

**Fayetteville South Industrial Park  
Railroad Access Study**

**Washington County**

**October 2003**



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Prepared by:  
Planning and Research Division  
Arkansas State Highway and Transportation Department

In cooperation with:  
United States Department of Transportation  
Federal Highway Administration  
Fayetteville Chamber of Commerce  
City of Fayetteville  
Arkansas and Missouri Railroad

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## **Section I Introduction**

### **Scope of Work**

The cost-effective movements of incoming material to be processed and the outgoing finished products destined for domestic and international markets are vital to the industries in the Fayetteville South Industrial Park. A key component to providing shippers in the park with low cost freight transportation is rail service.

This study offers a general assessment of a rail line connection between the Arkansas and Missouri (AM) Railroad mainline track and the Fayetteville South Industrial Park. The analysis included: (1) an overview of the industrial park and the AM Railroad; (2) an estimate of potential rail shipments; (3) strategies for establishing viable rail service including the identification of rail line route alternatives; (4) a comparison evaluation of alternatives; and (5) design considerations and cost estimates.

### **Study Authorization**

Arkansas Highway Commission Minute Order 2002-099 authorized the Department to participate in a study of rail service to the Fayetteville South Industrial Park. An advisory committee composed of the Fayetteville Chamber of Commerce, the City of Fayetteville, and the Arkansas and Missouri Railroad provided guidance in preparing the report. As defined by the committee, the intent of the proposed project is to enhance economic development by bringing rail service to existing industries in the park and to prospects that require rail service.

## Section II General Assessment

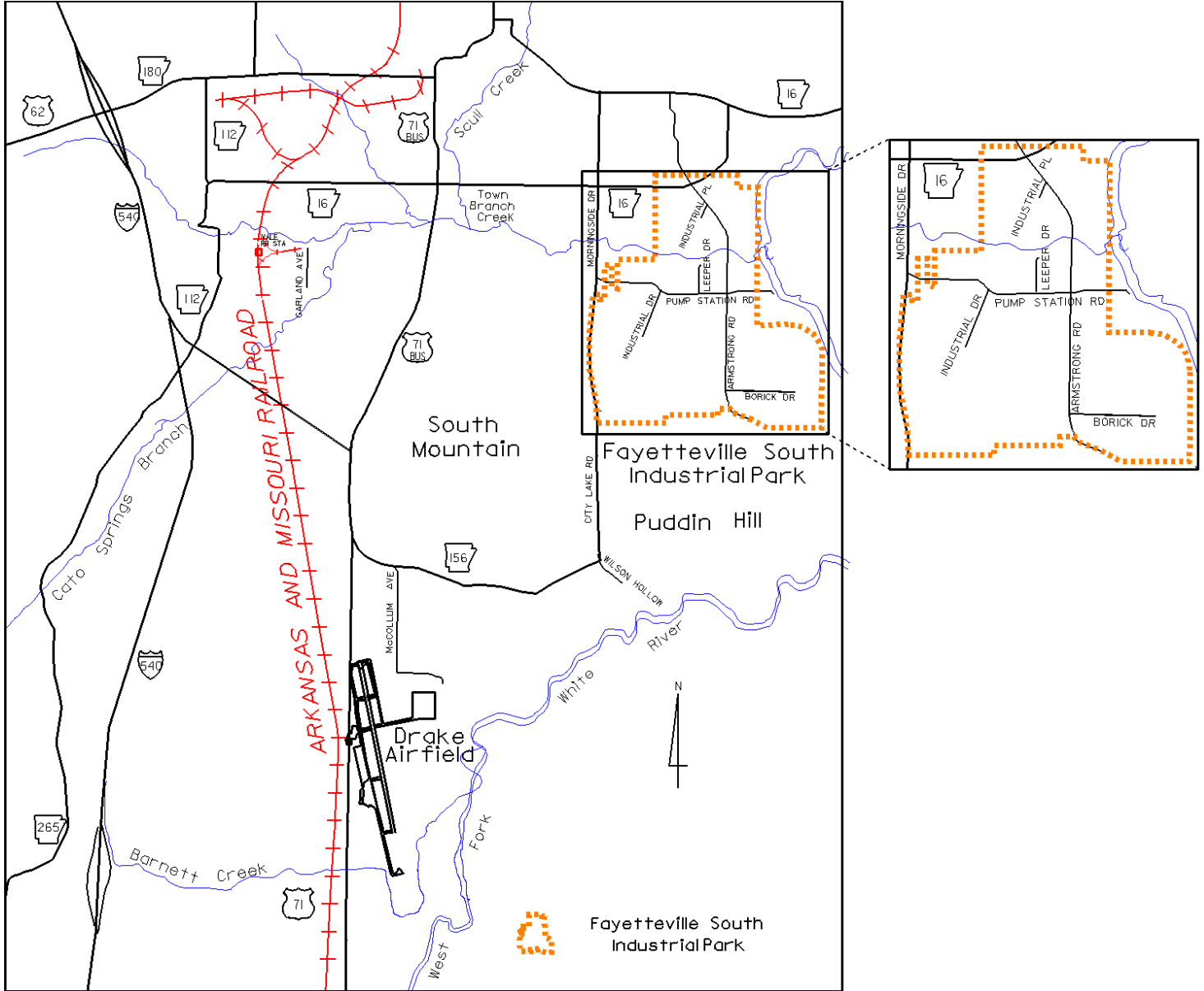
### Fayetteville South Industrial Park

The Fayetteville South Industrial Park is located in the southeast section of Fayetteville (see Figure 1). Primary access to the park is from Highway 16, a four-lane highway. The park features both commercial and industrial sites on approximately 700 acres. Table 1 lists current park tenants and their major products.

**Table 1  
Park Tenants/Products**

| Tenant                       | Major Products                |
|------------------------------|-------------------------------|
| PACMAC, Inc.                 | Packaging Machinery           |
| United States Parcel Service | Mail/Parcels                  |
| Danaher Tool Group           | Specialty Automotive Tools    |
| Marshalltown Tools           | Hand Tools                    |
| SWEPCO                       | Building Maintenance Products |
| Amerigas                     | Natural Gas                   |
| Tyson Foods                  | Poultry                       |
| Hanna's Candle Company       | Candles                       |
| City of Fayetteville         | Salt/Sand/Gravel              |
| Waste Management, Inc.       | Garbage                       |
| Armstrong Tools              | Hand Tools                    |
| Superior Industries          | Aluminum Wheels               |
| American Air Filter          | Air Filters                   |
| Bioengineering Resources     | Bioagricultural Products      |
| Northwest Electric, Inc.     | Electrical Contractor         |
| Bargo Engineering            | Metal Stamping                |
| Northwest Oil Company        | Bulk Oil                      |
| Package Specialist, Inc.     | Printing                      |

**Figure 1**  
**Vicinity Map**



### **Arkansas and Missouri (AM) Railroad**

The Arkansas and Missouri (AM) Railroad is a Class III railroad<sup>1</sup> that serves industries in southern Missouri and northwest Arkansas. The rail line extends from Monett, Missouri to Fort Smith, Arkansas, a distance of 140.5 miles. Figure 2 shows the location of the rail line in Arkansas.

The headquarters for the AM Railroad is located at Springdale, Arkansas. Maintenance facilities are located at Springdale and Fort Smith, Arkansas and include a railcar shop, an engine house, and a rebuild shop. The railroad has a fleet of 22 locomotives and over 700 freight cars.

Freight trains operate daily beginning Sunday evening to Saturday morning. In 2002, the Arkansas and Missouri Railroad served 170 customers and moved approximately 46,000 freight cars. Railcars are interchanged with three Class I railroads and one Class III railroad. The Class I railroads are the Union Pacific Railroad, the Burlington Northern and Santa Fe Railway and the Kansas City Southern Railway. The Class III railroad is the Fort Smith Railroad.

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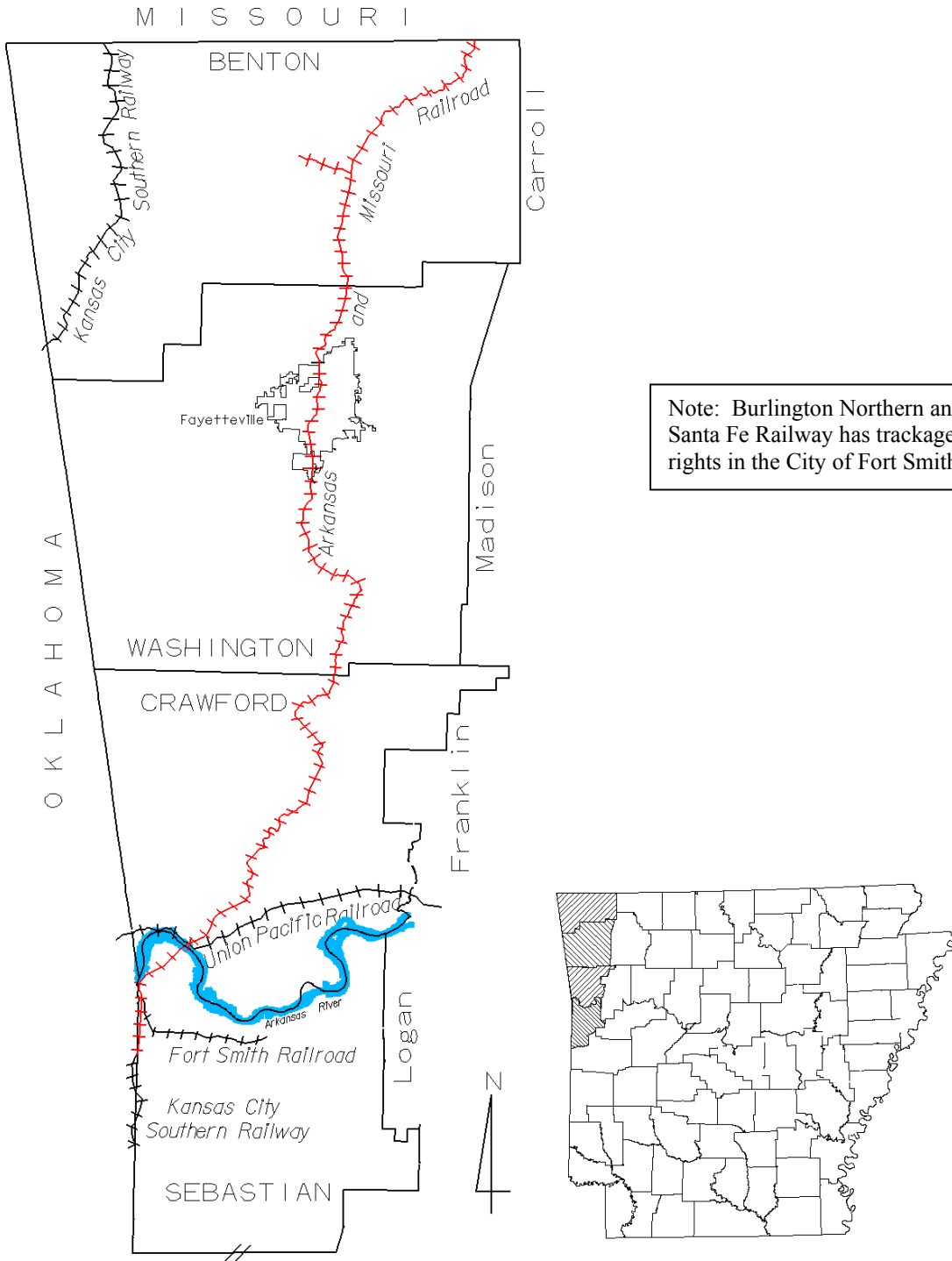
<sup>1</sup> Class of Railroad – based on revenues

Class I Railroad – railroad that provides national rail service

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

Class III Railroad – railroad that usually provides local rail service

**Figure 2**  
**Arkansas and Missouri Railroad Line**





### Potential Rail Shipments

Existing industrial park tenants were surveyed to determine possible rail freight shipments (annual carloads) and commodity types. Nearby businesses were surveyed to determine their possible interest in rail service if available at the park. This information is summarized in Tables 2 and 3. Over 7,500 carloads (inbound and outbound) are possible annually.

**Table 2  
Potential Rail Shipments from Park Tenants**

| <b>Company</b>       | <b>Annual Carloads Inbound</b> | <b>Annual Carloads Outbound</b> | <b>Commodity Type</b> |
|----------------------|--------------------------------|---------------------------------|-----------------------|
| Marshalltown Tools   | 5                              | 35                              | Hand Tools            |
| City of Fayetteville | 8                              | 0                               | Salt/Sand/Gravel      |
| American Air Filter  | 85                             | 175                             | Air Filters           |
| Tyson Foods          | 500                            | 0                               | CO <sub>2</sub>       |
| Hanna's Candle       | 410                            | 0                               | Candles               |
| Superior Industries  | 1,750                          | 1,250                           | Aluminum Wheels       |
| Waste Management     | 0                              | 1,882                           | Garbage               |
| Totals               | 2,758                          | 3,342                           |                       |

**Table 3  
Potential Rail Shipments from Nearby Industries**

| <b>Commodity Type</b>                           | <b>Annual Carloads Inbound</b> | <b>Annual Carloads Outbound</b> |
|---|--------------------------------|---------------------------------|
| Sand and Steel                                  | 370                            | 200                             |
| CO <sub>2</sub> , Vegetables, and Plastic Trays | 450                            | 0                               |
| Food Commodities                                | 38                             | 375                             |
| Totals  | 858                            | 575                             |

### Strategies

Arkansas' manufacturers and processors operate in a very competitive business environment. Freight transportation fees and the costs for product handling, packaging and storage directly impact the price of goods at the marketplace. Several trends in

warehousing, distribution and freight consolidation could impact future shipping and receiving costs.

### **Freight Shipping Trends**

- Use of containers and trailers as in-transit warehouses.
- Tendency to outsource product handling to third party specialists.
- Distributors seek centralized locations, in relation to national marketplaces, for next day or two-day delivery service.
- Warehouse purposes and uses are changing.
  - ✓ Through e-commerce (the electronic marketplace), warehouses serve as distribution centers instead of as locations to store inventory.
  - ✓ Services such as product assembly, sorting, wrapping, reloading and product shipping are available.

Rail support facilities and services will be needed to effectively handle anticipated railcar loads. Following is a list of strategies to attract local and regional rail freight shipments.

### **Rail Service Strategies**

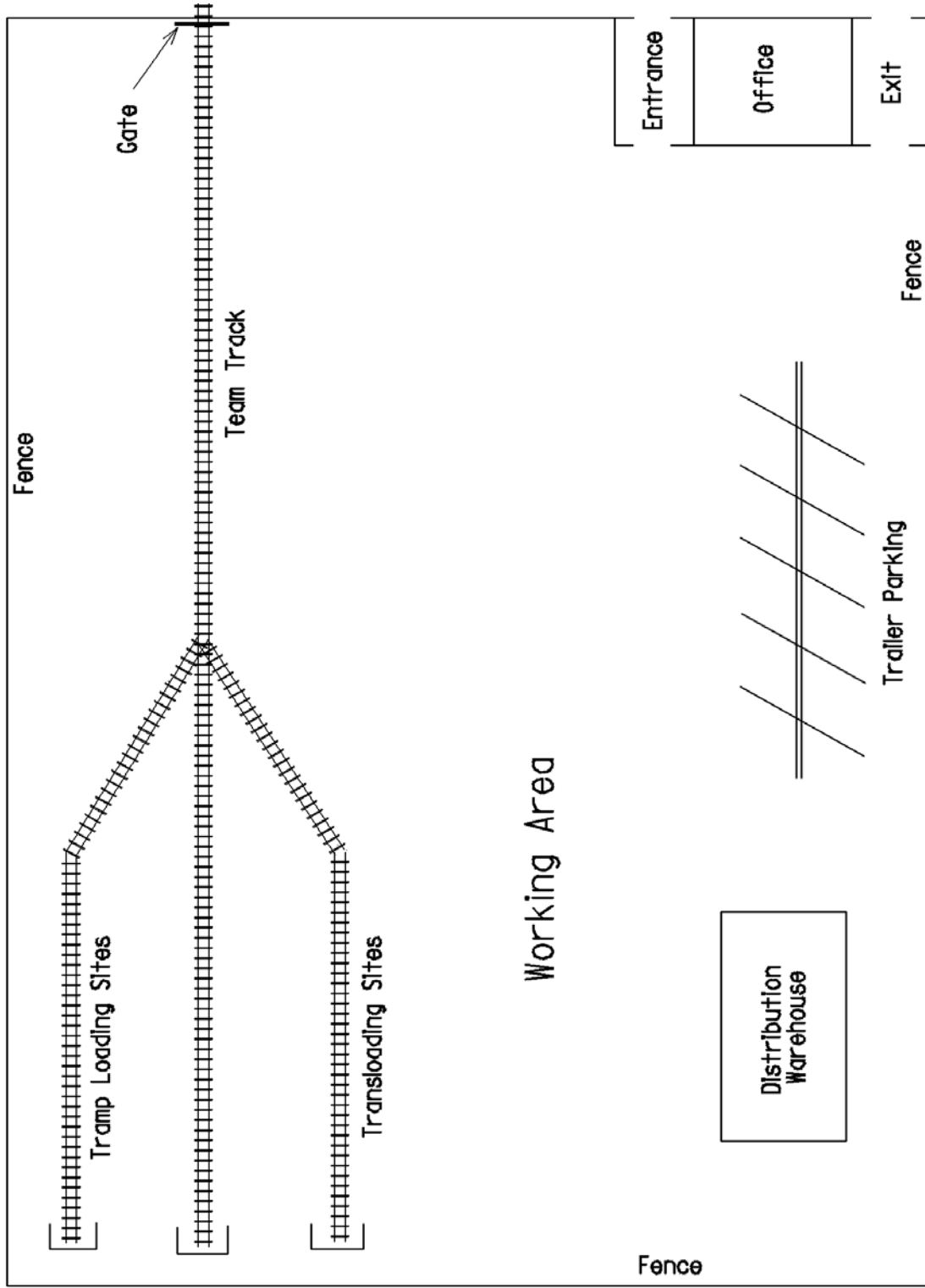
- Provide facilities to encourage the transfer of freight between modes.
  - ✓ Rail/Truck Bulk Freight Terminal
  - ✓ Truck Cross-Dock Terminal
  - ✓ Truck Staging Area
  - ✓ Public Warehouses
- Offer Labeling, Bagging, and Repackaging Service
- Establish a Foreign Trade Sub-Zone

A rail/truck bulk freight terminal (Figure 3) might be needed that can handle large volumes of inbound and outbound freight or where customers' orders could be assembled. The terminal could include:

- Team Track - a rail track on which railcars are placed for the common public use in loading and unloading freight;
- Tramp Loading Site - a loading site for transfers of bulk commodities between trucks and trains and/or containers;
- Transload Site - a location where products are temporarily stored and then loaded into a railcar for shipment;
- Distribution Warehouse - a warehouse for storing finished or semi-finished goods from which customer orders are assembled; and
- Parking Area - for truck trailers and containers.

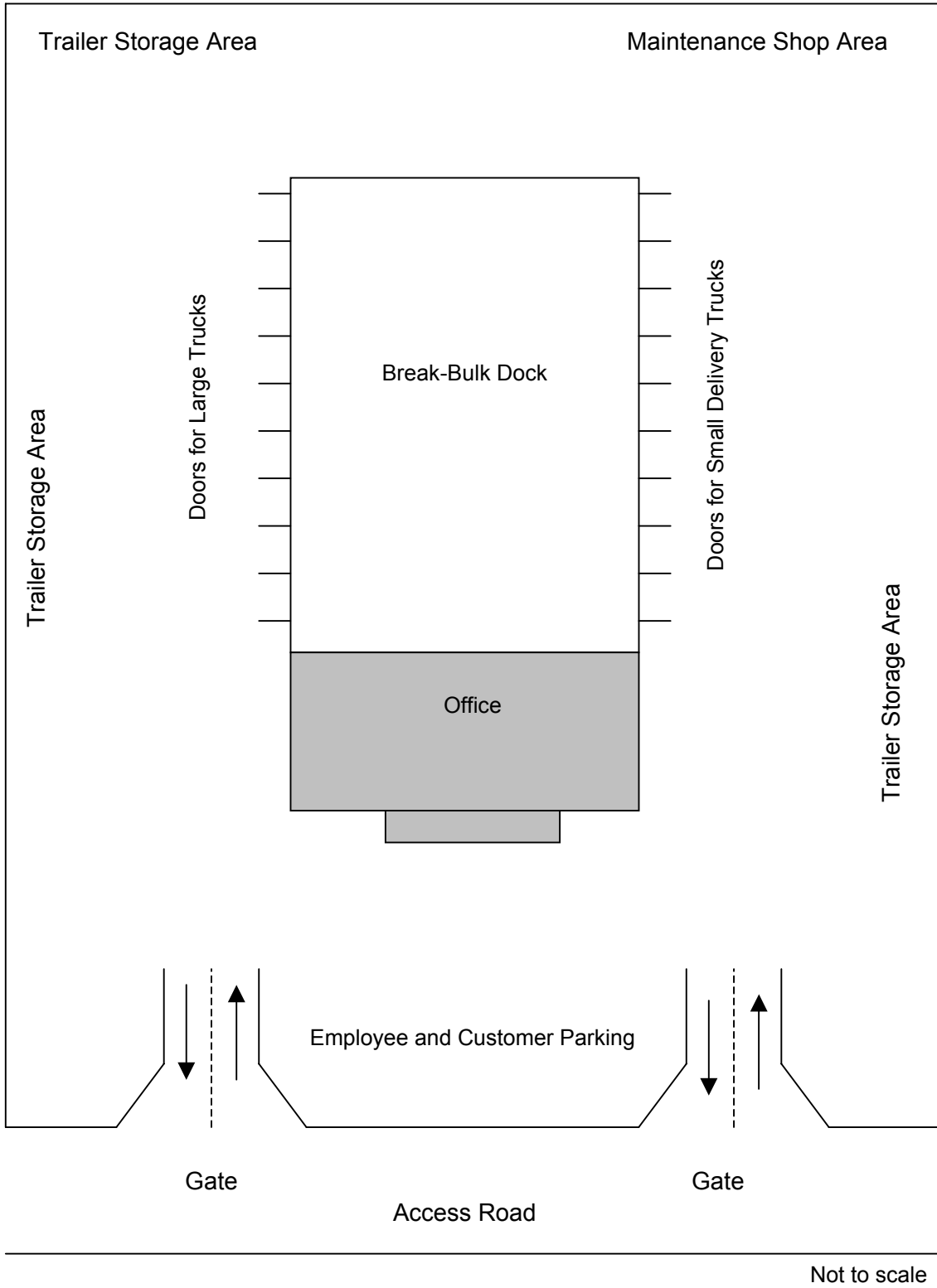
A truck cross-dock terminal where cargo can be transferred between long haul trucks and small delivery trucks, as part of a freight consolidation service would be valuable to support rail service. A typical layout for a cross-dock terminal is shown in Figure 4.

**Figure 3  
Typical Layout of a Rail/Truck Bulk Freight Terminal**



Not to scale

**Figure 4**  
**Typical Layout of a Cross-Dock Terminal**



Quality warehouses and distribution services are important to shippers in rural areas in Northwest Arkansas. Suggested warehouse amenities include high ceilings with an overhead crane for better stacking of products and climate controlled areas for storing products that require temperature and moisture control. A growing segment of warehouse activities are product labeling, bagging and repackaging.

#### Potential Advantages of a Foreign Trade Zone

A Foreign Trade Sub-Zone building could benefit regional import and export activities that involve rail shipments. A Foreign Trade Sub-Zone is a U.S. stateside site that is considered outside U.S. Customs territory and is available for activities that might otherwise be carried on overseas. The activities within a Sub-Zone are protected from U.S. Customs issues. For export operations, a Sub-Zone provides accelerated export status for purposes of excise tax rebates and customs drawback. For import and re-export activities, no customs duties, federal excise taxes, or state or local ad valorem taxes are charged on foreign goods moved into a zone unless and until the goods, or products made from them, are moved into Customs territory. This means that the use of a Sub-Zone can be profitable for operations involving foreign dutiable materials and components being assembled or produced here for re-export. Also, no quota restrictions ordinarily apply.

#### **Other Foreign Trade Sub-Zone Benefits**

- ✓ Foreign and domestic merchandise can be brought into a Sub-Zone for storage, exhibition, assembly, processing and manufacturing.
- ✓ Imports may be stored in a Sub-Zone without full Customs formalities. U.S. quota restrictions, duty and bonding are not applicable in a Sub-Zone.
- ✓ A company's cash flow could be improved because the duties on goods are not paid until they leave the Sub-Zone. If goods are exported, U.S. Customs duty payments are not required. Goods may be withdrawn in less than case lots or in other partial amounts.
- ✓ Insurance on goods in storage can be limited to value plus ocean freight, rather than value plus freight plus duty plus taxes paid.
- ✓ Buyers may inspect and sample goods displayed in a showroom before purchase and payment of duty.
- ✓ Order for goods may be accepted before payment of duty or excise tax.
- ✓ Goods may be processed to qualify for the lowest duties or freight charges. Duty payment may be avoided on damaged or substandard items.
- ✓ Goods may be altered, re-labeled or re-marked to meet federal or local requirements or to avoid fines for improperly marked merchandise. Samples of goods may be withdrawn to submit to Customs for proper classification.
- ✓ For products manufactured in a Sub-Zone, the rate of duty or quota limitation on the finished product entering U.S. markets may be applied to the finished product

(the percentage of which is of foreign origin) or to the foreign materials in the finished product.

- ✓ Goods in excess of U.S. import quotas may be imported and held until the next quota period.
- ✓ Salvage or repair damaged goods may be carried out to maximum market advantage, duty and quota free.
- ✓ Certain bonded merchandise may be transferred to a Sub-Zone for export, canceling the bond or time limit applicable to bonded warehouses, and making possible immediate recovery of taxes already paid.
- ✓ On goods destined for export, recovery of U.S. Customs duty or of certain state taxes can be made upon entry into a Sub-Zone.
- ✓ Merchandise stored has an added protection against theft because the facility is under Customs security supervision.
- ✓ Posting of bond for missing documents can be avoided because goods can be held until the documents are found.

## **Section III**

### **Rail Line Connection Assessment**

An initial assessment was conducted concerning a rail line connection between the Arkansas and Missouri Railroad mainline track and the Fayetteville South Industrial Park. The assessment consisted of: (1) the identification of possible rail line routes; (2) determination of highway/railroad at-grade crossings, water features to be bridged and potential constraints; and (3) design considerations and cost estimates.

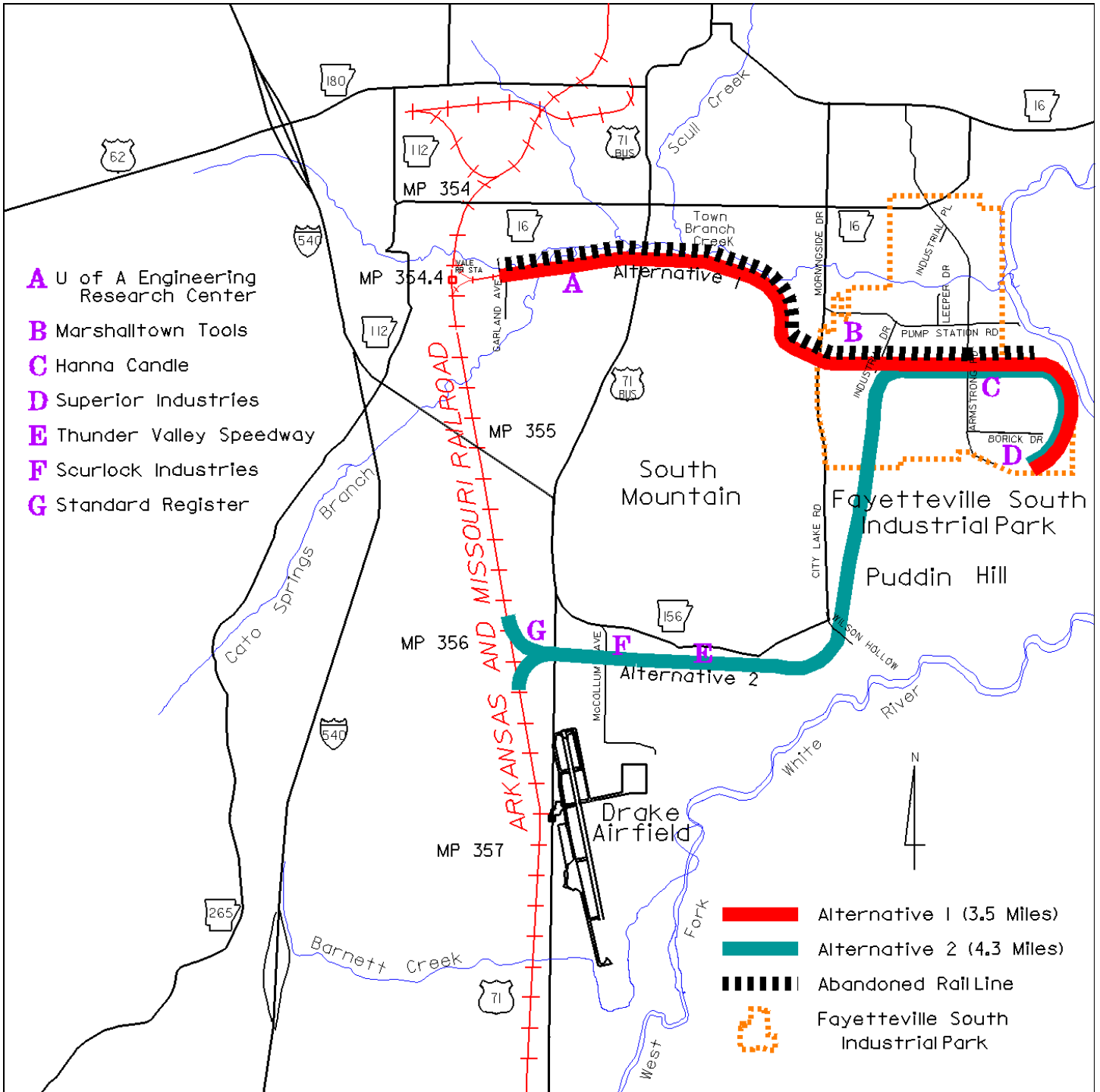
#### **Description of Alternatives**

Two rail line route alternatives to the industrial park were identified. The routes are described below and are shown on Figure 5. Each route would end near Superior Industries. This location was chosen due to the availability of land that can be used for a future marshalling yard or for possible industrial park expansion.

*Alternative 1* begins in the vicinity of Arkansas and Missouri Railroad milepost (MP) 354.4, then proceeds easterly following the abandoned Burlington Northern and Santa Fe (BNSF) rail line to Superior Industries, a distance of approximately 3.5 miles. The BNSF railroad once provided rail service to the Fayetteville South Industrial Park. The rail line was abandoned in the late 1980's during a time when large railroads discontinued service to many spur tracks. The terrain along the corridor is level to rolling hills. There are residential and industrial sites on the west end of the route and a few residential and commercial areas near Highway 71B and Highway 156. The University of Arkansas Engineering Research Center is located very close to the proposed route. University research officials have expressed concern about possible train noise and vibration.

*Alternative 2* starts near MP 356 then proceeds east and northeast to the abandoned rail line, then easterly to Superior Industries a length of approximately 4.3 miles. The terrain is similar to Alternative 1. The route would traverse a level passage between South Mountain and Puddin Hill. There are several industries on the west end of the corridor near Drake Airfield. The area is primarily undeveloped from the airfield to the abandoned rail line.

**Figure 5  
Alternative Rail Line Routes**





### Comparison of Alternatives

Each alternative corridor was evaluated to determine the location of highway/railroad crossings, water features to be bridged, and other potential constraints to construction. This information is presented in Table 4.

**Table 4  
Comparison of Features**

| Features    |               |                         |                       |                                  |                        |  |
|-------------|---------------|-------------------------|-----------------------|----------------------------------|------------------------|--|
| Alternative | Road Crossing |                         |                       | Waterway                         |                        | Other Constraints  |
|             | Street        | Width of Highway (feet) | Average Daily Traffic | Name                             | Type of Crossing       |  |
| 1           | Garland Ave.  | 24                      | 600                   | Towne Branch Creek & Scull Creek | Bridge Lengths 28 feet | ✓ Residential and Commercial Sites<br>✓ U of A Research Center |
|             | Hwy. 71B      | 60                      | 11,000                |                                  |                        |  |
|             | Morningside   | 30                      | 1,700                 |                                  |                        |  |
|             | Armstrong     | 30                      | 5,200                 |                                  |                        |  |
| 2           | Hwy. 71       | 60                      | 8,800                 | N/A                              | N/A                    | ✓ Industrial Sites   |
|             | McCollum Ave. | 20                      | n/a                   |                                  |                        |  |
|             | Wilson Hollow | 20                      | 170                   |                                  |                        |  |
|             | Armstrong     | 30                      | 5,200                 |                                  |                        |  |

### Design Considerations/Cost Estimates

Both alternative rail line routes would involve new construction. Table 5 provides rail line design guidelines and Table 6 shows typical costs for one mile of track. The design guidelines are based on Federal Railroad Administration industry standards for Class III railroads using criteria for heavy axle loads. The guidelines are contained in the Arkansas State Rail Plan – Year 2002.

The load bearing capacity guidelines are for constructing a rail line capable of handling the new 286,000- or 315,000-pound loaded railcars. To adequately accommodate these railcars, the weight of rail and track components will need to be 131 pounds or higher with bridges constructed to a 315,000-pound rating. Weight of rail is a per yard measurement. The higher weight rail allows for:

- ✓ Greater load bearing capacity
- ✓ Reduced wear on curved track
- ✓ Less equipment damage
- ✓ Higher train speeds
- ✓ Lower operating costs
- ✓ Less rail failure such as compound fissures and fractures

**Table 5  
Rail Line Design Guidelines**

|  |  |
|--|--|
| Right-of-Way (Minimum)   | 100 Feet                                 |
| Track Curvature (Maximum)  | 7.0 Degrees, 30 Minutes                  |
| Track Grade (Maximum)  | 2 Percent                                |
| Minimum Weight of Rail   | 131 Pounds                               |
| Top Ballast Depth  | 12 Inches                                |
| Subballast Depth   | 10 Inches                                |
| Number of Crossties Per Mile   | 3,168 (60 ties per 100 feet)             |
| Crosstie   | 6 Inches x 8 Inches x<br>8 Feet 6 Inches |
| Grade of Tie   | Grade 3/End Plated                       |
| #8 or #10 Switch Tie   | 9 Feet to 16 Feet                        |
| #8 or #10 Turnout  | A.R.E.A Standards <sup>2</sup>           |
| Bridge Strength  | Rating of 315,000 Pounds                 |
| <b>Source: A.R.E.A. Manual for Railway Engineering<br/>Track Data Handbook – 1994<br/>Track Cyclopedia – Ninth Edition</b> |  |

<sup>2</sup> A.R.E.A. – American Railway Engineer Association

**Table 6  
Typical Materials Costs  
For One Mile of Track**

| <b>Item</b>  | <b>Unit</b> | <b>Quantity</b>           | <b>Unit Cost</b> | <b>Total Cost</b> |
|--|-------------|---------------------------|------------------|-------------------|
| Rail (131-pounds)  | Net Ton     | 232                       | \$400            | \$92,800          |
| #10 Turnout Package <sup>3</sup>   | Each        | One                       | \$8,000          | \$8,000           |
| Crosstie (60 ties per 100 feet)  | Each        | 3,168                     | \$20             | \$63,360          |
| #10 Timber Set   | Each        | Per Switch                | \$4,000          | \$4,000           |
| Ballast (Granite) <sup>4</sup>   | Net Ton     | 3,000 (Top)               | \$6.85           | \$20,550          |
|  |             | 6,000 (Sub)               | \$5.57           | \$33,420          |
| Bridge (Rating of 315,000-pounds)  | Linear Foot | \$2,800 to \$3,200 per LF |                  |                   |
| Culvert  | Each        | Depends on Diameter       |                  |                   |
| <b>Track Components (131-pound material)</b>                                     |             |                           |                  |                   |
| Joint Bar  | Pair        | 270                       | \$45             | \$12,150          |
| Tie Plate (Double Shoulder) (12" Relay)  | Each        | 6,400                     | \$5.50           | \$35,200          |
| Spikes (5/8" x 6")   | Keg         | 55                        | \$65             | \$3,575           |
| Rail Anchor  | Each        | 3,000                     | \$0.90           | \$2,700           |
| Track Bolt   | Keg         | 11                        | \$175            | \$1,925           |
| Lock Washers   | Each        | 1,100                     | \$0.30           | \$330             |
| Track Nuts   |             | Comes With Bolts          |                  |                   |
| At-Grade Crossing (Concrete 9' Ties)   | Each        | \$155 per Track Foot      |                  |                   |
| <i>Source: Track Data Handbook – 1994<br/>Track Encyclopedia – Ninth Edition</i> |             |                           |                  |                   |

Total cost of material for one mile of track is approximately = \$280,000 (Includes one turnout package and timber set; excludes bridges or culverts and at-grade crossings.)

**Cost Estimates**

Table 7 provides a range of estimated costs for the alternative rail line routes. Estimates include materials to construct a typical mile of track, site preparation estimated at \$275,000 per mile, bridge construction and signals and gates for each railroad crossing. Total cost could be as high as \$1 million per mile, depending on additional costs such as right-of-way acquisition, relocations, and labor.

**Table 7  
Cost Estimates for Alternative Rail Line Routes**

| <b>Alternative</b> | <b>Cost Range (in millions)</b> |
|--------------------|---------------------------------|
| 1                  | \$2.7 – \$3.5                   |
| 2                  | \$2.9 – \$4.3                   |

<sup>3</sup> Turnout package includes switch ties (54 to 56 ties), switch stand, connecting rods, self-guarded frog and related track components

<sup>4</sup> “D” Track Ballast (size 2” to 2-1/2”)

## **Section IV Summary**

The study considers two different rail line alternatives that would enable the Industrial Park to obtain rail service. Either option can be constructed and each has unique advantages. Alternative 1 follows an abandoned railroad right-of-way, which could reduce land cost. Alternative 2 would enable the Arkansas and Missouri Railroad to provide rail service to other industries in addition to businesses in the Industrial Park.

Strategies were offered to establish cost-effective and efficient rail service at the park. They include facilities and support services. Cost estimates and rail line design guidelines were provided along with comparison data for the alternatives. Additional studies should be conducted to determine the best alignment and final construction costs for a rail line.

*Appendix A*  
*Industrial Park Questionnaire*

**Fayetteville South Industrial Park Questionnaire**  
**Arkansas State Highway and Transportation Department**



**Name of Company:** \_\_\_\_\_

**Contact Person:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Anticipated Annual Carloads**

| <u>Year</u> | <u>Inbound</u> | <u>Outbound</u> |
|-------------|----------------|-----------------|
| 2003        |                |                 |
| 2004        |                |                 |
| 2005        |                |                 |
| 2006        |                |                 |
| 2007        |                |                 |

Annual Hazardous Carloads: \_\_\_\_\_

**Potential Commodities Handled**

| <u>Cargo</u> | <u>Origin</u> | <u>Destination</u> |
|--------------|---------------|--------------------|
| 1.           |               |                    |
| 2.           |               |                    |
| 3.           |               |                    |
| 4.           |               |                    |
| 5.           |               |                    |

**Possible Rail Support Facilities**

|                       | <u>Yes</u> | <u>No</u> |
|-----------------------|------------|-----------|
| Warehouse             |            |           |
| Bagging Facility      |            |           |
| Transloading Facility |            |           |
| Dry/Liquid Bulk Tanks |            |           |
| Truck Scales          |            |           |
| Marshalling Yard      |            |           |
| Other: _____          |            |           |
| _____                 |            |           |

***Appendix B***  
***Industrial Park Pictures***

Superior Industries – Front Parking Lot



Superior Industries – Side Parking Lot





Hanna's Candle Company Building – Side View



Hanna's Candle Company – Front Entrance  
(Superior Industry Building in Background)



American Air Filter Building



Marshalltown Tools Distribution Center



## Marshalltown Tools Manufacturing Facility



## Scurlock Industries Manufacturing Site





**Fayetteville South Industrial Park  
Railroad Access Study**



**Arkansas State Highway and  
Transportation Department**