

Yellow Bend Slackwater Harbor Study

Phase II

Chicot and Desha Counties

March 2004



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Slackwater Harbor Study
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Prepared by
Planning and Research Division
Arkansas State Highway and Transportation Department

In cooperation with
Federal Highway Administration
Chicot-Desha Metropolitan Port Authority

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Section I Introduction

Scope of Work

The Yellow Bend Slackwater Harbor (Yellow Bend Harbor) is an important part of the freight transportation system in southeastern Arkansas, providing a cost-effective means for shipping the region's bulk commodities. The harbor, however, is currently underutilized with regard to its potential.

A previous study of the Yellow Bend Harbor (Phase I) was completed in 2001.

This report is Phase II of the study into methods for increasing usage of the harbor by local shippers and receivers and suggests ways that the harbor may better serve the region by attracting new economic activities. The analysis includes a review of existing facilities and services, an examination of current commodities handled and the potential for new cargo shipments, and the identification of strategies to help develop the harbor as a prime location for obtaining waterborne transportation services.

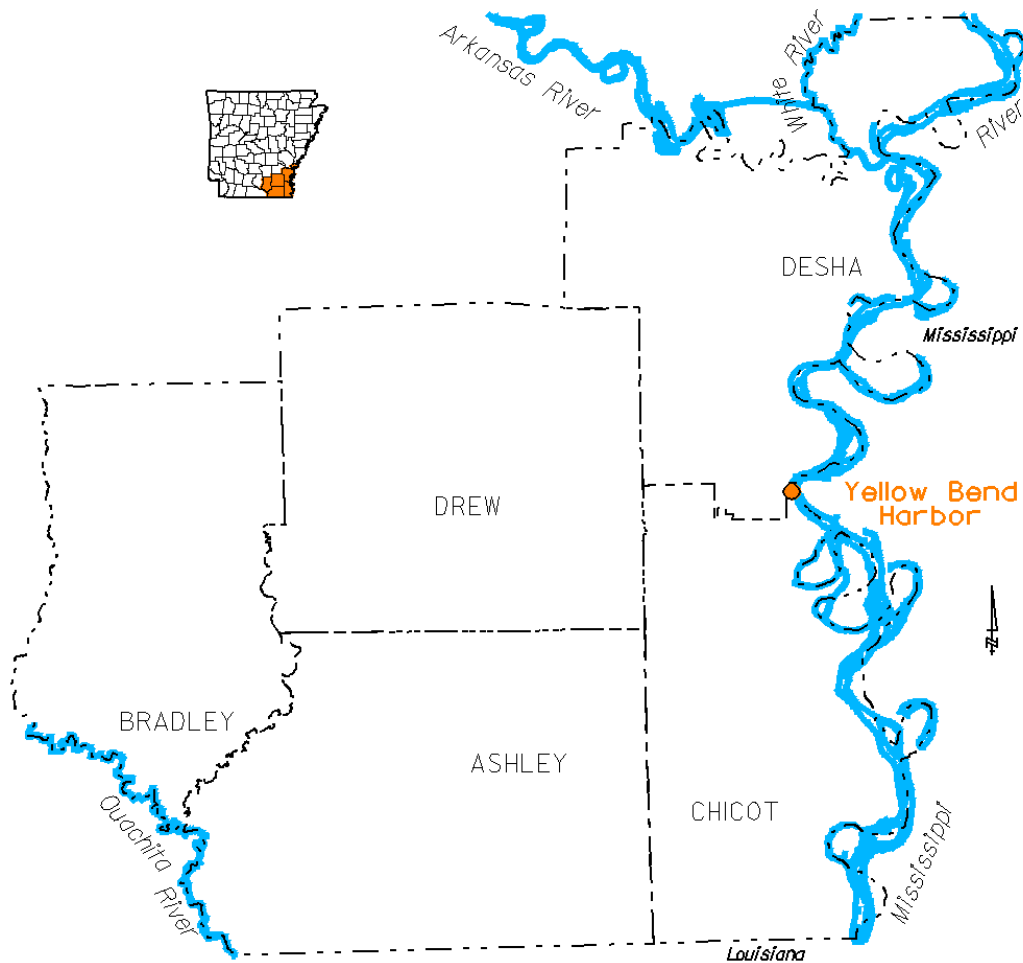
Study Authorization

Arkansas Highway Commission Minute Order 95-210 authorized the study of the freight modes serving southeast Arkansas and the identification of possible freight transportation enhancements.

Study Area

A typical service area for rural river harbors similar to the Yellow Bend Harbor is approximately 60 miles. The harbor's main service area includes the counties of Ashley, Bradley, Chicot, Desha and Drew, as shown in Figure 1-1.

Figure 1-1
Study Area



Study Findings

Major findings from this study include:

✓ **Transportation Location Advantage**

Transportation advantages offered by the Yellow Bend Harbor to its shippers are: (1) its prime location for import/export shipments via the Mississippi River to the Gulf of Mexico and the deepwater ports located there; (2) waterborne transit fees that

are lower than charges for rail or truck transportation; and (3) economies of scale that can be realized from transporting large volumes of cargo.

✓ Harbor Amenities

Yellow Bend Harbor's facilities are designed to transfer cargo between freight modes and include a 40-ton overhead gantry crane that allows the movement of cargo between the warehouse and barges and a hydraulic truck dump.

✓ Commodities

Leading commodities handled at the harbor are field crops (e.g., corn, wheat, rice and soybeans) and basic earth materials.

✓ Freight Movements

The principal domestic shipping patterns for this part of the State are shown in Figures 1-2 and 1-3.

- The Deep South Region (i.e., Florida, Georgia, North Carolina, South Carolina, and Alabama) provides the highest volume of inbound freight. Trucks are the leading choice for transporting inbound freight, carrying almost 86 percent. Rail is selected for almost 12 percent of inbound shipments and water is used for a little over 2 percent of the freight that travels into the area.
- The Deep South Region also receives the largest amount of freight shipments from this area. Truck transportation (84%) is the chief mode for outbound shipments, followed by rail with almost 10 percent and water with just under 6 percent.
- Potential new cargo shipments are possible for the Yellow Bend Harbor and include commodities such as industrial and agricultural chemicals, primary forest material, grain mill products, field crops, and prefabricated wood products.

✓ Landside Access

The lack of railroad access to the harbor impedes the flow of freight and industrial development efforts. Although recommended in a past study, a rail line to the harbor has yet to be constructed. Also, highway improvements could facilitate the harbor in meeting its maximum potential. Some segments of highways leading to the harbor have inadequate lane or shoulder widths. One bridge has a fairly low sufficiency rating.

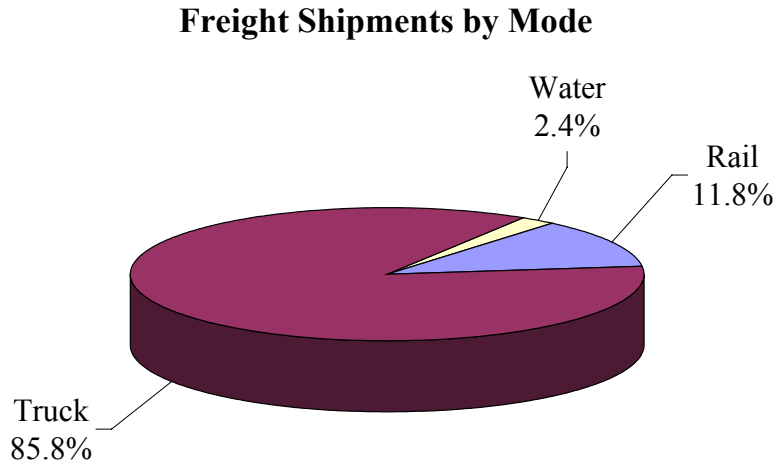
✓ Development Strategies

Strategies were developed to increase usage of the harbor by regional shippers.

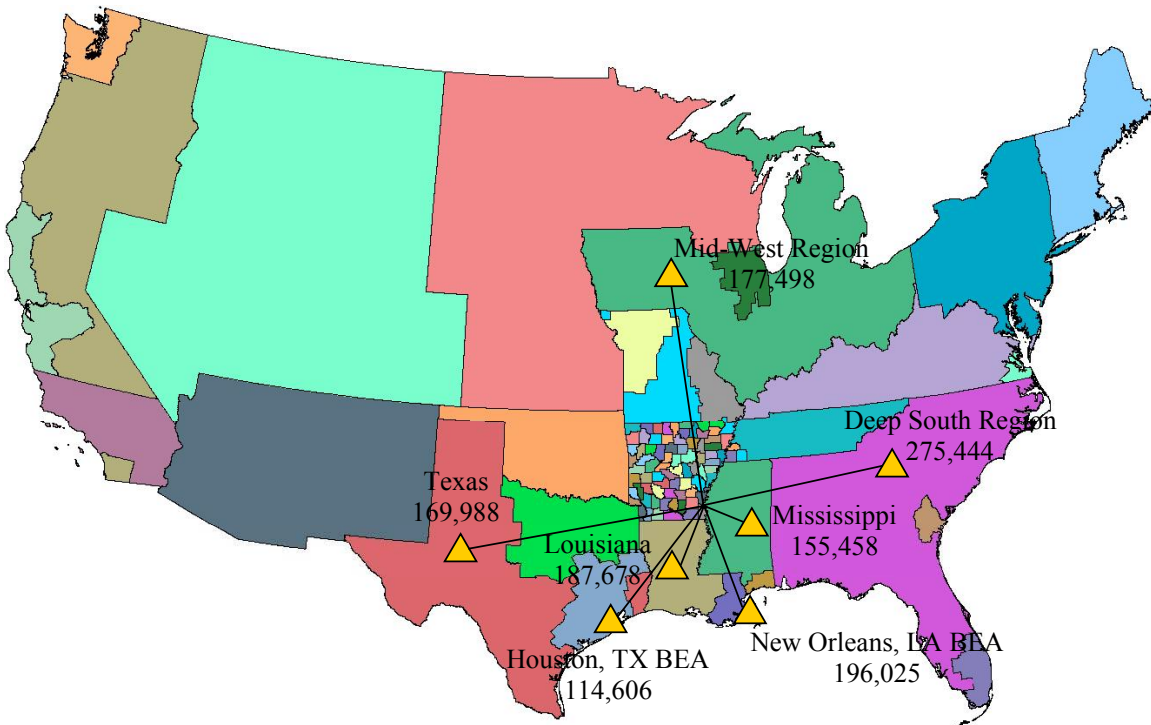
Key Strategies

- ✓ Acquire Additional Property for Industrial Development
- ✓ Expand the Harbor Basin Area
- ✓ Improve Landside Access
- ✓ Enhance Warehousing and Cargo Handling Capabilities

**Figure 1-2
Inbound Domestic Freight Patterns
(Annual Tonnage)**



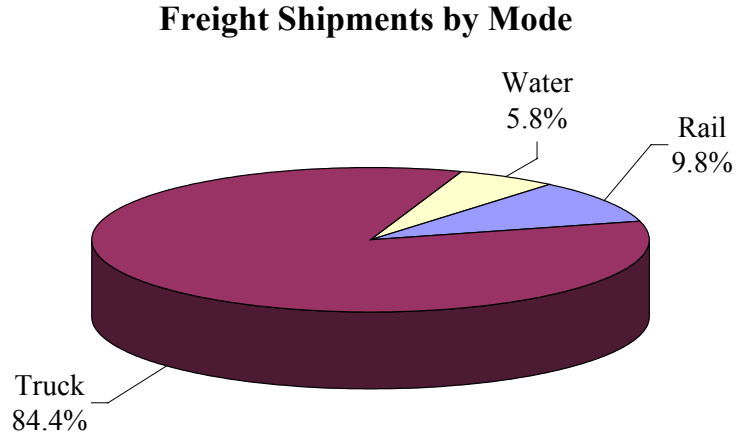
Leading Out-of-State Freight Origins



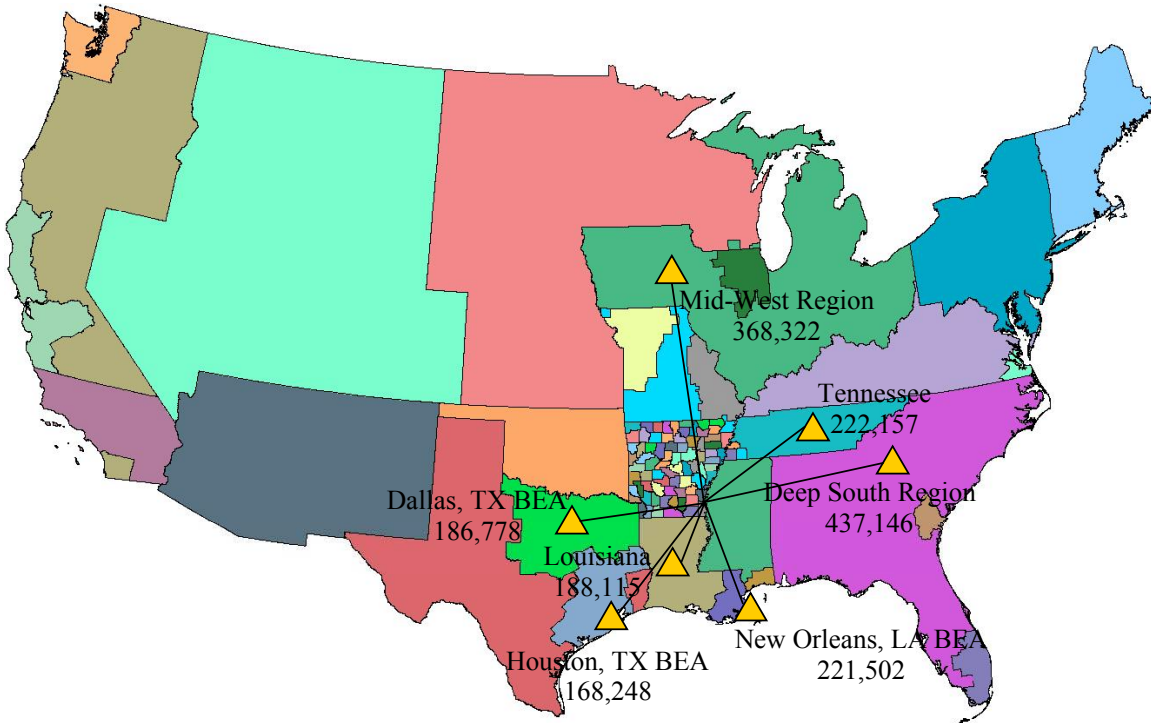
Source: Freight Goods Movement Database

Note: A Business Economic Area (BEA) is defined by the U.S. Department of Commerce as a group of counties or parishes that share similar economic characteristics.

**Figure 1-3
Outbound Domestic Freight Patterns
(Annual Tonnage)**



Leading Out-of-State Freight Destinations



Source: Freight Goods Movement Database

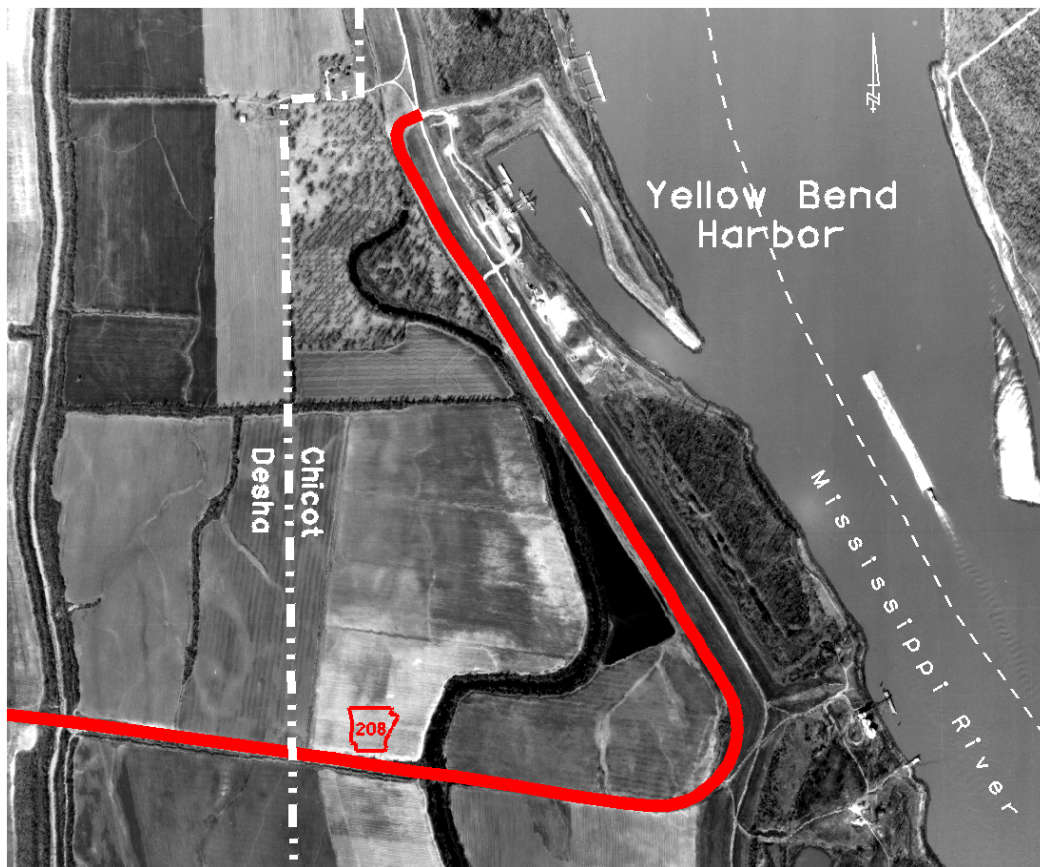
Section II Yellow Bend Harbor – Existing Conditions

A review of the existing conditions at the Yellow Bend Harbor was conducted. The analysis included: (1) an overview of the harbor; (2) the identification of the harbor's service area; (3) an assessment of the harbor's location; (4) an examination of existing facilities and equipment; (5) a review of the present landside access (highway and railroad); and (6) the identification of the current commodities handled.

Overview

Yellow Bend Harbor is located on Highway 208 near the Chicot/Desha County line at River Mile 553.0 on the Mississippi River (Figure 2-1). Completed in September 1993, it is operated as a public terminal where anyone may ship or receive goods or use its facilities. The harbor's primary purpose is to serve agricultural operations in the region.

**Figure 2-1
Harbor Area**

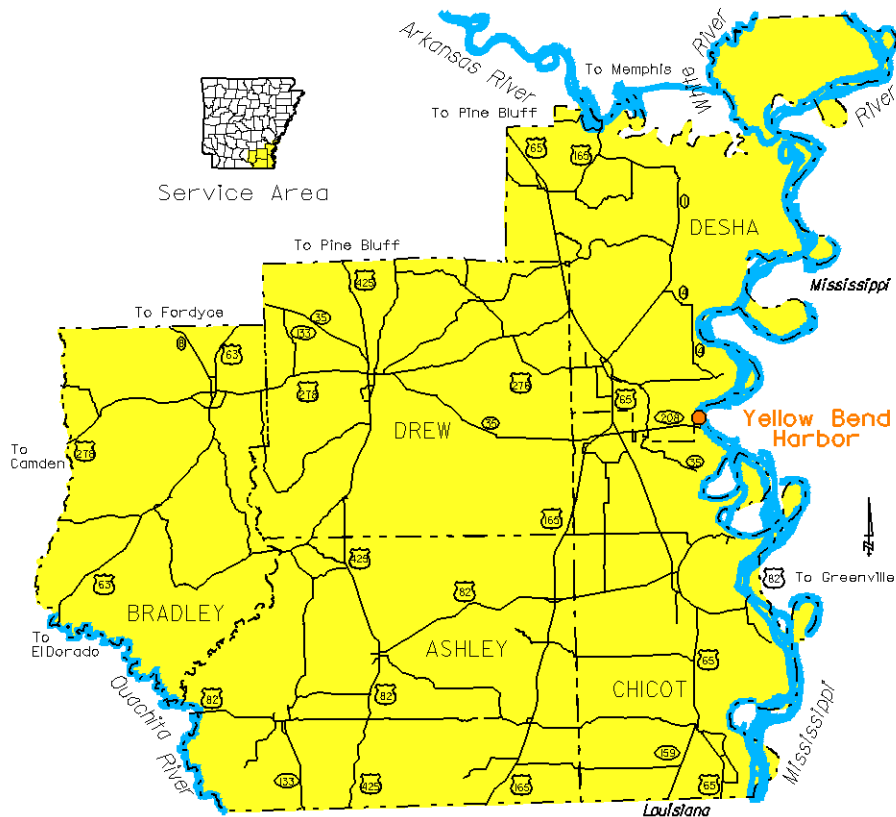


The Chicot-Desha Metropolitan Port Authority, which oversees the harbor, currently leases harbor operation to a private stevedore, Bruce Oakley, Inc. Major commodities handled include field crops and basic earth materials.

Harbor Service Area

Based on a review of available literature, rural river harbors similar to the Yellow Bend Harbor have a primary service radius of 60 miles. However, shippers from greater distances will use a rural harbor if needed facilities and services are available. The Harbor’s primary service area includes Ashley, Bradley, Chicot, Desha and Drew counties, as shown in Figure 2-2.

**Figure 2-2
Harbor Service Area**



Harbor Location

The Yellow Bend Harbor is located on the Mississippi River, which is part of the nation’s inland waterway system. This system provides a viable means for transporting bulk commodities within the United States and for accessing deepwater ports for overseas shipments. It reaches from the Great Lakes to the Gulf of Mexico and accesses over 20 states. Figure 2-3 illustrates potential market areas for waterborne commerce from the harbor’s service area and typical river barge transit times.

**Figure 2-3
Inland Waterway System**



Note: River transit time between cities varies, based on the direction of travel. Upstream travel is slower than travel down river due to resistance from the water current.

The harbor is located in close proximity to the planned I-69 and Great River Bridge (Congressionally-designated High Priority Corridor 18). When constructed, these transportation facilities would provide an improved Canada / United States / Mexico overland trade route that could possibly generate additional cargo shipments at the harbor.

Transportation advantages offered by the harbor to shippers include potential cost savings and economies of scale that can be realized through the transportation of large volumes of cargo. Appendix A provides a comparison of shipping costs and cargo capacity for the modes of truck, rail, and barge.

Facilities and Equipment

The Yellow Bend Harbor complex was built as a slackwater harbor to take advantage of this design. Advantages provided by a slackwater harbor over a port located on a main river channel include:

- ✓ Less interference from the river current
- ✓ Reliable water depth (especially critical during low water)
- ✓ Potential for more riverfront property for industrial development purposes

The harbor is connected to the Mississippi River by a 2000-foot channel that is 250 feet wide and maintained to a depth of 15 feet for barge navigation. It includes a 315 foot x 810 foot turning basin. The harbor is located between the river and the main Mississippi River levee. A harbor road, composed of crushed rock, crosses the levee and serves as the access route to harbor facilities. Layout of the harbor is presented in Figure 2-4.

Harbor facilities are designed to transfer cargo between water and truck freight modes and feature a 40-ton overhead gantry crane with a 60-foot span and a 200-foot extension that allows the crane to move between the warehouse and the harbor. The crane is equipped with a 10-cubic yard clamshell bucket and a 50-square foot grapple. Other harbor amenities include a 42-inch outbound covered conveyor, a hydraulic truck dump with pit and a 100-ton Toledo truck scale. Storage facilities include a 12,500 square foot multipurpose warehouse, two 15,000-bushel grain bins and an outside storage area. An office building is located near the gantry crane.

Existing Facilities and Equipment

Facilities

- Office building
- Hydraulic truck dump with pit
- Toledo truck scale
- 12,500 square foot multipurpose warehouse
- Two 15,000-bushel grain bins
- Outside storage area

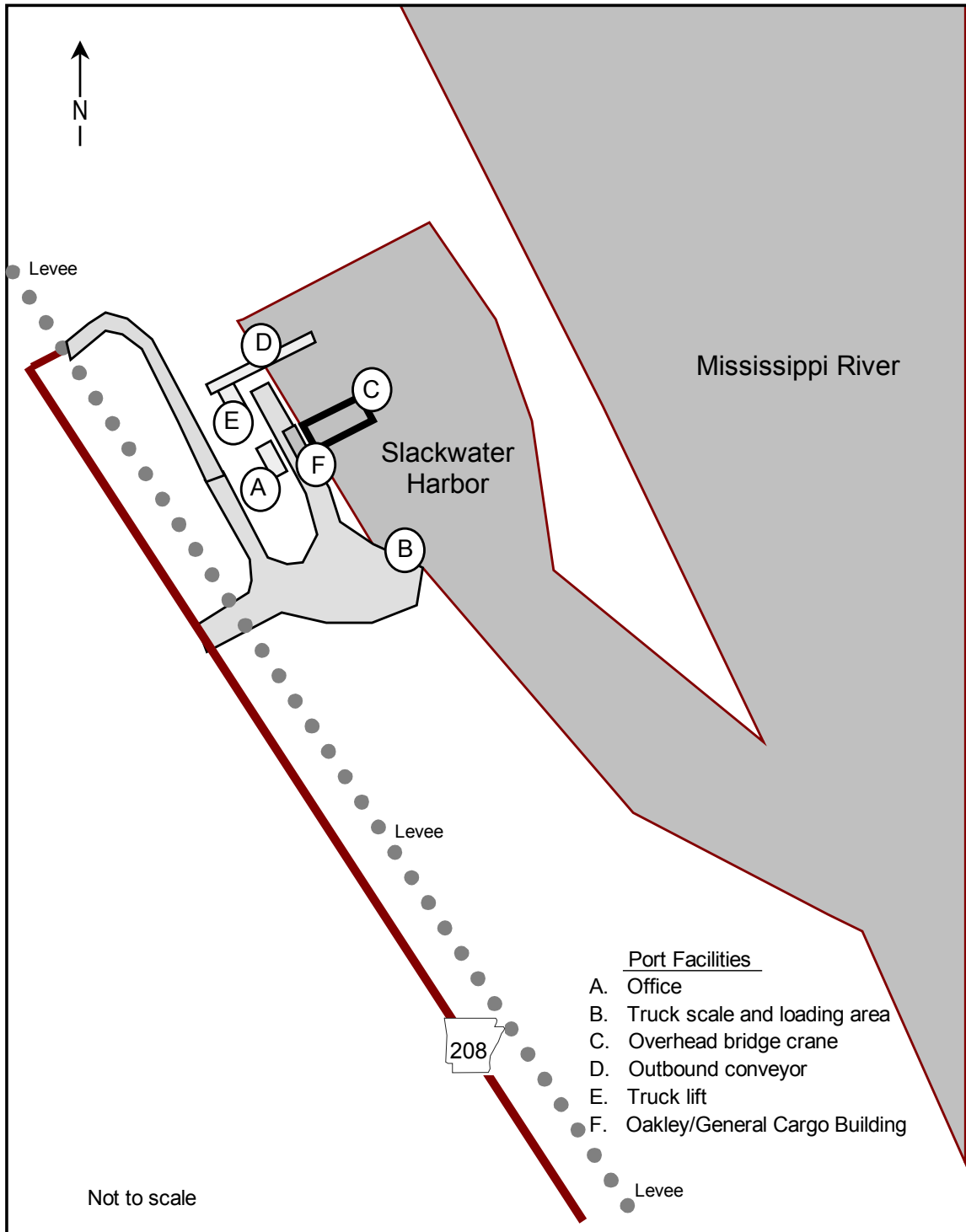
Equipment

- 40-ton overhead gantry crane with clamshell bucket and grapple
- Covered outgoing conveyor

Operating Schedule

Monday – Friday, 7:00 a.m. to 5:00 p.m.

**Figure 2-4
Facilities Layout**



The following photographs show existing facilities and equipment at the Yellow Bend Harbor.

Yellow Bend Harbor Terminal Photographs



Trucks waiting to be unloaded



Grain bins with truck dump

Yellow Bend Harbor Terminal Photographs...continued



Truck being loaded from a barge



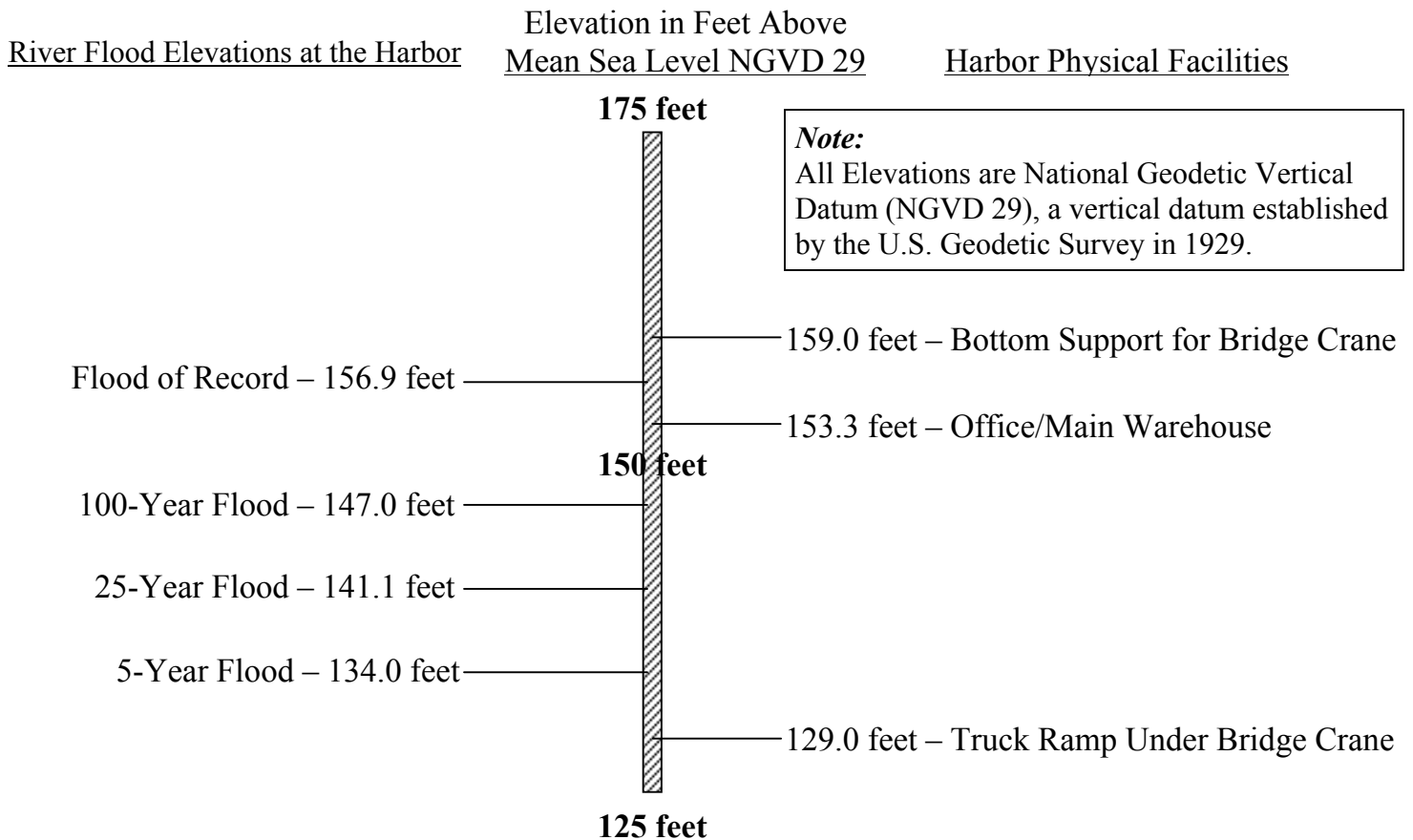
Warehouse with overhead crane

Flood Elevations

The harbor's proximity to the Mississippi River, with its constantly changing water levels, means that facility location decisions must include consideration of the structure's elevation above the water as well as the lateral distance from the water. Figure 2-5 shows elevations for the major fixed structures. This information is useful for facility planning, design and operations. As commodities are unloaded from a barge using a crane, most of the cycle time (translated as operating costs) depends on the vertical lift. When considering a new crane, a trade off is necessary between flood protection (high elevation) or the shortest cycle time (low elevation) and the likelihood that it could be underwater during high water events.

The 100-year flood level (which is a one percent chance of a flood of that magnitude occurring in any given year) is considered to be the base flood elevation measurement. At the Yellow Bend Harbor, the 100-year flood level is 147.0 feet. The highest flood ever recorded was 156.9 feet and the lowest water level was 102.7 feet. All major structures at the harbor are above the 100-year flood level except for the truck ramp under the bridge crane, which is at 129.0 feet.

**Figure 2-5
Flood Elevations**

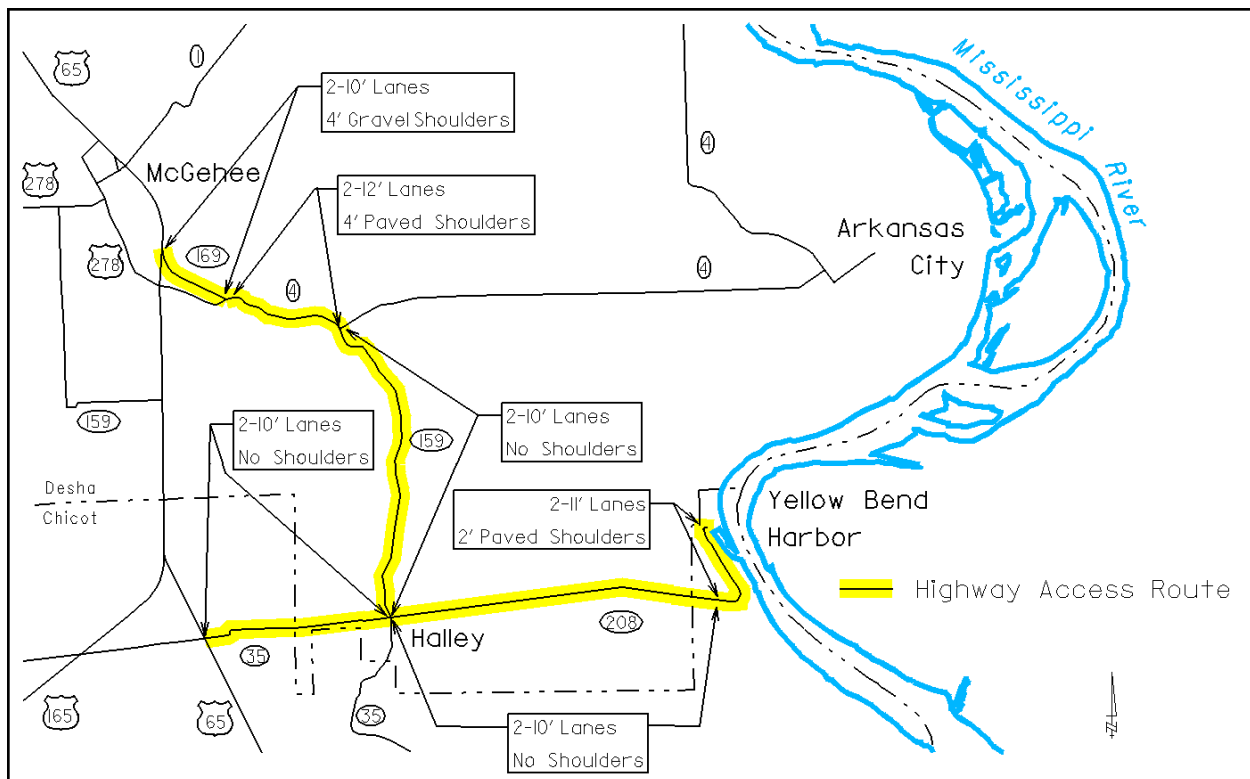


Roadway Features

Geometric design requirements for trucks are more stringent than for passenger vehicles. Trucks are wider, heavier and have a longer wheelbase, requiring a greater turning radius. Roadway features such as lane width and shoulder width can affect the flow of truck traffic and driver safety. A narrow lane or shoulder width is a potential safety problem. Large trucks need the additional surface area for safe operation or for emergency stops.

The American Association of State Highway and Transportation Officials (AASHTO) has developed guidelines for the width of traffic lanes and shoulders. AASHTO suggests that highways similar to those providing access to the Yellow Bend Harbor have a lane width of 11 or 12 feet with various shoulder widths depending on the average daily traffic (ADT). Current roadway features for the access routes are shown in Figure 2-7 and are listed in Table 2-1.

**Figure 2-7
Roadway Features**



**Table 2-1
Highway Access – Existing Conditions**

<u>Highway</u>	<u>Cross Section</u>	<u>2003 ADT</u>
<u>Access Route 1:</u>		
Highway 35		
From: Highway 65 To: Highway 208	Two 10-foot lanes With no shoulders	600
Highway 208		
From: Highway 35 To: Harbor Water Tower	Two 10-foot lanes With no shoulders	200
From: Harbor Water Tower To: Levee	Two 11-foot lanes With 2-foot paved shoulders	200
<u>Access Route 2:</u>		
Highway 169		
From: Highway 65 To: Highway 4	Two 10-foot lanes With 4-foot gravel shoulders	700
Highway 4		
From: Highway 169 To: Highway 159	Two 12-foot lanes With 4-foot paved shoulders	1,600
Highway 159		
From: Highway 4 To: Highway 208 at Halley	Two 10-foot lanes With no shoulders	300

Highway 208

Same as the road segments described above for access route 1.

Bridges

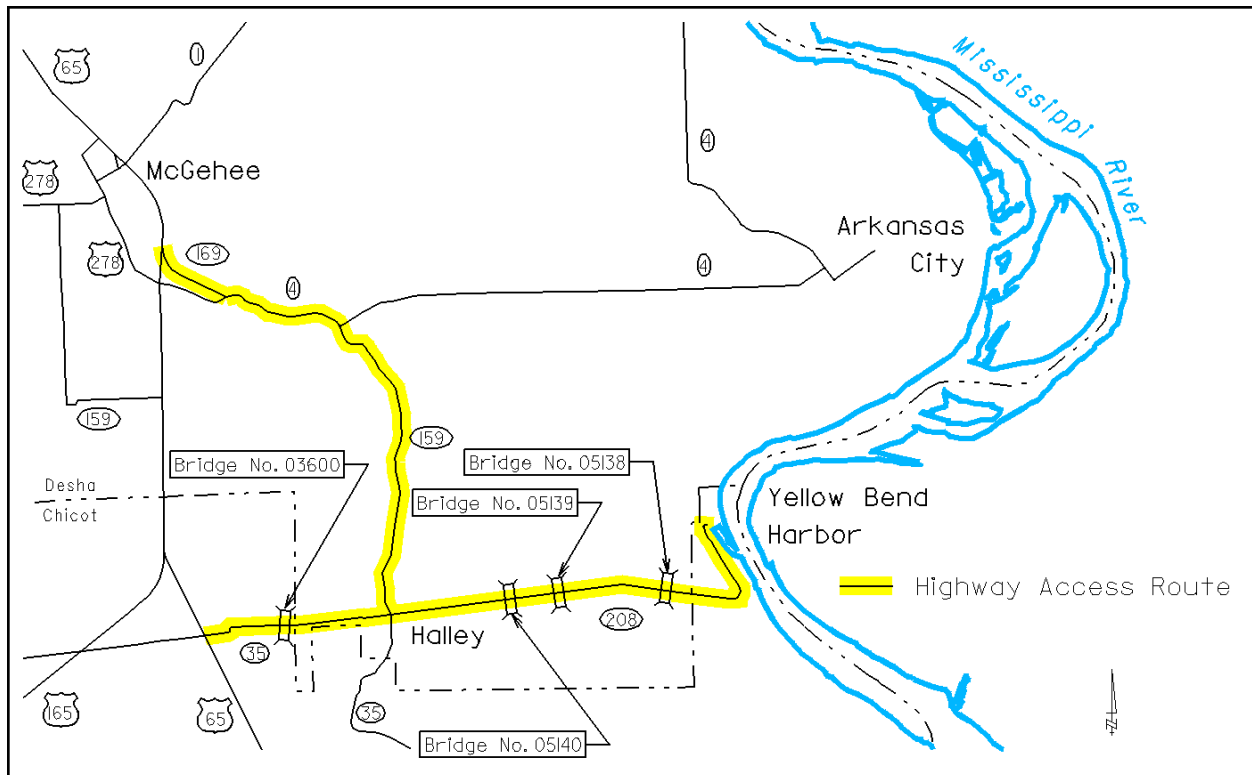
Four bridges are located on the routes that access the harbor. Table 2-2 lists these structures with selected data. The locations of the bridges are shown on Figure 2-8. Bridges are inspected periodically and are given sufficiency ratings ranging from zero to 100, with zero being the worst rating and 100 the best rating. Bridge number 03600 has a relatively low sufficiency rating of 53.4. Sufficiency ratings take into consideration the condition of a bridge's substructure and superstructure as well as whether a bridge meets current design standards based on traffic factors. Bridges are also considered to be structurally deficient (SD), functionally obsolete (FO) or not qualified (NQ) for funding

under the federal Highway Bridge Replacement and Rehabilitation Program. This information is also included in Table 2-2.

**Table 2-2
Bridge Data**

County	Highway	Bridge Number	Bridge Width	Bridge Length	Sufficiency Rating	Replacement Code
Chicot	35	03600	24'	188'	53.3	NQ
Desha	208	05140	28'	242'	89.8	NQ
Desha	208	05139	28'	182'	89.8	NQ
Desha	208	05138	28'	202'	89.8	NQ

**Figure 2-8
Bridge Locations**



Railroad Access

There is no direct railroad service to the Yellow Bend Harbor. However, rail service is available within the study area through a Class I¹ railroad and four Class III railroads.

Class I railroads provide long-haul service to national market areas like Chicago, Illinois and Dallas, Texas. Class III railroads provide primarily switching of railcars and feeder railcar service to Class I railroads. The railroads that operate in the study area are listed below. Figure 2-6 shows rail line locations.

Area Railroads

Class I

Union Pacific Railroad (UP)

Class II

There are no Class II railroads in Arkansas

Class III

Arkansas Louisiana and Mississippi Railroad (ALM)

Delta Southern Railroad (DSR)

Fordyce and Princeton Railroad (FP)

Warren and Saline River Railroad (WSR)

The two railroads located closest to Yellow Bend Harbor are the Union Pacific and Delta Southern Railroads. Delta Southern has a rail line at Halley, which is approximately six miles west of the harbor. The Union Pacific rail line is located at the Potlatch complex, approximately 10 miles north of the harbor.

A previous study² evaluated the possibility for extending a rail line to the harbor. Three alternative routes were identified (see Figure 2-9). Major benefits to the region were identified and include:

- ✓ Shippers would be able to select from truck, rail and water transportation or a combination of freight modes to meet their particular shipping requirement.
- ✓ A rail line would provide a land to water link for rail to water transfers of cargo designated for overseas' markets.
- ✓ With the availability of rail/barge transportation, overall shipping costs could be reduced, particularly for long distance shipments.

¹ Railroads are classified based on annual operating revenues:

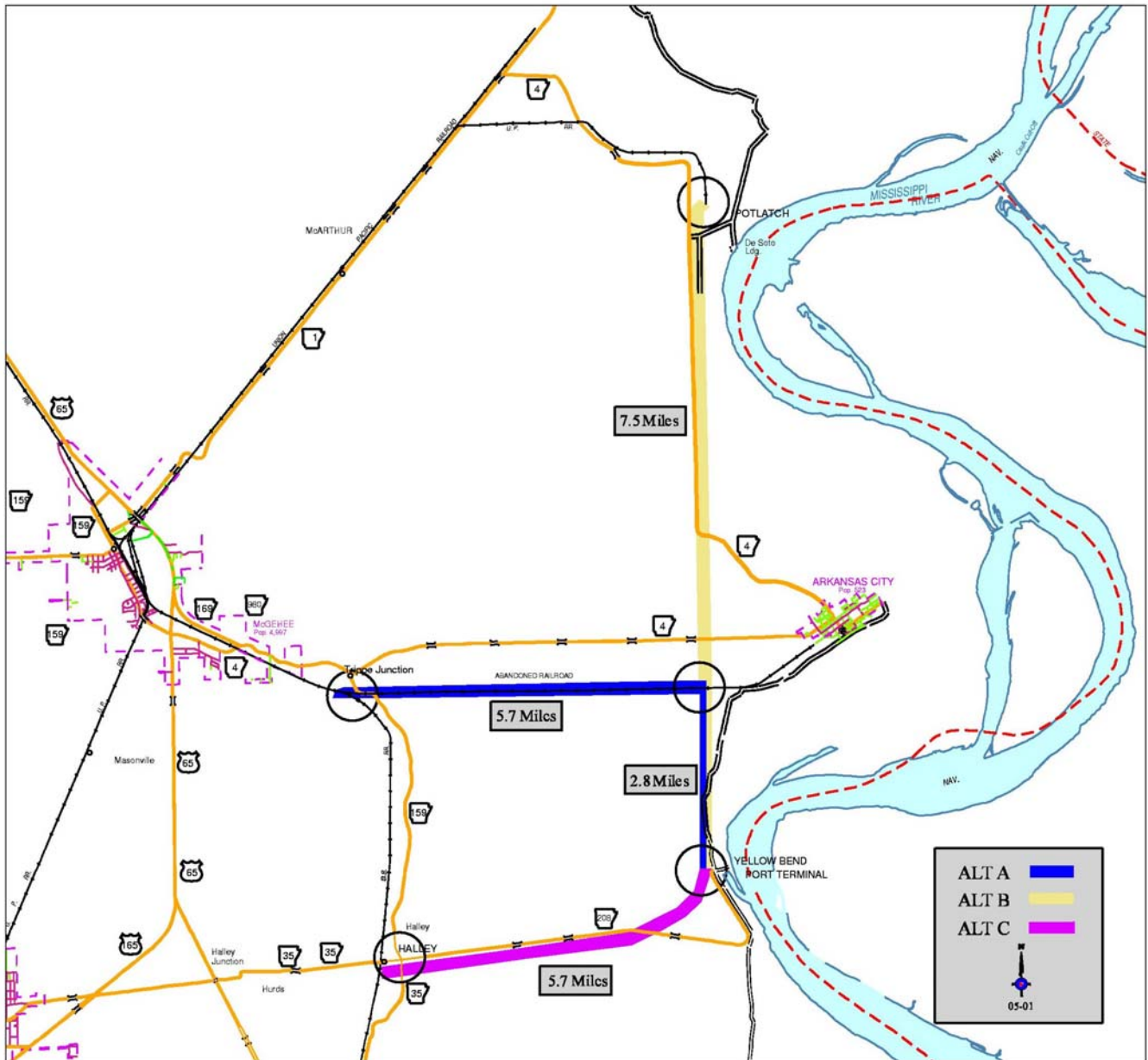
Class I – Carriers generating \$261.9 million or more

Class II – Carriers generating at least \$21.0 million but less than \$261.9 million

Class III – Carriers generating less than \$21.0 million

² AHTD General Assessment and Regional Transportation Impact Study, August 2001.

**Figure 2-9
Alternative Rail Line Routes**



Commodities

Commodities that are currently shipped through the Yellow Bend Harbor reflect typical waterborne cargo and are listed in Table 2-3. Waterborne cargo consists generally of bulk or break bulk commodities that do not require packaging.

**Table 2-3
Inbound/Outbound Commodities**

<u>Commodities</u>	<u>Inbound (Annual Tonnage)</u>
Corn	19,129
Wheat	21,592
Rock	22,691
Woodchips	27,412
T-Bars (Prefabricated Steel Beams)	1,434
Storage (Rock)	<u>163,508</u>
<i>Total Annual Inbound Tonnage</i>	255,766

<u>Commodities</u>	<u>Outbound (Annual Tonnage)</u>
Rice	73,112
Soybeans	22,307
Wheat	7,021
Corn	<u>6,958</u>
<i>Total Annual Outbound Tonnage</i>	109,398

<i>Total Annual Tonnage</i>	365,164
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Section III Study Area Freight Activity

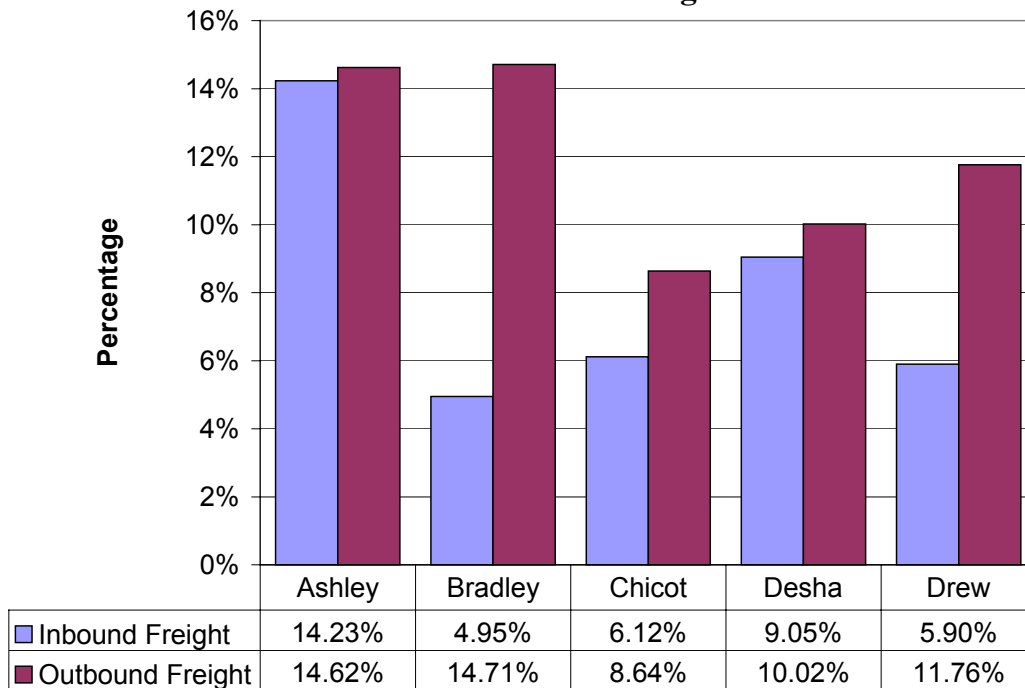
Current shipping patterns for the Yellow Bend Harbor’s study area are described in this section. This information is useful in identifying potential waterborne freight shipments. The presentation on freight movements includes data on the general types of cargo, freight modes used and origin and destination of commodities. The Department’s Freight Goods Movement Database, described in Appendix B, was the source for this information. Domestic shipments refer to goods and commodities that are transported within the United States. International shipments are those that travel to or from another country, such as Mexico, Canada, or elsewhere in the world.

Domestic Movements

Inbound/Outbound Shipments

Freight activity, based on annual tonnages moved into and out of the harbor’s service area, is shown in Figure 3-1. (*Note: Freight movements between study area counties or within the same county are not included.*) Ashley County has almost 30% of all freight shipments and fairly equal volumes moving in and out. In all counties, the movement out is greater than that moving into the county, but Bradley County, with an outbound volume similar to that recorded for Ashley County, has the greatest difference in the directional freight flow.

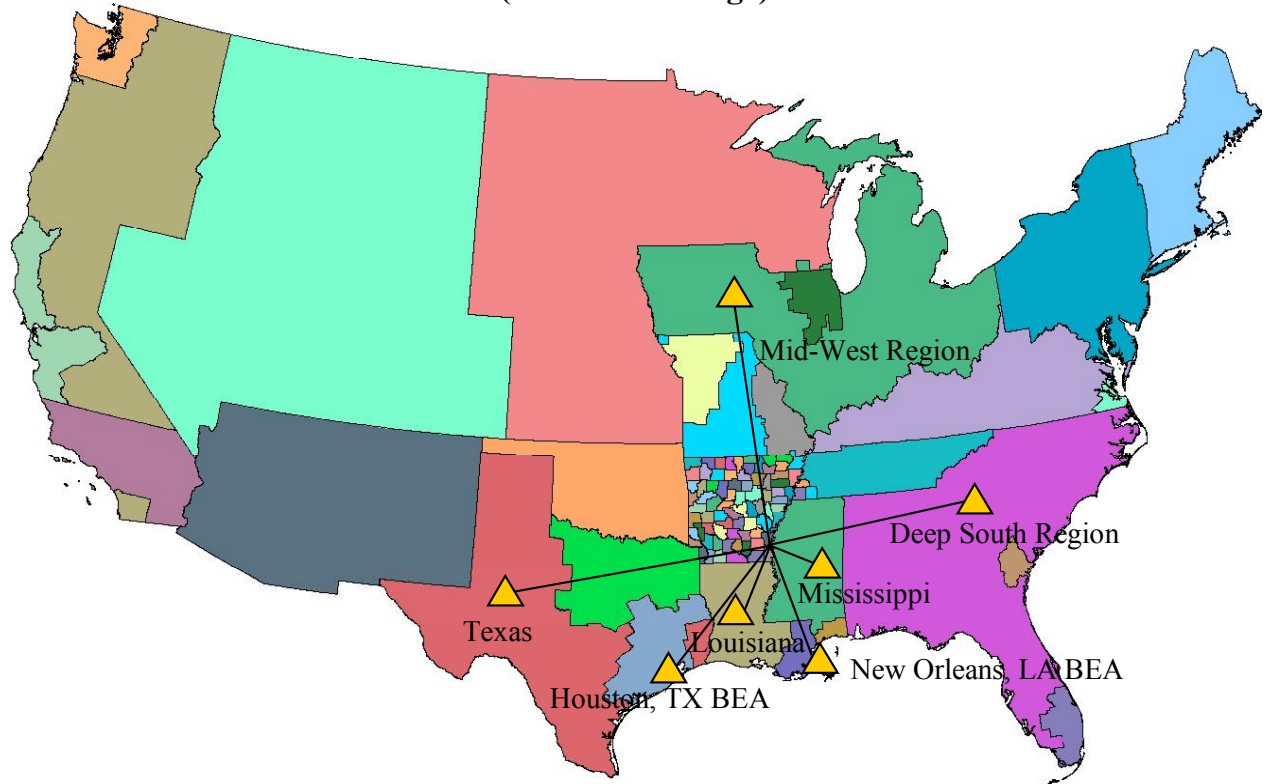
**Figure 3-1
Freight Activity by County
Based on Annual Tonnage**



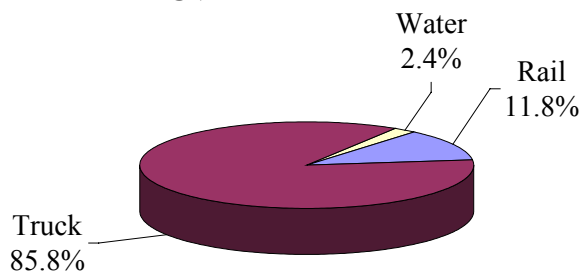
Source: Freight Goods Movement Database

Figures 3-2 and 3-3 show the modes of transportation and the percentage that each is used for freight entering and leaving the harbor's service area by truck, water, or rail. These figures also depict the leading out-of-state origins and destinations for freight. The Deep South Region, New Orleans BEA and the rest of Louisiana are leading out-of-state sources for inbound freight.

**Figure 3-2
Inbound Freight
(Annual Tonnage)**



**Inbound Freight
To the Yellow Bend Harbor Area
By Transportation Mode
(Annual Tonnage)**



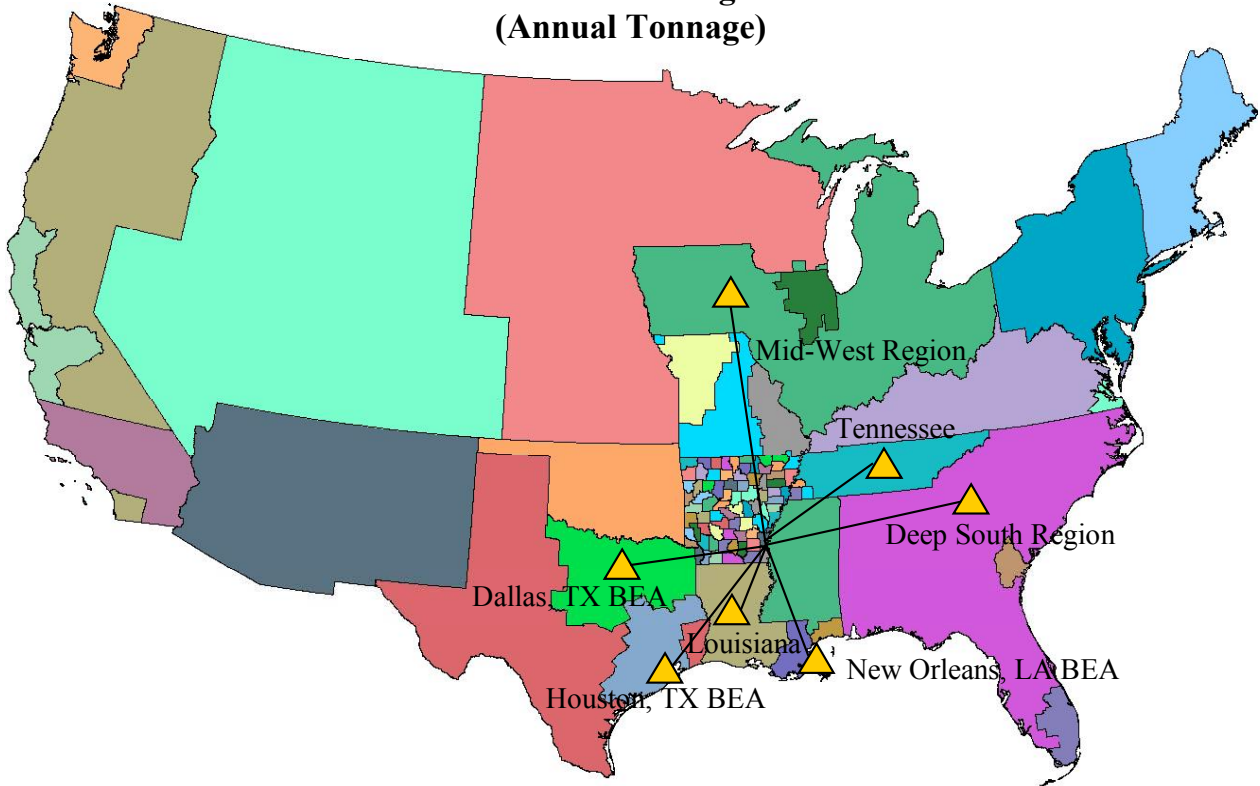
Source: Freight Goods Movement Database

Major Origins Outside Arkansas	Annual Tonnage
Deep South Region	275,444
New Orleans, LA BEA	196,025
Louisiana	187,678
Mid-West Region	177,498
Texas	169,988
Mississippi	155,458
Houston, TX BEA	114,606

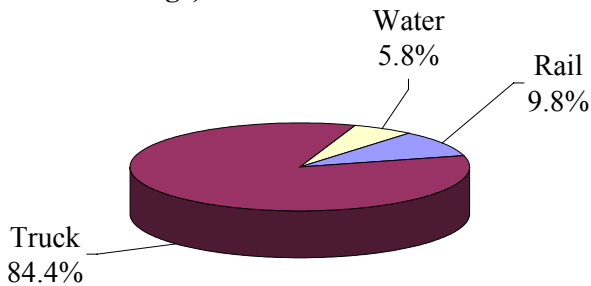
Top Two In-State Originations	Annual Tonnage
Pulaski County	451,236
Sebastian County	328,111

The Deep South and Mid-West Regions are leading out-of-state destinations for cargo from the service area.

**Figure 3-3
Outbound Freight
(Annual Tonnage)**



**Outbound Freight
From the Yellow Bend Harbor Area
By Transportation Mode
(Annual Tonnage)**



Source: Freight Goods Movement Database

Major Destinations Outside Arkansas	Annual Tonnage
Deep South Region	437,146
Mid-West Region	368,322
Tennessee	222,157
New Orleans, LA BEA	221,502
Louisiana	188,115
Dallas, TX BEA	186,778
Houston, TX BEA	168,248

Top Two In-State Destinations	Annual Tonnage
Pulaski County	526,966
Sebastian County	263,390

Commodities Shipped

Based on the total tonnages handled annually, Table 3-1 shows the top five domestic commodities or activities by freight mode (truck-rail-water) for the study area.

**Table 3-1
Top Domestic Commodities or Activity**

Inbound Shipments		
Truck	Rail	Water
1. REDISTRIBUTION	1. CHEMICAL PRODUCTS	1. FABRICATED METAL PRODUCTS
2. FOREST PRODUCTS	2. LUMBER OR WOOD PRODUCTS	2. WASTE OR SCRAP MATERIALS
3. LUMBER OR WOOD PRODUCTS	3. FOOD PRODUCTS	3. CHEMICAL PRODUCTS
4. FOOD PRODUCTS	4. CLAY, CONCRETE, GLASS OR STONE PRODUCTS	4. FARM PRODUCTS
5. CLAY, CONCRETE, GLASS OR STONE PRODUCTS	5. PULP OR PAPER PRODUCTS	5. METALLIC ORES

Outbound Shipments		
Truck	Rail	Water
1. FOREST PRODUCTS	1. LUMBER OR WOOD PRODUCTS	1. WASTE OR SCRAP MATERIALS
2. LUMBER OR WOOD PRODUCTS	2. PULP OR PAPER PRODUCTS	2. FARM PRODUCTS
3. FOOD PRODUCTS	3. FARM PRODUCTS	3. PETROLEUM OR COAL PRODUCTS
4. APPAREL OR RELATED PRODUCTS	4. CHEMICAL PRODUCTS	4. FOOD PRODUCTS
5. PULP OR PAPER PRODUCTS	5. WASTE OR SCRAP MATERIALS	5. METALLIC ORES

The major inbound truck activity is the redistribution of freight. Forest products comprise the chief outbound commodities moved by truck. By rail, chemicals are the main inbound cargo and lumber or wood products are the primary outbound shipments. Fabricated Metal Products is the leading category transported into the area by water, while waste or scrap materials is a major waterborne commodity for both inbound and outbound movements. Additional detailed commodity lists are shown in Appendix B.

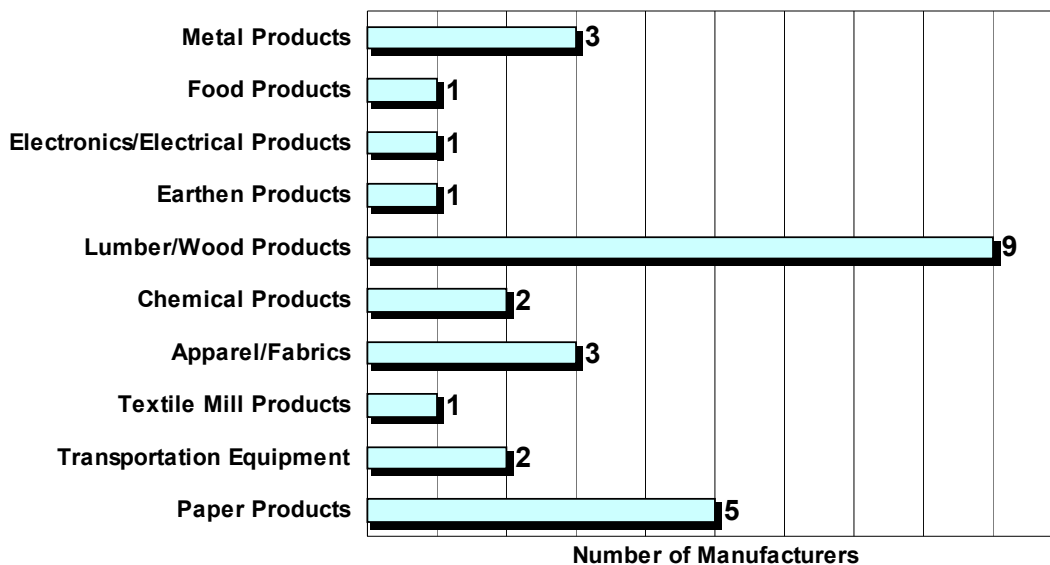
International Movements

International trade provides additional market areas for business activities. Often, this is an overlooked source of opportunities. A review of the current international activity for the study area included the review of: (1) regional exporters by product type; (2) imports and exports to Canada and Mexico; and (3) international trade via gateway Business Economic Areas (BEAs).

Regional Exporters

Regional exporters by product type are displayed in Figure 3-4. Manufacturers that export more than one type of product are counted in each category. For example, a manufacturer may export both metal and electrical products and is counted twice. Lumber and wood products, followed by paper products, are the region's two major exports.

**Figure 3-4
Regional Exporters by Product Type**



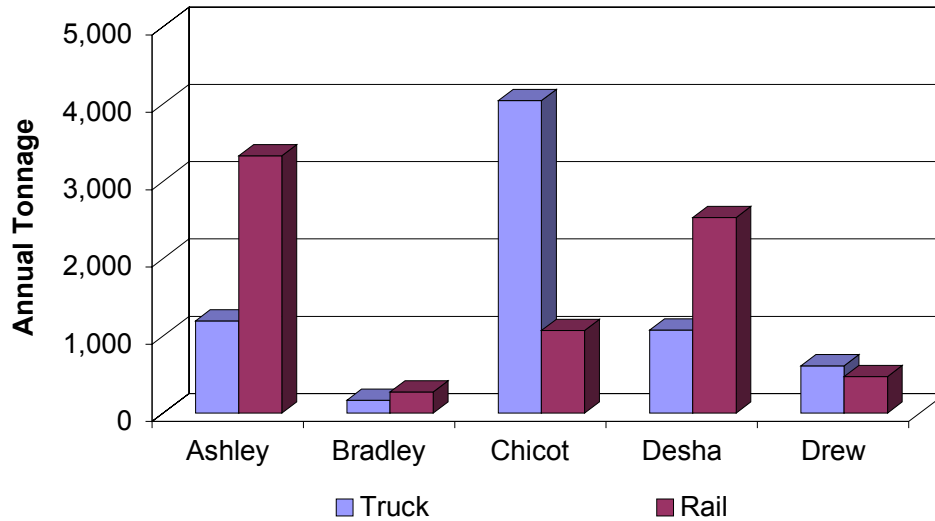
Source: Arkansas Directory of Manufacturers

Trade with Canada

Data compiled by the Arkansas Department of Economic Development (ADED) indicates that Canada is Arkansas' major trading partner. Figure 3-5 illustrates the freight mode and amount of annual freight tonnage that the study area receives from Canada. Chicot County receives the greatest amount of imported goods, followed by Ashley

County. Although rail is used a little more overall than trucks, the mode of transportation selected for Canadian imports varies among the study area counties.

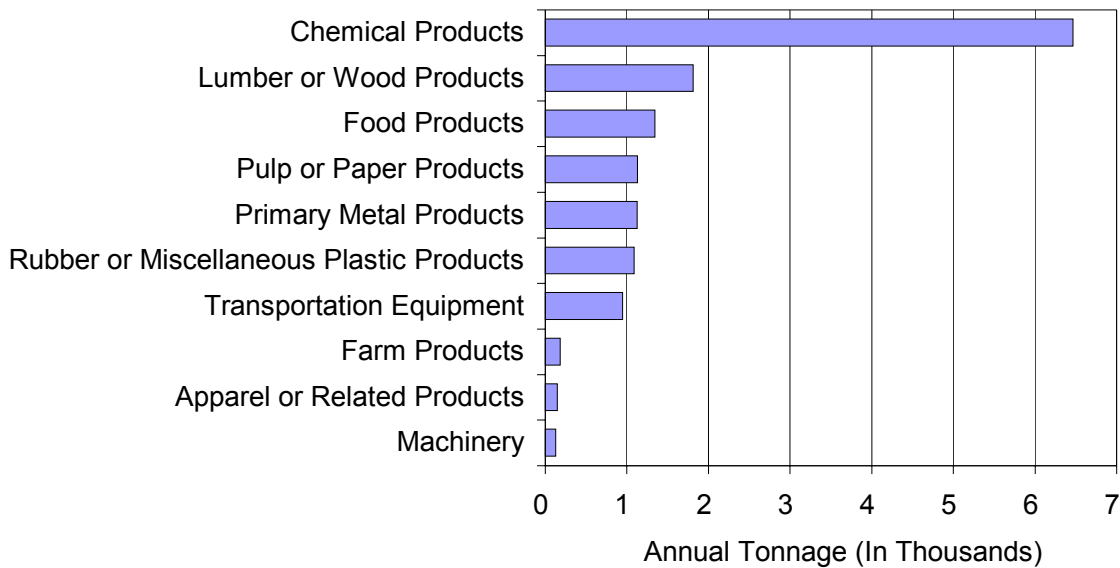
Figure 3-5
Regional Import Activity from Canada by Freight Mode and Tonnage



Source: Freight Goods Movement Database

The top ten Canadian products traveling to the region are shown in Figure 3-6. Industrial chemicals are the leading group of commodities shipped into the area from Canada.

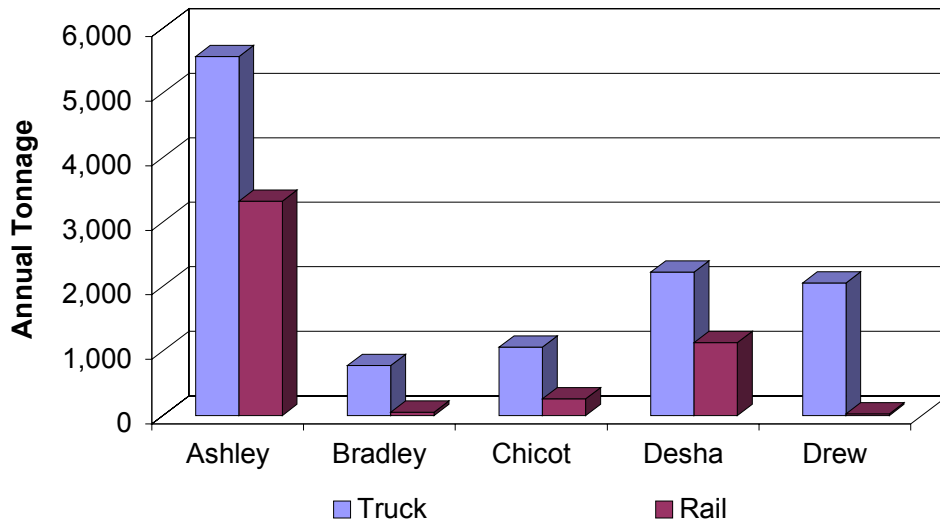
Figure 3-6
Top 10 Regional Import Products from Canada



Source: Freight Goods Movement Database

Figure 3-7 shows the mode and amount of freight shipped to Canada from the study area. Truck transportation is the leading mode used. Ashley County, followed by Desha and Drew Counties, ships the largest amount of freight tonnage to Canada.

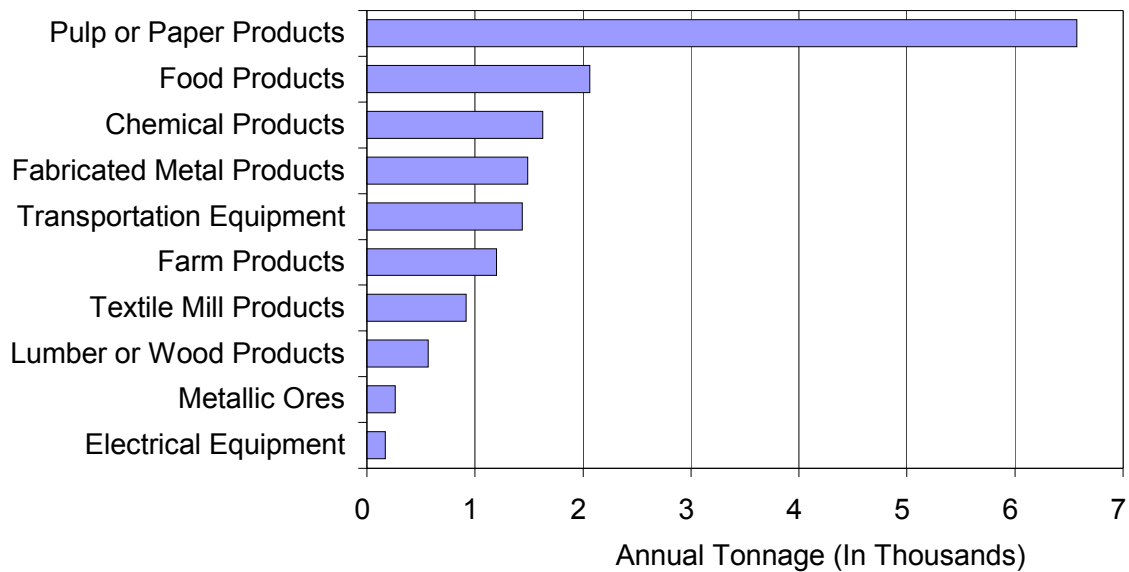
Figure 3-7
Regional Export Activity to Canada by Freight Mode and Tonnage



Source: Freight Goods Movement Database

As shown in Figure 3-8, paper goods are the leading products exported to Canada from the study area.

Figure 3-8
Top 10 Regional Export Products to Canada

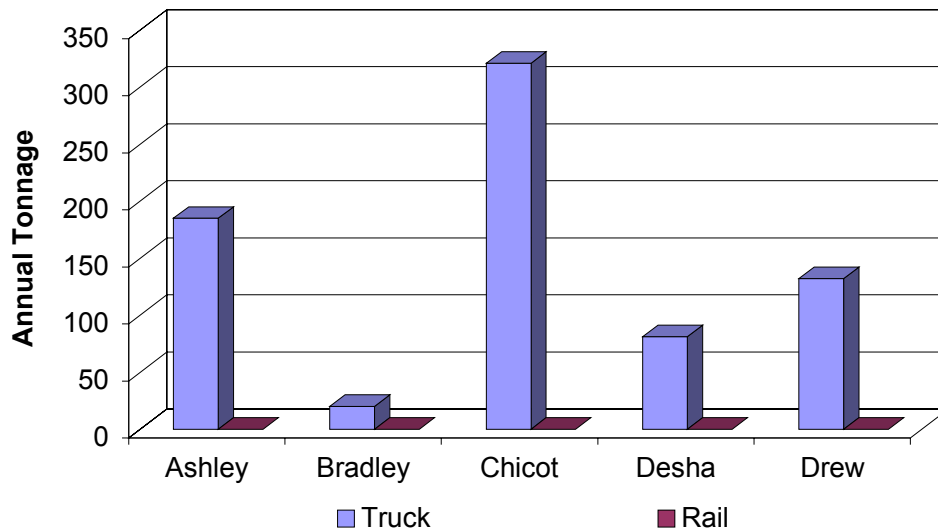


Source: Freight Goods Movement Database

Trade with Mexico

The Arkansas Department of Economic Development's data shows that Mexico is Arkansas' second largest trading partner. Figure 3-9 illustrates freight mode usage and annual freight tonnage received from Mexico. There was no reported rail freight traffic to any of the study area counties and truck use varies by county.

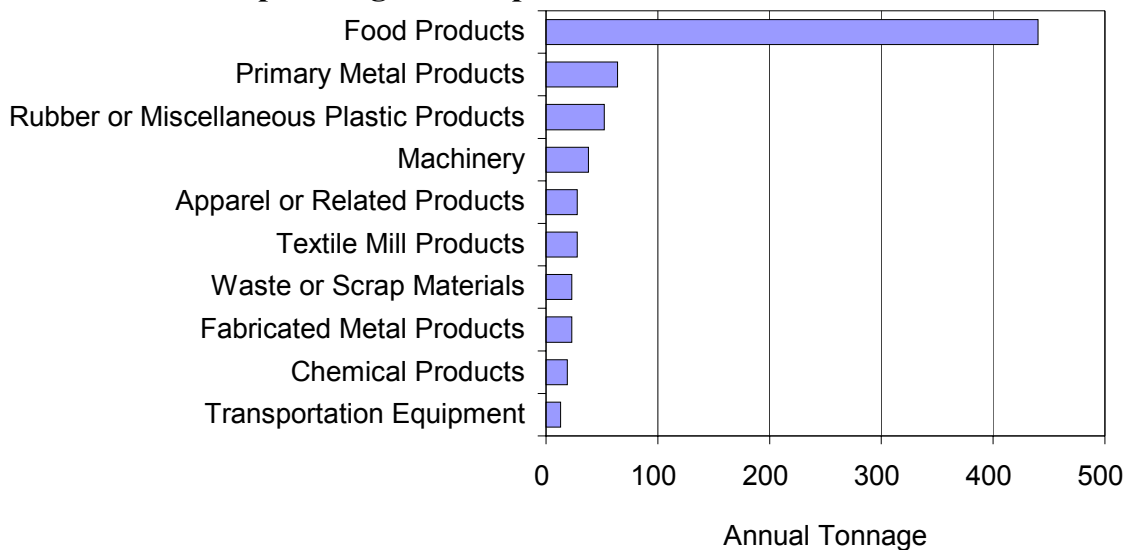
Figure 3-9
Regional Import Activity from Mexico by Freight Mode and Tonnage



Source: Freight Goods Movement Database

The top ten Mexican products traveling to the region are shown in Figure 3-10. Food products are the leading commodity shipped from Mexico into the area.

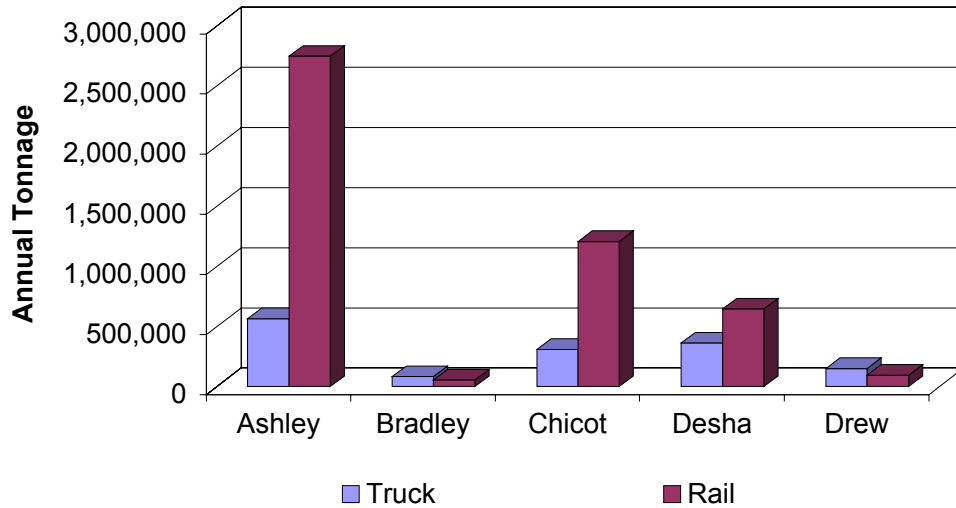
Figure 3-10
Top 10 Regional Import Products from Mexico



Source: Freight Goods Movement Database

Figure 3-11 shows the mode used and the amount of freight shipped to Mexico. Rail transportation is the leading freight transit means. Ashley County, followed by Chicot and Desha Counties, is the largest shipper of commodities to Mexico.

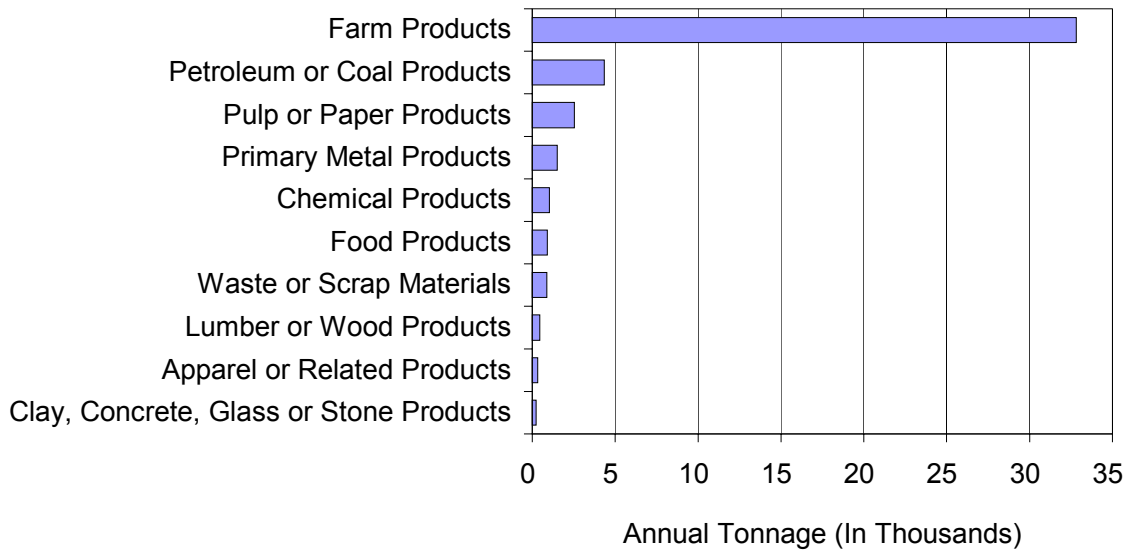
Figure 3-11
Regional Export Activity to Mexico by Freight Mode and Tonnage



Source: Freight Goods Movement Database

The top ten commodities exported to Mexico from the study area are shown in Figure 3-12. Farm products are the leading cargo shipped to Mexico from the area.

Figure 3-12
Top 10 Regional Export Products to Mexico



Source: Freight Goods Movement Database

International Trade via Gateway BEAs

A study titled *The Latin American Trade and Transportation Study (LATTS)* was recently completed. It revealed important international freight flow patterns for Arkansas. Based on the findings, the majority of Arkansas' imports and exports are handled at the Gulf of Mexico ports in Texas and Louisiana. These gateways and their primary deep-water ports are:

- ✓ Houston-Galveston-Brazoria, TX BEA
(Port of Houston-Port of Galveston-Port of Texas City)
- ✓ New Orleans, LA-MS BEA
(Port of New Orleans)

Table 3-2 shows the total freight activity between the study area and the BEAs listed above. The New Orleans BEA is the chief site for international trade, based on tonnage, and water transportation is the principal freight mode for imported and exported shipments.

Table 3-2
Imports and Exports via BEAs
Yellow Bend Study Area
(Annual Tonnage)

ORIGIN (Inbound)	Rail	Water	Truck	Total
Houston-Galveston-Brazoria, TX	18,790	1,461	94,355	114,606
New Orleans, LA-MS	40,413	81,240	74,372	196,025

DESTINATION (Outbound)	Rail	Water	Truck	Total
Houston-Galveston-Brazoria, TX	14,870	4,079	149,300	168,248
New Orleans, LA-MS	6,312	176,164	39,026	221,502

Source: Freight Goods Movement Database

Potential Cargo Shipments

Examination of shipping patterns for the service area indicated the potential for additional cargo shipments at the harbor. Possible commodities are listed in Table 3-3. These products are presently shipped in bulk quantity by truck or rail. With the right type of facilities and services, coupled with a marketing plan, a portion of the commodity tonnage could possibly be attracted to the harbor.

Data in the table is broken out into typical and extended service areas. The typical service area consists of Ashley, Bradley, Chicot, Desha, and Drew Counties, all of which

are located within 60 miles of the harbor. The extended service area includes Calhoun, Columbia, Ouachita, and Union Counties and is included to demonstrate additional cargo that might also be attracted to the harbor if the desired services and facilities are available.

**Table 3-3
Potential Cargo Shipments
(Annual Tonnage)**

Typical Service Area (Ashley, Bradley, Chicot, Desha, and Drew Counties):

Inbound Commodity	Rail	Truck	Total	Origin
✓ <i>Industrial Chemicals</i>	81,837	8,155	89,992	Louisiana
	40,413	2,970	43,383	New Orleans, LA
	9,350	27,057	36,407	Houston, TX
✓ <i>Grain Mill Products</i>	54,505	7,293	61,798	Mid-West Region
✓ <i>Gum or Wood Chemicals</i>	45,580	-	45,580	Mississippi
✓ <i>Agricultural Chemicals</i>	-	20,505	20,505	Houston, TX
Outbound Commodity	Rail	Truck	Total	Destination
✓ <i>Primary Forest Materials</i>	-	74,347	74,347	Houston, TX
	-	38,284	38,284	Mid-West Region
✓ <i>Millwork or Prefabricated Wood Products</i>	61,776	7	61,783	Mid-West Region
✓ <i>Field Crops</i>	47,793	-	47,793	Texas

Source: Freight Goods Movement Database

Extended Service Area (Calhoun, Columbia, Ouachita, and Union Counties):

Inbound Commodity	Rail	Truck	Total	Origin
✓ <i>Products of Petroleum Refining</i>	-	440,765	440,765	Mississippi
	-	301,068	301,068	New Orleans, LA
	-	54,646	54,646	Louisiana
✓ <i>Field Crops</i>	128,338	-	128,338	Mid-West Region
✓ <i>Industrial Chemicals</i>	62,872	26,596	89,468	Louisiana
	7,200	45,566	52,766	New Orleans, LA
	3,538	48,136	51,674	Houston, TX
✓ <i>Agricultural Chemicals</i>	-	35,779	35,779	Houston, TX
✓ <i>Miscellaneous Chemical Products</i>	-	23,487	23,487	Mid-West Region
	7,230	14	7,244	Houston, TX

Outbound Commodity	Rail	Truck	Total	Destination
✓ <i>Products of Petroleum Refining</i>	- 30,969 46,421 63,842	204,227 50,805 30,188	204,227 81,774 76,609 63,842	Mid-West Region Prairie Region Missouri Houston, TX
✓ <i>Agricultural Chemicals</i>	123,104 - -	2,712 24,470 17,577	125,816 24,470 17,577	Southeast Region Mid-West Region Prairie Region
✓ <i>Primary Forest Materials</i>	-	57,895	57,895	Houston, TX
✓ <i>Concrete, Gypsum or Plaster Products</i>	- - - -	45,177 39,984 32,335 30,127	45,177 39,984 32,335 30,127	Oklahoma New Orleans, LA Louisiana St. Louis, MO

Source: Freight Goods Movement Database

Section IV

Harbor Development Strategies

This section offers suggestions for further developing the Yellow Bend Harbor as an efficient and cost-effective public freight terminal. A conceptual development plan is provided.

Development Strategies

To be successful in attracting new cargo shipments and new economic activities, the harbor will need additional cargo handling and storage capacity. The acquisition of land for industrial development, the provision of new services, improvements to landside access, and harbor basin expansion will also help position the harbor for growth. A public image improvement and marketing program will also be needed.

Development Strategies

General

- ✓ Additional Property
- ✓ Public Image/Marketing Program
- ✓ Pursue Partnership(s) with Deepwater Port(s)
or Inland Freight Facilities
- ✓ Harbor Basin Expansion

Landside Access

- ✓ Highway Improvements
- ✓ Rail Service

Facilities and Services

- ✓ Warehouses and Open Storage
- ✓ Dry and Liquid Bulk Facilities
- ✓ Rail Support Facilities
- ✓ Bagging and Labeling Service
- ✓ Marine Repair Services
- ✓ Barge Positioning Equipment

General

Additional land is necessary for future industrial development purposes. Both large and medium sized industrial tracts should be developed and available to potential tenants. A public image and marketing program should be developed that emphasizes the harbor as a regional, waterborne, freight-shipping center offering a wide range of transportation services. Any program implemented should be a part of a broader plan that highlights the many transportation advantages that the region has to offer businesses. A good starting point for an image improvement program is at the junction of Highway 208 and the

harbor service road. This is the point where potential harbor users will form their initial perception of the facility. A favorable impression could be provided in a number of ways including landscaping the entryway, paving the harbor access road and parking lot, installing vapor lights and constructing an information station where harbor brochures, hours of operation, and other information can be posted. The pursuit of partnerships with either deepwater ports or inland freight facilities could also serve to provide a steady stream of business. Expansion of the harbor basin is needed for better barge handling.

Landside Access

As described in Section II, segments of the highway routes that access the Yellow Bend Harbor have inadequate lane and shoulder widths and one bridge has a fairly low sufficiency rating. Consideration should be given to improving Highways 4, 35, 159, and 169 as shown in Table 4-1 as funds become available. Consideration should be given to improving Highway 208 as shown in Table 4-1 as truck volumes increase and as funds become available. Currently, there is no direct railroad service to the harbor, although there are several railroads in the region. A previous study identified three rail line route alternatives that could connect with regional railroads to provide rail service to the harbor. Listed in the following table are suggested landside access improvements.

**Table 4-1
Recommended Landside Access Improvements**

<u>Highway</u>	<u>Recommended Improvement</u>
<ul style="list-style-type: none"> • Highway 35 From: Highway 65 To: Highway 208 	<ul style="list-style-type: none"> ✓ Widen lanes to 11 feet ✓ Add 5-foot shoulders ✓ Widen or replace bridge number 03600
<ul style="list-style-type: none"> • Highway 208 From: Highway 35 To: Harbor Water Tower 	<ul style="list-style-type: none"> ✓ Widen lanes to 11 feet ✓ Add or widen to 4-foot shoulders
<ul style="list-style-type: none"> • Highway 169 From: Highway 65 To: Highway 4 	<ul style="list-style-type: none"> ✓ Widen lanes to 11 feet ✓ Widen to 5-foot shoulders
<ul style="list-style-type: none"> • Highway 4 From: Highway 169 To: Highway 159 	<ul style="list-style-type: none"> ✓ Widen to 8-foot shoulders
<ul style="list-style-type: none"> • Highway 159 From: Highway 4 To: Highway 208 at Halley 	<ul style="list-style-type: none"> ✓ Widen lanes to 11 feet ✓ Add 4-foot shoulders

<u>Railroad</u>	<u>Recommendation</u>
New rail connection	Select and construct one of the three rail line route alternatives.

Facilities and Service

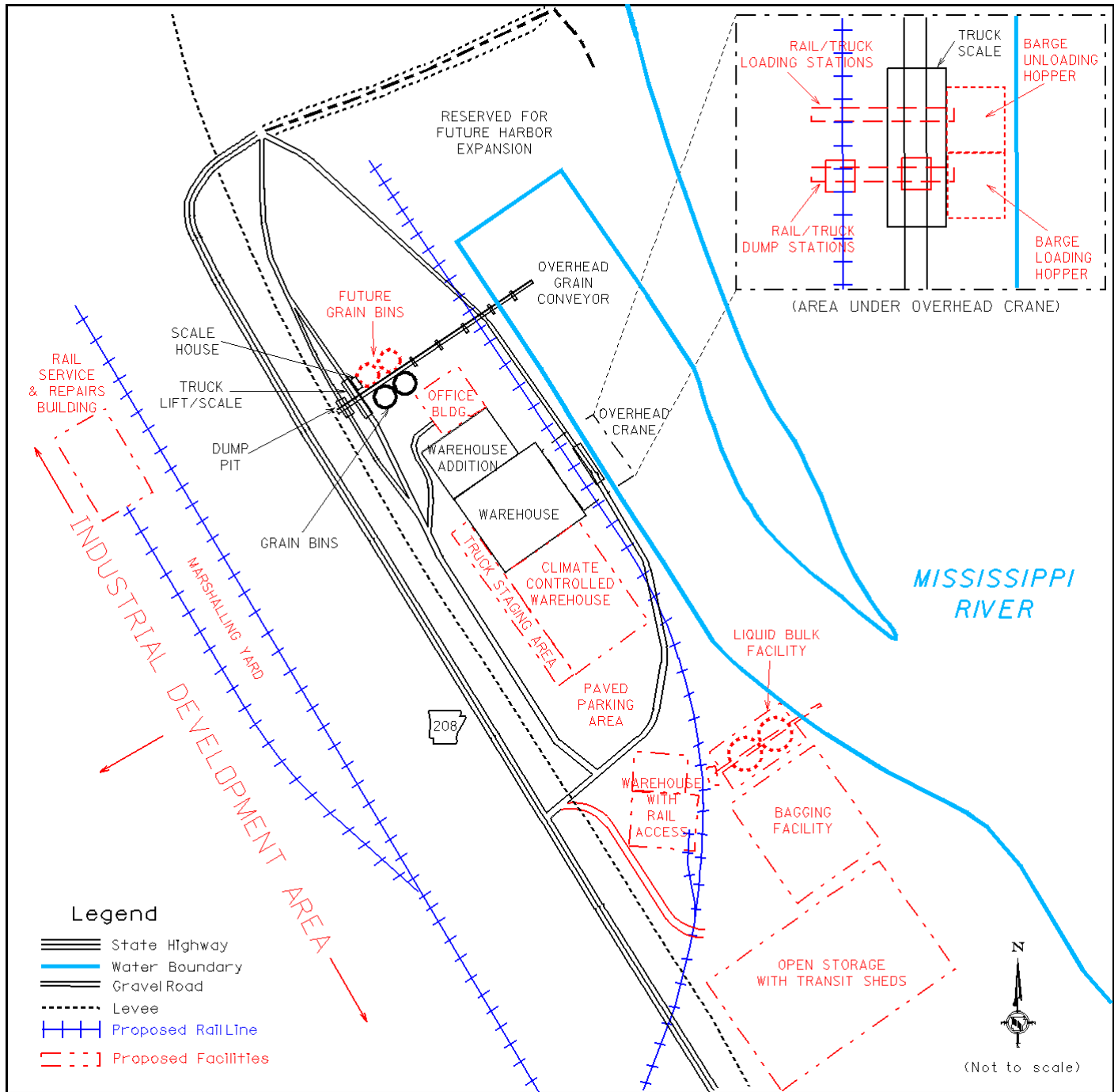
Proposed facilities include a railroad line and marshalling yard, a rail to barge transfer terminal, bagging facility, and a new office building. Additional storage needs include a climate-controlled warehouse, a warehouse with rail docks and an open storage area with transit sheds. Barge positioning equipment is needed to replace the current method of moving barges for loading and unloading. Providing the right types of new services could be a catalyst for added freight shipments. Additional services could be provided through the partnerships mentioned earlier under the general part of this section. Possible services that could be offered at the harbor include:

Services

- ✓ Overseas product packaging
- ✓ Labeling, bagging and repackaging of domestic products
- ✓ Marine repair services

A conceptual harbor improvement plan, which provides for new facilities and services, is shown as Figure 4-1.

**Figure 4-1
Conceptual Harbor Plan**



Appendix A
Modal Operating Comparison

Shipping Cost

Water transportation is the most economical freight mode for moving commodities, as illustrated in Table A-1. Typical cost per ton-mile for barge is approximately one cent, for rail 2.5 cents, and 5.3 cents for trucking.

Table A-1
Typical Shipping Cost

<u>Mode</u>	<u>Costs per ton-mile (cents)</u>
Barge	0.97
Rail	2.53
Truck	5.35

Cargo Capacity

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

Table A-2
Cargo Capacity Comparison

Unit of Measurement	Barge	15-Barge Tow	Jumbo Hopper Railcar	Unit Train (100 Railcars)	Large Semitrailer Truck
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 hopper railcars = 60 large semitrailer trucks

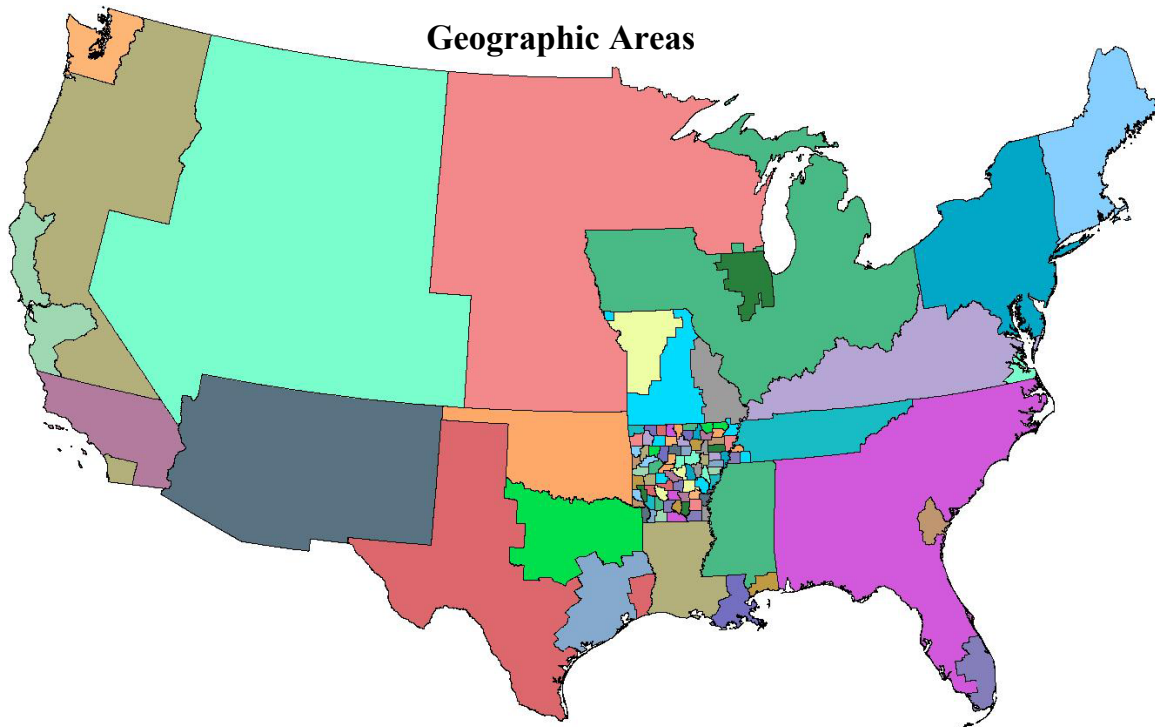
1 15-barge tow = 2 ¼ unit trains = 900 large semitrailer trucks

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

Appendix B
Regional Freight Movements

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: *Arkansas* – All *Tennessee* – Shelby, Tipton, Fayette

BEAs: New Orleans, Houston, Dallas/Fort Worth, Kansas City, St. Louis, Chicago, Los Angeles, San Francisco, Miami, Biloxi/Gulfport, Savannah, Seattle, Norfolk

Regions:

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

Table B - 1
Leading Inbound Commodities for the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
50	<i>Redistribution</i>	2,118,343
5010	Warehouse and Distribution Center	2,019,966
5020	Rail Intermodal Drayage	97,784
5030	Air Freight Drayage	593
24	<i>Lumber or Wood Products</i>	1,411,167
2411	Primary Forest Materials	1,364,264
2421	Lumber or Dimension Stock	23,023
2429	Miscellaneous Sawmill or Planing Mill Products	2,738
2431	Millwork or Cabinetwork	583
2432	Plywood or Veneer	5,440
2433	Prefabricated Wood Buildings	578
2439	Structural Wood Products	1,346
2441	Wood Containers or Box Shooks	35
2491	Treated Wood Products	7,054
2494	Cork Products	345
2497	Wooden Ware or Flatware	321
2498	Other Wood Products	409
2499	Miscellaneous Wood Products	5,031
08	<i>Forest Products</i>	1,043,885
0800	Forest Products	1,043,885
28	<i>Chemicals Products</i>	544,762
2812	Potassium or Sodium Compounds	80,049
2813	Industrial Gases	63,929
2814	Crude Products of Coal, Tar, Natural Gas or Petroleum	253
2815	Cyclic Intermediates or Dyes	18,560
2816	Inorganic Pigments	209
2818	Miscellaneous Industrial Organic Chemicals	32,493

Table B - 1 -- continued
Leading Inbound Commodities for the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
2819	Miscellaneous Industrial Inorganic Chemicals	28,221
2821	Plastic Materials or Synthetic Fibres	142,168
2831	Drugs	8,260
2843	Surface Active Agents	90
2844	Cosmetics	1,281
2851	Paints	1,579
2861	Gum or Wood Chemicals	68,579
2871	Fertilizers	15,720
2879	Miscellaneous Agricultural Chemicals	61,789
2891	Adhesives	4,554
2892	Explosives	4,089
2893	Printing Ink	5,540
2899	Other Chemical Preparations	7,399
20	<i>Food Products</i>	<i>350,415</i>
2011	Meat, Fresh or Chilled	3,584
2012	Meat Fresh-frozen	119
2013	Meat Products	88
2014	Animal By-products, Inedible	2,747
2015	Dressed Poultry	11,181
2016	Dressed Poultry	8,238
2017	Processed Poultry or Eggs	6,706
2023	Condensed, Evaporated or Dry Milk	436
2025	Cheese or Special Dairy Products	3,579
2026	Processed Milk	15,023
2032	Canned Specialties	2,370
2033	Canned Fruits or Vegetables	453
2035	Pickled Fruits or Vegetables	609
2037	Frozen Fruit or Vegetables	5,071

Table B - 1 -- continued
Leading Inbound Commodities for the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
2041	Flour or Other Grain Mill Products	9,796
2042	Prepared or Canned Feed	78,734
2043	Cereal Preparations	269
2044	Milled Rice	428
2046	Wet Corn Milling or Milo Products	84,603
2047	Dog, Cat or Other Pet Foods	265
2052	Biscuits, Crackers or Pretzels	6
2061	Sugar Mill Products or By-products	608
2062	Sugar, Refined Cane or Beet	542
2071	Candy or Other Confectionery Products	1,896
2082	Malt Liquors	3,608
2083	Malt	135
2084	Wines	1,437
2085	Distilled or Blended Liquors	382
2086	Soft Drinks or Mineral Water	54,142
2087	Miscellaneous Flavoring Extracts	156
2091	Cottonseed Oil or By-products	1,087
2092	Soybean Oil or By-products	40,439
2093	Nut or Vegetable Oils or By-products	1,288
2095	Roasted or Instant Coffee	1,390
2096	Margarine	19
2097	Ice	3,345
2099	Miscellaneous Food Preparations	5,636
32	<i>Clay, Concrete, Glass or Stone Products</i>	<i>226,880</i>
3211	Flat Glass	185
3221	Glass Containers	54
3229	Miscellaneous Glassware	1,615
3241	Portland Cement	8,688

Table B - 1 -- continued
Leading Inbound Commodities for the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
3251	Clay Brick or Tile	3,395
3253	Ceramic Floor or Wall Tile	191
3255	Refractories	4,168
3269	Miscellaneous Pottery Products	87
3271	Concrete Products	4,581
3273	Ready-mix Concrete, Wet	153,672
3275	Gypsum Products	1,131
3281	Cut Stone or Stone Products	2,130
3291	Abrasive Products	59
3292	Asbestos Products	24
3295	Nonmetallic Minerals	46,088
3296	Mineral Wool	759
3299	Miscellaneous Nonmetallic Mineral Products	53
29	<i>Petroleum or Coal Products</i>	<i>115,940</i>
2911	Petroleum Refining Products	40,439
2912	Liquefied Gases	58,344
2951	Asphalt Paving Blocks or Mixtures	12,386
2952	Asphalt Coatings or Felts	4,207
2991	Miscellaneous Coal or Petroleum Products	564
01	<i>Farm Products</i>	<i>99,165</i>
0110	Field Crops	77,978
0113	Grain	6,489
0114	Oil Kernels	3,094
0119	Miscellaneous Field Crops	44
0120	Fresh Fruits or Tree Nuts	355
0140	Livestock or Livestock Products	11,205
34	<i>Fabricated Metal Products</i>	<i>91,433</i>
3428	Builders or Cabinet Hardware	44

Table B - 1 -- continued
Leading Inbound Commodities for the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
3429	Miscellaneous Hardware	47
3432	Plumbing Fixture Fittings	1
3433	Heating Equipment	694
3441	Fabricated Structural Metal Products	6,692
3442	Metal Doors	285
3443	Fabricated Plate Products	51,556
3444	Sheet Metal Products	482
3446	Architectural Metal Work	60
3449	Miscellaneous Metal Work	690
3452	Bolts or Other Industrial Fasteners	140
3461	Metal Stampings	10,007
3481	Miscellaneous Fabricated Wire Products	493
3491	Metal Shipping Containers	23
3492	Metal Safes or Vaults	152
3494	Valves or Pipe Fittings	371
3499	Other Fabricated Metal Products	19,696
26	<i>Pulp or Paper Products</i>	52,898
2611	Pulp or Pulp Mill Products	17,003
2621	Paper	2,167
2631	Fibreboard, Paperboard or Pulpboard	14,161
2642	Envelopes	475
2643	Paper Bags	7,102
2644	Wallpaper	1,242
2645	Die-cut Paper or Paperboard Products	147
2647	Sanitary Paper Products	1,393
2649	Miscellaneous Converted Paper Products	6
2651	Containers or Boxes	7,178
2654	Sanitary Food Containers	562

Table B - 1 -- continued
Leading Inbound Commodities for the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
2655	Fibre Cans	8
2661	Building Paper or Building Board	1,454

Source: Freight Goods Movement Database

Table B - 2
Leading Outbound Commodities from the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
24	<i>Lumber or Wood Products</i>	3,363,816
2411	Primary Forest Materials	2,435,201
2421	Lumber or Dimension Stock	174,502
2429	Miscellaneous Sawmill or Planing Mill Products	193,886
2431	Millwork or Cabinetwork	1,608
2432	Plywood or Veneer	259,340
2433	Prefabricated Wood Buildings	16,154
2434	Kitchen Cabinets	2,010
2439	Structural Wood Products	1,115
2441	Wood Containers or Box Shooks	3,828
2491	Treated Wood Products	73,582
2494	Cork Products	30,510
2497	Wooden Ware or Flatware	30,690
2498	Other Wood Products	62,107
2499	Miscellaneous Wood Products	79,283
08	<i>Forest Products</i>	3,116,997
0800	Forest Products	3,116,997
26	<i>Pulp or Paper Products</i>	620,793
2621	Paper	15,662
2631	Fibreboard, Paperboard or Pulpboard	358,633
2643	Paper Bags	43,531
2645	Die-cut Paper or Paperboard Products	71
2647	Sanitary Paper Products	20,301
2649	Miscellaneous Converted Paper Products	3,671
2651	Containers or Boxes	169,471
2654	Sanitary Food Containers	8,254
2655	Fibre Cans	1,199

Table B - 2 -- continued
Leading Outbound Commodities from the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
<i>01</i>	<i>Farm Products</i>	<i>486,634</i>
0110	Field Crops	159,484
0112	Cotton, Raw	11,894
0113	Grain	113,886
0114	Oil Kernels	144,545
0120	Fresh Fruits or Tree Nuts	982
0139	Miscellaneous Fresh Vegetables	22,569
0140	Livestock or Livestock Products	11,205
0141	Livestock	3,668
0150	Poultry or Poultry Products	18,401
<i>20</i>	<i>Food Products</i>	<i>432,666</i>
2011	Meat, Fresh or Chilled	46
2012	Meat Fresh-frozen	60
2013	Meat Products	122
2015	Dressed Poultry	34,365
2016	Dressed Poultry	22,272
2017	Processed Poultry or Eggs	31,237
2024	Ice Cream or Related Frozen Desserts	58
2025	Cheese or Special Dairy Products	2,342
2026	Processed Milk	656
2032	Canned Specialties	16,057
2033	Canned Fruits or Vegetables	3,947
2035	Pickled Fruits or Vegetables	38
2037	Frozen Fruit or Vegetables	34
2038	Frozen Specialties	63
2042	Prepared or Canned Feed	274,500
2044	Milled Rice	11,094
2046	Wet Corn Milling or Milo Products	1,895

Table B - 2 -- continued
Leading Outbound Commodities from the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
2051	Bread or Other Bakery Products	4,238
2082	Malt Liquors	39
2085	Distilled or Blended Liquors	83
2086	Soft Drinks or Mineral Water	3,700
2087	Miscellaneous Flavoring Extracts	88
2091	Cottonseed Oil or By-products	6,209
2092	Soybean Oil or By-products	9,584
2094	Marine Fats or Oils	2
2095	Roasted or Instant Coffee	1,146
2096	Margarine	4,412
2097	Ice	1,022
2099	Miscellaneous Food Preparations	3,357
23	<i>Apparel or Related Products</i>	378,971
2311	Mens or Boys Clothing	310,423
2331	Womens or Childrens Clothing	53,463
2371	Fur Goods	179
2384	Robes or Dressing Gowns	7
2389	Other Apparel	13,911
2392	Textile Housefurnishings	227
2393	Textile Bags	246
2395	Textile Products, Pleated, Quilted, Embroidered, etc.	334
2396	Apparel Findings	181
40	<i>Waste or Scrap Materials</i>	249,388
4021	Metal Scrap, Waste or Tailings	231
4024	Paper Waste or Scrap	31,661
4029	Miscellaneous Waste or Scrap	217,496
50	<i>Redistribution</i>	97,209
5010	Warehouse and Distribution Center	8,813

Table B - 2 -- continued
Leading Outbound Commodities from the Yellow Bend Harbor Area
(Ashley, Bradley, Chicot, Desha, and Drew Counties)

STCC	Commodity Description	Annual Tonnage
5020	Rail Intermodal Drayage	88,266
5030	Air Freight Drayage	130
28	<i>Chemical Products</i>	70,605
2813	Industrial Gases	400
2818	Miscellaneous Industrial Organic Chemicals	9
2821	Plastic Materials or Synthetic Fibres	11,000
2844	Cosmetics	2,057
2851	Paints	26
2861	Gum or Wood Chemicals	11,800
2871	Fertilizers	736
2879	Miscellaneous Agricultural Chemicals	3,434
2891	Adhesives	20
2892	Explosives	21
2893	Printing Ink	6
2899	Other Chemical Preparations	41,096
29	<i>Petroleum or Coal Products</i>	50,334
2911	Petroleum Refining Products	50,334

Source: Freight Goods Movement Database

Appendix C
Glossary of Intermodal Terms

Intermodal Terms and Definitions

AAR – The 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 – to bring a shipment back over part of the route it has already traveled or the return movement of a vehicle from its destination to its origin

barges – four 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

benefit/cost ratio – an analytical tool used to establish the ratio of total measurable benefits to capital cost

bill of lading – a contract document between carrier and shipper

blocking – the grouping of railcars for movement to another location

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 – consists of large units of semi- or manufactured commodities which are packaged (boxes, drums) or self packaged
- neo-bulk cargo – consists of 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 of Railroads – three types based on annual operating revenue

- **Class I** – carriers generating \$261.9 million or more in revenue
- **Class II** – carriers with at least \$21 million but less than \$261.9 million in revenue (none in Arkansas)
- **Class III** – carriers with less than \$21 million in revenue. Commonly referred to as a short-line railroad

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 storage of containerized freight

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

Customs duty – 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

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

double stack – stacking containers, frequently of differing lengths, on top of each other on a rail car

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 (FTZ) – a designated area where imported goods can be stored, displayed, sold, and/or manufactured without being subject to certain quota restrictions and some Customs formalities; for exports, an FTZ provides accelerated status for purposes of excise tax rebates and Customs drawbacks

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

interchange – transfer of cargo between carriers

interchange track – section of track where rail cars are exchanged between two or more railroads

intermediate haulage – a short train movement, usually between a rail marshalling yard and a local industry

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

intermodal transfer – transfer of commodities between two modes

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 goods are received

line haul – movement of freight from one point to another

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)

marshalling yard – a series of parallel rail tracks where railcars are stored and grouped for distribution

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)

railcars – 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

rail weight – the weight of rail measured in pounds per yard

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

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

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

team track – rail tracks on which rail cars are placed for common public use 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)

tramp loading site – loading site for transfers of bulk commodities between trucks, trains and/or containers

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

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

transload site – a location where products are temporarily stored and then loaded into a railcar, truck or container

truck cross-dock terminal – a location where cargo is transferred between long haul trucks and small delivery trucks, as part of a freight consolidation service

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).

Yellow Bend Slackwater Harbor Study Phase II



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