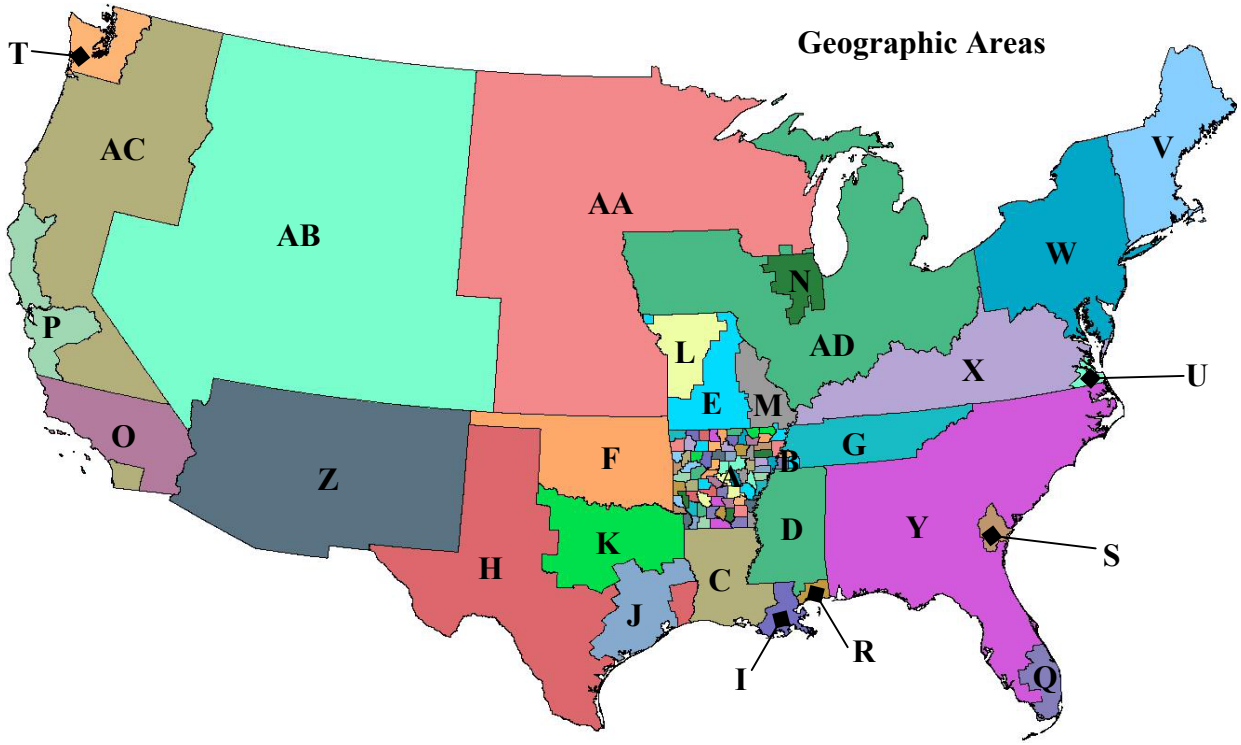


Appendix B

Geographic Areas

Freight Goods Movement Database

The geographic areas for the Department's Freight Goods Movement Database are shown below. Annual tonnage information is provided by freight mode for each of these areas, which include nine regions, selected Business Economic Areas (BEAs), the states surrounding Arkansas, three counties in Tennessee (Shelby, Tipton and Fayette) and all counties in Arkansas. A BEA is a group of counties or parishes that share similar economic characteristics as defined by the U.S. Department of Commerce. Commodities and activities are identified at the four-digit Standard Transportation Commodity Code (STCC) level.



Counties:

- **A** ***Arkansas*** – All
- **B** ***Tennessee*** – Shelby, Tipton, Fayette

Surrounding States:

- **C** Louisiana
- **D** Mississippi
- **E** Missouri
- **F** Oklahoma
- **G** Tennessee
- **H** Texas

BEAs:

- **I** New Orleans
- **J** Houston
- **K** Dallas/Fort Worth
- **L** Kansas City
- **M** St. Louis
- **N** Chicago
- **O** Los Angeles
- **P** San Francisco
- **Q** Miami
- **R** Biloxi/Gulfport
- **S** Savannah
- **T** Seattle
- **U** Norfolk

Regions:

V	New England	ME, NH, VT, MA, RI, CT
W	Mid-Atlantic	NY, NJ, DE, PA, MD, DC
X	Southeast	VA, WV, KY
Y	Deep South	FL, GA, NC, SC, AL
Z	Southwest	AZ, NM
AA	Prairie	WI, MN, ND, SD, NE, KS
AB	Mountain States	MT, ID, WY, CO, UT, NV
AC	Pacific	OR, WA, CA
AD	Mid-West	IA, IL, IN, OH, MI

Appendix C

Port/Harbor Questionnaire

Arkansas State Port/Harbor Study
Arkansas State Highway and Transportation Department
Arkansas Waterways Commission

Port/Harbor Questionnaire

A. General Information

1. **Name of Port/Harbor:** _____
2. **Contact Person:** _____ **Title:** _____

   Phone Number: _____ **Fax:** _____

   E-mail Address: _____
3. **Location of Port/Harbor (river, river mile marker):** _____
4. **Port/Harbor Owner:** _____

   Describe your Port/Harbor's Organization
   Structure (port authority, commission, other): _____

   _____
5. **Stevedore Company:** _____
6. **Current Size of Port/Harbor (acres):** _____
7. **How many acres of Port/Harbor controlled land are available for:**
   a) Industrial Development?
      On-site _____ acres
      Off-site _____ acres
   b) Commercial Development?
      On-site _____ acres
      Off-site _____ acres
8. **Do you have a Port/Harbor Master Plan?** _____
   (If yes, please provide a copy.)
9. **Do you have a Capital Improvement Plan?** _____
   (If yes, please provide a copy.)
10. **Are maps, charts and aerial photographs available for your Port/Harbor?** _____
    (If yes, please provide copies.)

B. Port/Harbor Service Area – Customers – Services Provided

1. Please describe the geographic area that your Port/Harbor serves (by counties):

   _____

   _____

2. Please list your major customers (e.g., shippers, co-ops, grain companies, forest product companies):

   _____ _____

   _____ _____

   _____ _____

   _____ _____

   _____ _____

3. Services available at this Port/Harbor (please check all that apply):

   a) Barge fleeting _____
   b) Barge cleaning _____
   c) Refueling _____
   d) Equipment rental _____
   e) Equipment repairs _____
   f) Drayage _____
   g) Towing _____
   h) Pilots _____
   i) Customs broker _____
   j) Product bagging _____
   k) Others (please list) _____

   _____

   _____

C. Existing Inbound/Outbound Commodities

1. Total inbound commodities handled (tons):
   1997 _____ 1998 _____ 1999 _____
   2000 _____ 2001 _____

   Top five inbound commodities for past 3 years:

Year 1999

Commodity	*Tonnage*	*Product Origin*[1]
1.		
2.		
3.		
4.		
5.		

Year 2000

Commodity	*Tonnage*	*Product Origin*[1]
1.		
2.		
3.		
4.		
5.		

Year 2001

Commodity	*Tonnage*	*Product Origin*[1]
1.		
2.		
3.		
4.		
5.		

   a) Please describe seasonal peaks for your major inbound commodities:

Commodity	*Peak Month(s)*	*Peak Tonnage*
1.		
2.		
3.		
4.		
5.		

2. Total outbound commodities handled (tons):

[1] Product Origin
(County/State/Country – e.g., Jefferson County, Texas, Canada)

1997 _____ 1998 _____ 1999 _____
2000 _____ 2001 _____

Top five outbound commodities for past 3 years:

Year 1999

Commodity	***Tonnage***	***Product Destination[2]***
1.		
2.		
3.		
4.		
5.		

Year 2000

Commodity	***Tonnage***	***Product Destination[2]***
1.		
2.		
3.		
4.		
5.		

Year 2001

Commodity	***Tonnage***	***Product Destination[2]***
1.		
2.		
3.		
4.		
5.		

a) Please describe seasonal peaks for your major outbound commodities:

Commodity	***Peak Month(s)***	***Peak Tonnage***
1.		
2.		
3.		
4.		
5.		

[2] Product Destination (County/State/Country – e.g., Jefferson County, Texas, Canada)

D. Potential Inbound/Outbound Commodities

1. For any major cargo losses experienced during the past five years, please describe the commodity and the suspected reasons for those losses.

_____

_____

_____

_____

2. What types of improvements in services, equipment or facilities are needed to recapture those cargo losses?

_____

_____

_____

_____

_____

3. What types of commodities would you like to handle in the <u>future</u> and what would be needed to attract the commodity to your Port/Harbor (e.g., climate control warehouse, rail service)?

Commodity	***Requirement***
1.	
2.	
3.	
4.	
5.	

E. Infrastructure, Equipment and Support Facilities

1. Status of infrastructure, current and anticipated needs, estimated cost and priority:

Infrastructure

Infrastructure	Overall Condition[3]	Needs: Number (e.g., miles, feet, size)	Needs: Estimated Cost	Needs: Priority[4]
Water Lines	_____	_____	$_____	_____
Water Tower	_____	_____	$_____	_____
Gas Lines	_____	_____	$_____	_____
Sewer Lines	_____	_____	$_____	_____
Electric Lines	_____	_____	$_____	_____
Dock	_____	_____	$_____	_____
Mooring Dolphins	_____	_____	$_____	_____
Rail				
• Main Line	_____	_____	$_____	_____
• Spur Track	_____	_____	$_____	_____
• Marshalling Yard	_____	_____	$_____	_____
• Bridge	_____	_____	$_____	_____
Road (on-site)				
• Main	_____	_____	$_____	_____
• Secondary	_____	_____	$_____	_____
• Bridge	_____	_____	$_____	_____
• At-grade Crossing	_____	_____	$_____	_____

[3] Overall Condition – Good (G)/Fair (F)/Poor (P)

[4] Priority Rating: 1) Critical – unsafe condition or could fail at any time
2) Immediate (1-2 years) – required to maintain minimal Port/Harbor operation
3) Short-term (3-5 years) – level of deficiency affects ability to serve customers needs
4) Long-term – needed to support future growth and to attract new business

2. Status of equipment, current and anticipated needs, estimated cost and priority:

Equipment

Equipment	**Overall Condition**[5]	**Needs**		
		Number	**Estimated Cost**	**Priority**[6]
Clamshell Basket	_____	_____	$_____	_____
Grapple	_____	_____	$_____	_____
Fork Lift	_____	_____	$_____	_____
Hooks	_____	_____	$_____	_____
Slings	_____	_____	$_____	_____
Spreader Bars	_____	_____	$_____	_____
Skid Loader	_____	_____	$_____	_____
Magnets	_____	_____	$_____	_____
Cranes				
• Overhead Bridge	_____	_____	$_____	_____
• Gantry	_____	_____	$_____	_____
• Mobile	_____	_____	$_____	_____
• Container	_____	_____	$_____	_____
• Crawler	_____	_____	$_____	_____
Conveyer				
• Open	_____	_____	$_____	_____
• Covered	_____	_____	$_____	_____
Other				
• _____	_____	_____	$_____	_____
• _____	_____	_____	$_____	_____

[5] Overall Condition – Good (G)/Fair (F)/Poor (P)

[6] Priority Rating: 1) Critical – unsafe condition or could fail at any time
2) Immediate (1-2 years) – required to maintain minimal Port/Harbor operation
3) Short-term (3-5 years) – level of deficiency affects ability to serve customers needs
4) Long-term – needed to support future growth and to attract new business

3. Status of support facilities, current and anticipated needs, estimated cost and priority:

Support Facilities

Facility	Overall Condition[7]	Needs		
		Number	Estimated Cost	Priority[8]
Truck Staging Area	_____	_____	$_____	_____
Truck Scale	_____	_____	$_____	_____
Transload Facility	_____	_____	$_____	_____
Rail to Barge Terminal	_____	_____	$_____	_____
Truck to Barge Terminal	_____	_____	$_____	_____
Maintenance Shop	_____	_____	$_____	_____
Bagging Facility	_____	_____	$_____	_____
Transit Shed	_____	_____	$_____	_____
Grain Bins	_____	_____	$_____	_____
Liquid Bulk Tank	_____	_____	$_____	_____
Dry Bulk Tank	_____	_____	$_____	_____
Truck Dump With Pit	_____	_____	$_____	_____
Office Building	_____	_____	$_____	_____
Fire Station	_____	_____	$_____	_____
Foreign Trade Building	_____	_____	$_____	_____
Barge Cleaning	_____	_____	$_____	_____
Fuel Depot	_____	_____	$_____	_____
Warehouse				
• Dry	_____	_____	$_____	_____
• Cold	_____	_____	$_____	_____
• Climate Control	_____	_____	$_____	_____
Other				
• _____	_____	_____	$_____	_____
• _____	_____	_____	$_____	_____

[7] Overall Condition – Good (G)/Fair (F)/Poor (P)

[8] Priority Rating: 1) Critical – unsafe condition or could fail at any time
2) Immediate (1-2 years) – required to maintain minimal Port/Harbor operation
3) Short-term (3-5 years) – level of deficiency affects ability to serve customers needs
4) Long-term – needed to support future growth and to attract new business

F. Economic Impact

Please provide the following information for use in estimating the economic impact of your Port/Harbor:

1. Port/Harbor Employment
   Full time employees (number) _____
   Part time employees (number) _____
   Annual payroll $_____

2. How many persons would you estimate work at your Port/Harbor, but are employed by others? _____

3. How many businesses would you estimate depend on the Port/Harbor services? _____

4. What are the primary sources of revenues for the Port/Harbor? _____
   _____

5. Annual Expenditures

Supplies/materials/tools	$_____
Fuel	$_____
Dock Operations	$_____
Repairs/Maintenance-of-way	$_____
Lease/Rentals	$_____
Insurance	$_____
Administration	$_____
Other	$_____

G. Access Issues

Landside

1. How many miles is your Port/Harbor from the nearest:
   Interstate Highway (name)_____
   U.S. Highway (name) _____
   Class I Railroad Line (name)_____
   Any Problems?_____
   _____

2. For the major road to access your Port/Harbor are there any problems with:
   a) Condition (pavement)? _____
   b) Capacity (lane width)?_____
   c) Bridge (weight limits)? _____
   d) Signage to Port/Harbor? _____
   e) Name of Road _____

3. Do you have rail service? _____
   If so, by which railroad (s): _____
   _____
   Any problems with service or lack of service? _____
   _____

Waterside Access

4. Maintained depth of channel _____ (feet).
   Length of channel width _____ (feet).
   Any problems?_____

5. Turning basin maximum length _____ (feet) maximum
   Width _____ (feet).
   Any problems?_____

6. Mean depth at dock _____ (feet)
   Any problems?_____

7. Dredging problems?_____

8. Largest vessel and number of barges that can be accommodated _____
   Any problems?_____

H. Port/Harbor Development Issues

Infrastructure

1. What is your top infrastructure repair or replacement need to retain existing business?
   _____
2. What is your top future infrastructure need to attract new business?_____
   _____

Equipment

1. What is your top equipment repair or replacement need to retain existing business?
   _____
2. What is your top future equipment need to attract new business?_____
   _____

Support Facility

1. What is your top support facility repair or replacement need to retain existing business? _____
2. What is your top future support facility need to attract new business? _____
   _____

Other

1. What are your major disadvantages when competing for new cargo shipments or industrial development (freight rates, equipment condition, highway or rail access):

   _____ _____

   _____ _____

   _____ _____

2. What would it take for your Port/Harbor to develop its maximum potential?

   _____

3. Please describe any laws, regulations or environmental constraints that may be impeding your Port/Harbor growth:

   _____

4. Is the lack of rail/truck/barge intermodal service a major impediment to your current operation?

   If yes, please describe: _____

   _____

5. What is needed for Arkansas' ports and harbors to effectively compete in the global economy (foreign shipments)?

   _____

6. What is the best way to market the advantages of Arkansas' ports and harbors?

   _____

   _____

7. How can state government best support growth and development at your Port/Harbor?

   _____

Thank you for taking the time to complete this survey. Your participation enables us to better plan for Arkansas' ports and harbors.

Cliff McKinney
Arkansas State Highway and
Transportation Department

Keith Garrison
Arkansas Waterways Commission

CM:md:8/02

Appendix D

Estimated Cost for Port Needs

Port of Osceola

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
Dock Operations:					
Winching System	$545,000	-	-	-	$545,000
Mooring Dolphins Repair	$175,000	-	-	-	$175,000
Larger Pier	-	-	-	$365,000	$365,000
On-Site Road Improvements:					
Pave Port Road	$220,000	-	-	-	$220,000
Port Operations:					
Maintenance Shop	-	$25,000	-	-	$25,000
Estimated Infrastructure Needs	**$940,000**	**$25,000**	**-**	**$365,000**	**$1,330,000**
Equipment					
Cargo Handling Equipment:					
Mobile Crane	-	-	$150,000	-	$150,000
Telescoping Spout	-	-	-	$120,000	$120,000
Estimated Equipment Needs	**-**	**-**	**$150,000**	**$120,000**	**$270,000**
Support Facilities					
Cargo Transfer Facilities:					
Truck-to-Barge Terminal	$580,000	-	-	-	$580,000
Truck Dump Pit	$150,000	-	-	-	$150,000
Storage Facilities:					
Grain Storage Bins	$815,000	-	-	$815,000	$1,630,000
Estimated Support Facility Needs	**$1,545,000**	**-**	**-**	**$815,000**	**$2,360,000**
Total Estimated Needs	**$2,485,000**	**$25,000**	**$150,000**	**$1,300,000**	**$3,960,000**

Port of West Memphis

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
Port Operations:					
Various On-Site Improvements	-	$150,000	-	-	$150,000
Estimated Infrastructure Needs	**-**	**$150,000**	**-**	**-**	**$150,000**
Equipment					
Cargo Handling Equipment:					
To Support Floating Dock Operation	$120,000	-	-	-	$120,000
To Enhance Fixed Dock Operation	-	$120,000	-	-	$120,000
Estimated Equipment Needs	**$120,000**	**$120,000**	**-**	**-**	**$240,000**
Support Facilities					
Storage Facilities:					
Storage Facility	-	$1,000,000	-	-	$1,000,000
Estimated Support Facility Needs	**-**	**$1,000,000**	**-**	**-**	**$1,000,000**
Total Estimated Needs	**$120,000**	**$1,270,000**	**-**	**-**	**$1,390,000**

Helena Harbor

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
Dock Operations:					
Cover for Dock	-	-	$1,250,000	-	$1,250,000
Dock Extension	-	-	-	$500,000	$500,000
Rail:					
Rail Marshalling Yard	$750,000	-	-	-	$750,000
Estimated Infrastructure Needs	**$750,000**	**-**	**$1,250,000**	**$500,000**	**$2,500,000**
Equipment					
Cargo Handling Equipment:					
Grain Hopper and Conveyor	$1,000,000	-	-	-	$1,000,000
Crane Extension to Railroad	-	-	$2,500,000	-	$2,500,000
Estimated Equipment Needs	**$1,000,000**	**-**	**$2,500,000**	**-**	**$3,500,000**
Support Facilities					
Storage Facilities:					
Climate Controlled Warehouse	-	$500,000	-	-	$500,000
Estimated Support Facility Needs	**-**	**$500,000**	**-**	**-**	**$500,000**
Total Estimated Needs	**$1,750,000**	**$500,000**	**$3,750,000**	**$500,000**	**$6,500,000**

Yellow Bend Harbor

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
On-Site Road Improvements:					
Pave Road and Parking Lot	$2,000,000	-	-	-	$2,000,000
Port Operations:					
Harbor Expansion	-	$4,000,000	-	-	$4,000,000
New Office Building	-	-	-	$500,000	$500,000
Rail:					
Railroad Line to Harbor	$10,700,000	-	-	-	$10,700,000
Rail Marshalling Yard	$2,500,000	-	-	-	$2,500,000
Estimated Infrastructure Needs	**$15,200,000**	**$4,000,000**	**-**	**$500,000**	**$19,700,000**
Equipment					
Cargo Handling Equipment:					
Conveyor Belt and Loading and Unloading Hoppers	-	$1,000,000	-	$1,100,000	$2,100,000
Mobile Crane	-	-	$150,000	-	$150,000
Estimated Equipment Needs	**-**	**$1,000,000**	**$150,000**	**$1,100,000**	**$2,250,000**
Support Facilities					
Cargo Transfer Facilities:					
Rail/Barge Terminal	$3,000,000	-	-	-	$3,000,000
Storage Facilities:					
Warehouses with Rail Sidings	-	$2,700,000	-	-	$2,700,000
Bagging Facility	-	-	$600,000	-	$600,000
Climate Controlled Warehouse	-	-	-	$3,500,000	$3,500,000
Fertilizer Warehouse	-	-	-	$900,000	$900,000
Estimated Support Facility Needs	**$3,000,000**	**$2,700,000**	**$600,000**	**$4,400,000**	**$10,700,000**
Total Estimated Needs	**$18,200,000**	**$7,700,000**	**$750,000**	**$6,000,000**	**$32,650,000**

Port of Fort Smith

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
Dock Operations:					
Dock Repairs and Expansion	-	$2,000,000	-	-	$2,000,000
On-Site Road Improvements:					
Road Improvements	-	$800,000	-	-	$800,000
Port Operations:					
Flood Protection for Warehouse	-	$400,000	-	-	$400,000
Various Other On-Site Improvements	-	-	$400,000	-	$400,000
Rail:					
Repairs to Rail Spur Lines	$770,000	-	-	-	$770,000
Rail Line Extension	-	$700,000	-	-	$700,000
Estimated Infrastructure Needs	**$770,000**	**$3,900,000**	**$400,000**	**-**	**$5,070,000**
Equipment					
Cargo Handling Equipment:					
Forklifts	-	-	$200,000	-	$200,000
Replace Existing Cargo Handling Equipment	$850,000	-	-	-	$850,000
Estimated Equipment Needs	**$850,000**	**-**	**$200,000**	**-**	**$1,050,000**
Support Facilities					
Storage Facilities:					
Additional Warehouses and Outside Storage	$280,000	$2,000,000	$500,000	-	$2,780,000
Estimated Support Facility Needs	**$280,000**	**$2,000,000**	**$500,000**	**-**	**$2,780,000**
Total Estimated Needs	**$1,900,000**	**$5,900,000**	**$1,100,000**	**-**	**$8,900,000**

Little Rock Port Complex

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
Dock Operations:					
Fuel Pier Depot	$320,000	-	-	$320,000	$640,000
Mooring Dolphins Repair	-	-	-	$500,000	$500,000
On-Site Road Improvements:					
Highway/Railroad Crossing Repairs	-	$230,000	-	-	$230,000
Port Operations:					
Expansion of Foreign Trade Zone Building	-	$100,000	-	-	$100,000
Office Building Expansion	-	-	-	$100,000	$100,000
Rail:					
Railroad Main Line Repairs	$3,600,000	-	-	-	$3,600,000
Railroad Spur Line Repairs	-	-	$3,000,000	-	$3,000,000
Marshalling Yard Expansion	-	-	-	$3,100,000	$3,100,000
Utilities:					
Electrical Line Expansion	-	-	$100,000	-	$100,000
Water Line Extension	-	-	-	$180,000	$180,000
Estimated Infrastructure Needs	**$3,920,000**	**$330,000**	**$3,100,000**	**$4,200,000**	**$11,550,000**
Equipment					
Cargo Handling Equipment:					
Container Crane	-	-	-	$1,000,000	$1,000,000
Forklifts	-	-	-	$200,000	$200,000
Estimated Equipment Needs	**-**	**-**	**-**	**$1,200,000**	**$1,200,000**
Support Facilities					
Cargo Transfer Facilities:					
Truck-to-Barge Terminal (Harbor)	$30,000	-	-	-	$30,000
Storage Facilities:					
Dry Bulk Tank	$200,000	-	-	-	$200,000
Transit Shed	-	$150,000	-	-	$150,000
Expansion of Bagging Facility	-	-	$50,000	-	$50,000
Warehouses and Outdoor Storage	-	-	-	$525,000	$525,000
Estimated Support Facility Needs	**$230,000**	**$150,000**	**$50,000**	**$525,000**	**$955,000**
Total Estimated Needs	**$4,150,000**	**$480,000**	**$3,150,000**	**$5,925,000**	**$13,705,000**

Port of Pine Bluff

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
Dock Operations:					
Mooring Dolphins Repair	-	-	$75,000	-	$75,000
Dock Extension	-	-	-	$25,000	$25,000
On-Site Road Improvements:					
Truck Staging Area	-	-	$65,000	-	$65,000
Port Operations:					
Office Building	-	-	$58,000	-	$58,000
Other On-Site Improvements	-	$250,000	$250,000	-	$500,000
Rail:					
New Spur Rail Track	-	$150,000	-	-	$150,000
Rail Line Extension	-	$150,000	-	-	$150,000
Estimated Infrastructure Needs	**-**	**$550,000**	**$448,000**	**$25,000**	**$1,023,000**
Equipment					
Cargo Handling Equipment:					
Covered Conveyor	$120,000	-	-	-	$120,000
Replace Existing Cargo Handling Equipment	$850,000	-	-	-	$850,000
Skid Loader	-	$90,000	-	-	$90,000
Forklifts	-	-	$270,000	-	$270,000
Crawler Crane	-	-	$142,000	-	$142,000
Estimated Equipment Needs	**$970,000**	**$90,000**	**$412,000**	**-**	**$1,472,000**
Support Facilities					
Cargo Transfer Facilities:					
Transload Facility	-	$55,000	-	-	$55,000
Truck Dump with Pit	-	-	$40,000	-	$40,000
Storage Facilities:					
Dry Warehouse	$230,000	-	-	-	$230,000
Liquid Bulk Tanks	-	-	-	$250,000	$250,000
Other Storage Facilities	-	-	$1,800,000	-	$1,800,000
Estimated Support Facility Needs	**$230,000**	**$55,000**	**$1,840,000**	**$250,000**	**$2,375,000**
Total Estimated Needs	**$1,200,000**	**$695,000**	**$2,700,000**	**$275,000**	**$4,870,000**

Port of Crossett

Item	Priority of Need				Total
	Critical	Immediate	Short-Term	Long-Term	
Infrastructure					
Dock Operations:					
Mooring Dolphins Repair	$950,000	-	-	-	$950,000
New Mooring Dolphins	-	-	$1,000,000	-	$1,000,000
Rail:					
Rail Line to Port	-	-	$9,000,000	-	$9,000,000
Utilities:					
Water Line Expansion	-	-	$700,000	-	$700,000
Electrical Line Extension	-	-	-	$1,000,000	$1,000,000
Sewer Line Extension	-	-	-	$700,000	$700,000
Estimated Infrastructure Needs	**$950,000**	**-**	**$10,700,000**	**$1,700,000**	**$13,350,000**
Equipment					
Cargo Handling Equipment:					
Overhead Bridge Crane	$1,400,000	-	-	-	$1,400,000
Open and Covered Conveyor	-	-	-	$2,400,000	$2,400,000
Estimated Equipment Needs	**$1,400,000**	**-**	**-**	**$2,400,000**	**$3,800,000**
Support Facilities					
Cargo Transfer Facilities:					
Container Yard with Container Crane	$990,000	-	-	-	$990,000
Truck-to-Barge Terminal	-	$600,000	-	-	$600,000
Storage Facilities:					
Bagging Facility	$750,000	-	-	-	$750,000
Warehouses	$410,000	-	-	-	$410,000
Climate Controlled Warehouse	-	$2,400,000	-	-	$2,400,000
Liquid Terminal	-	-	$300,000	-	$300,000
Estimated Support Facility Needs	**$2,150,000**	**$3,000,000**	**$300,000**	**-**	**$5,450,000**
Total Estimated Needs	**$4,500,000**	**$3,000,000**	**$11,000,000**	**$4,100,000**	**$22,600,000**

Appendix E

Transportation Glossary

Transportation Glossary

AAR – Association of American Railroads

AASHTO – American Association of State Highway and Transportation Officials

abandonment – decision of a carrier to discontinue service over a route (Surface Transportation Board permission is required)

accessorial service – service rendered by a carrier, other than a transportation service, such as warehousing service

ADT – Average Daily Traffic

air cargo – freight, mail and express packages transported by air

AMTRAK – the nation's rail passenger service

back haul – the return movement of a vehicle from the shipment's destination to its origin

barge – a flat-bottomed vessel used chiefly on inland waterways to transport commodities. Four common types:

- open hopper – a barge with an open cargo area used to carry materials like coal, crushed rock, scrap metal or any material that does not need to be protected from the weather
- covered hopper – a barge like an open hopper except with a watertight cover to protect the cargo in the hold from the weather, commonly used to carry commodities such as grains and dry chemicals
- deck – a barge with no cargo hold, but with a heavily plated, well supported deck to which cargo is tied, commonly used to move machinery, construction materials, or heavy equipment
- tank – a barge used to transport liquids like petroleum products and liquid chemicals

barge fleeting area – temporary mooring area used to make up multi-barge tows

bill of lading – a contract document between carrier and shipper

broker – an intermediary between the shipper and the carrier

breakbulk – the separation of a bulk load into smaller shipments

cargo – four types

- bulk cargo – basic commodities in an unpacked condition (grains, coals, or other materials that are voluminous and loose)
- general cargo – large units of semi- or manufactured commodities which are packaged (boxes, drums) or self packaged.
- neo-bulk cargo –a limited number of commodities such as scrap metal, lumber, automobiles, or paper
- outside cargo – general cargo that is so heavy or large it cannot be accommodated or handled by normal means and requires use of special loading and/or transportation equipment

cargo movements – three types

- online movements – cargo is transported by a single carrier
- single mode movements – cargo is transported by one or more carriers of a single mode
- intermodal movements – cargo is transported by two or more modes, involving the transfer of cargo between modes

circuitous route – indirect freight route

CL – carload or container load

Class I Railroad – railroad that provides national rail service

Class II Railroad – railroad that provides regional rail service (none in Arkansas)

Class III Railroad – railroad that provides local rail service

COFC - container on (rail) flatcar

consignee – party to whom articles are shipped

common carrier – for-hire carrier that serves the general public

consignor – party by whom articles are shipped

container terminal – area designated for the storage of containerized freight

contract carrier – for-hire carrier that serves shippers through contract arrangements

Customs duties (or tariff) – amount payable to the government on goods imported or exported

dead head – one leg of a freight movement on which the trailer or container is empty

demurrage – a fee levied by a shipping company when shipping equipment (railcar, container, etc.) in which goods were shipped is detained and not returned by a specified date agreed upon by contract

distribution warehouse – a warehouse used to store finished goods and to assemble customer orders

dock – a general term for a structure at which vessels berth or tie-up

double lockage – a method for moving a large tow through a lock with a smaller capacity by breaking the tow in half and sending half at a time

double stack – stacking containers, frequently with different lengths, on a rail car

draft – the depth to which a vessel lies below the water surface

drayage – freight hauled by a motor carrier

exclusive use – carrier vehicles assigned to a specific shipper for its sole use

FHWA – Federal Highway Administration

Foreign Trade Zone – designated area where imported goods or products for export can be stored, displayed, sold and/or manufactured without being subject to certain quota restrictions and some Customs formalities

FRA – Federal Railroad Administration

freight forwarder – a person engaged in consolidating small shipments of goods for transport as a single shipment

gateway – point where freight moving between territories is interchanged

harbor – an area of water off the main channel and out of the current

head of navigation – the farthest point for navigation from the mouth of a river

inland waterways – the system of lakes, streams, rivers, canals, etc. used to transport freight

interchange – transfer of cargo between carriers

intermodal transfer – transfer of commodities between two modes

intermodal transportation facility – freight exchange terminal that also provides warehousing and transfer loading

JIT (just-in-time) – inventory system used by manufacturers and distributors to minimize levels of inventories, for which reliable transportation is essential

LCL – shipments of less than rail carload volume

lead time – total time that elapses from placement of an order until the goods are received

line haul – movement of freight from one point to another

lock – a structure built in a river to allow movement between two pools of water with different elevation heights

logistics channel – network of intermediaries engaged in transfer, storage, handling and communication functions that contribute to the efficient flow of goods

LTL – less than truckload (shipment)

multimodal – moving cargo from origin to destination by more than one freight transportation mode

outsourcing – contracting with an outside firm for services (e.g., shipping, packaging, storage, billing and/or inventory control)

piggyback – shipment of truck trailers and containers on railroad flatcars; also called TOFC (trailer on flat car)

port – an area with marine terminal facilities for transferring cargo between marine vessels and land transportation

port terminal – waterfront buildings, structures and equipment used for the transfer, handling, delivery and reception of waterborne freight

rail cars – seven types:

- box car – closed car used for hauling freight
- compartmentizer car – box car equipped with movable bulkheads which can be used to divide the car into separate compartments
- compartment tank car – tank car which has compartments or separate tanks in which different kinds or grades of liquids may be transported
- flat car – car without sides, top or ends, used for machinery, stone, etc.
- gondola – open top car having sides and ends
- hopper car – car with floor sloping to one or more hoppers through which contents may be unloaded by gravity
- tank car – car used for transporting bulk liquids

relay terminal – motor carrier terminal where a fresh driver is substituted for a driver who has driven the maximum hours permitted

river mile – the location of a marine activity based upon the distance along the deepest part of the navigation channel as measured from the mouth of the river

seamless service – level of cooperation among intermodal carriers that makes the modal transfer smooth and effortless with no shipment delay

shippers – individuals or businesses that purchase transportation services for their goods or commodities

shippers' association – a non-profit entity that represents the interests of a number of shippers

side tracks – rail tracks used for storage, loading or unloading which connect with other railroad tracks

spur tracks – rail tracks extending from and connected at only one end with another track

stevedore – a person or company employed to load or unload waterborne cargo

tariff – also called a customs duty

team track – rail tracks on which rail cars are placed for the use of the public in loading and unloading freight

TEU – Twenty Foot Equivalent Unit. A TEU is equivalent to a 20-foot container

through movement – shipment of a container inspected and sealed by Customs at the factory site and then transported without the need of further inspection until arrival at the destination

TL – truckload (shipment)

TOFC – trailer on flatcar (also called piggyback service)

tow – barges and a towboat tied together, acting as a single vessel with the towboat as the power unit

towboat – a compact shallow-draft vessel with square bow for pushing tows of barges on inland waterways

tramp loading site – loading site that allows for transfers of bulk commodities and containers between trucks and trains

transit shed – a building designed to provide temporary accommodations and sorting space for cargo being transferred to or from a vessel

transit time – total time that elapses from pickup to delivery of a shipment

unit trains – large shipments treated as a single unit (e.g., a multi-car train where all cars carry wood chips to a paper mill)

wharfage – a charge assessed by a pier or dock owner on freight handled over the pier or dock

warehouse – a building in which goods may be stored over such a period of time as necessary to make further distribution

Appendix F

Act 1546

State of Arkansas *As Engrossed: S3/21/01 S3/26/01*
83rd General Assembly **A Bill** **Act 1546 of 2001**
Regular Session, 2001 HOUSE BILL 1696

By: Representatives Lowery, House, Jackson, Jacobs, Lewellen, C. Johnson, Agee, Allison, Bennett, Biggs, Bevis, Bond, Bookout, Childers, Clemons, Boyd, Carson, Eason, Glover, Green, Ferguson, Gipson, French, Hickinbotham, King, Milligan, Prater, Nichols, Oglesby, Scrimshire, Seawel, Shoffner, Thomas, M. Steele, Trammell, W. Walker, T. Steele, Weaver, White, Willis, Wood, Creekmore, Bolin, Dangeau, Cowling, M. Smith, Dees, Mathis, J. Taylor, Bradford, Ormond, *Jones, Gillespie, Holt, Verkamp, G. Jeffress*
By: Senators Wilkins, Fitch, Simes, *Gullett, J. Jeffress, Horn*

For An Act To Be Entitled

AN ACT TO AMEND ARKANSAS CODE TITLE 15, CHAPTER 23 TO ADD A SUBCHAPTER 9 TO ESTABLISH A PROGRAM FOR PUBLIC PORT AUTHORITIES IN ARKANSAS TO FUND PUBLIC PORT INFRASTRUCTURE IMPROVEMENTS; AND FOR OTHER PURPOSES.

Subtitle

TO ESTABLISH A PROGRAM FOR PUBLIC PORT AUTHORITIES IN ARKANSAS TO FUND PUBLIC PORT INFRASTRUCTURE IMPROVEMENTS.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code Title 15, Chapter 23, is amended to add an additional subchapter to read as follows:

15-23-901. Title.

This subchapter shall be known and cited as the "Arkansas Port Priority Improvement Program Act".

15-23-902. Definitions.

As used in this subchapter, unless the context otherwise requires:

(1) "City" means any city of the first class, any city of the second class, or any incorporated town established by the laws of the State of Arkansas;

(2) "County" means any county in the State of Arkansas;

(3) "Port Priority Improvement Program" means a governmental program to award funds to port authorities to encourage the development of port infrastructure, including the engineering and construction; and

(4) "Public Port Authority" or "port authority" means:

(A) A port authority created under the Metropolitan Port Authority Act of 1961, beginning at Arkansas Code 14-185-101;

(B) A municipal port authority created under Arkansas Code Title 14, Chapter 186; and

(C) An authority created under the Regional Intermodal Facilities Act, beginning at Arkansas Code 14-143-101.

15-23-903. Fund created.

There is created on the books of the Treasurer of State, the Auditor of State, and the Chief Fiscal Officer of the State a fund to be known as the "Port Priority Improvement Fund", to consist of the funds or other monies that may be deposited therein as provided by the General Assembly, to be used by the Arkansas Waterways Commission for the purpose of providing financial assistance to public port authorities in the manner provided in this subchapter and for development of port infrastructure, including engineering and construction costs.

15-23-904. Authority to establish programs.

(a) The Arkansas Waterways Commission, working in partnership with the Arkansas Department of Economic Development, may establish by rules and regulations the criteria of eligibility for awarding funds to any public port authority to aid in the development of port infrastructure, including the engineering and construction costs.

(b) The rules and regulations shall be reviewed by the House Interim Committee on Public Transportation and the Senate Interim Committee on Public Transportation, Aging, and Legislative Affairs.

15-23-905. Port Priority Improvement Program.

The Arkansas Waterways Commission's rules and regulations for the program shall, as a minimum:

(1) Provide for the Arkansas Waterways Commission to administer the program authorized under this subchapter;

(2) Require the Arkansas Waterways Commission to take the necessary actions to ensure that the funds are used for the purposes for which they are to be awarded and that they are expended in accordance with all state laws and local ordinances and procedures and regulations;

(3) Specify the procedure for receiving applications, who is eligible to apply, the goals and objectives of the program for public port infrastructure development, and the procedures for awarding funds;

(4) Require the port authority to file a performance review report with the Arkansas Waterways Commission for three (3) consecutive years following completion of the project comparing actual benefits with the projected benefits associated with the project as stated in the application for funding.

(5) Require that each public port authority provide matching funds equal to at least ten percent (10%) of the estimated cost of the port infrastructure project for which an application is made;

(6) Provide that eligible port infrastructure development projects shall be only for capital improvement projects, and shall not be used for any routine maintenance or operational expenses; and

(7) Provide that no individual port shall receive more than twenty percent (20%) of the total amount available for public port infrastructure development projects.

15-23-906. Application and award.

(a) The Arkansas Waterways Commission shall promulgate the application format to be used in applying for funding through the public port infrastructure program.

(b) All applications shall be submitted as required by the establishing rules and regulations.

(c) After receipt of the application, the Arkansas Waterways Commission, working in partnership with the Arkansas Department of Economic Development, shall review the applications and shall select the applications

by rank order which will best fulfill the goals and objectives of the public port infrastructure development program as described by the program's rules and regulations. The commission shall then make awards to the applicants based on their rank order on the list of applications.

(d) The projects may be funded until all funds available for this purpose have been expended.

/s/ Lowery

APPROVED: 4/12/2001

Arkansas State Public Riverport Study and Needs Assessment

Arkansas State Highway and Transportation Department
Planning and Research Division