Oklahoma
Department of
Transportation

May 2012

Oklahoma Statewide Freight and Passenger Rail Plan

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OKLAHOMA
STATEWIDE FREIGHT &
PASSENGER RAIL PLAN

PREPARED FOR:

Oklahoma

Department of Transportation

PREPARED BY:

PARSONS BRINCKERHOFF

Foreword

The Oklahoma Statewide Freight and Passenger Rail Plan is the result of a full year of research and study. While the plan meets congressionally stipulated requirements, it evolved beyond that basic purpose with input from a large cross-section of stakeholders and parties interested in improving rail transportation in the state of Oklahoma. The input was obtained through public forums, a website, targeted group meetings of stakeholders, and interviews.

The public and targeted group meetings were held both locally and regionally to afford interested parties an opportunity to learn about the planning process and to provide their perspectives on rail issues facing the state. Public outreach meetings were held in the following locations:

- Enid
- Lawton
- McAlester
- Oklahoma City
- Tulsa

A workshop for rail stakeholders and an open house for the general public were held at each location.

In-depth interviews and meetings were also held with representatives of the following:

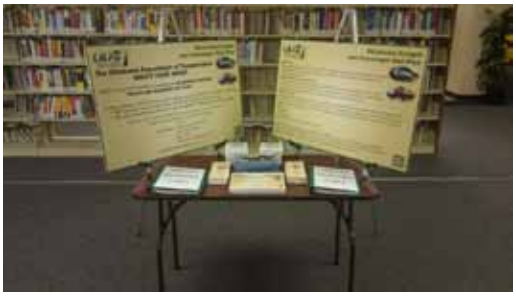
- ACOG
- BNSF
- Farmrail
- INCOG
- Mid-America Industrial Park
- Oklahoma Department of Commerce
- Oklahoma Department of Agriculture Commodities Group
- Oklahoma History Museum
- Oklahoma Trucking Association
- Port of Muskogee
- Tinker Air Force Base
- WATCO
- Ardmore Industrial Authority
- Dolese Brothers Company
- Heartland Flyer Coalition
- McAlester Army Ammunition Depot
- State Chamber of Oklahoma
- Office of the Secretary of Energy
- Oklahoma Department of Agriculture senior staff
- Oklahoma State Rail Association
- Port of Catoosa
- Representative Morrissette
- Union Pacific Railroad
- Wheat Growers Association

The participants at these meetings shared their perspectives on rail problems and needed improvements in the state. In addition, all of the railroads operating in Oklahoma provided surveys detailing their infrastructure and business in the state.

Forward

Following the public release of the draft plan, the public was afforded the opportunity to comment on the plan through the public library system and over the internet.

A significant portion of comments received were included or directly addressed in the final document. The remainder were either not addressable or were expressions of opinions beyond the scope of this plan. The comment form made available is shown here.



OKLAHOMA DEPARTMENT OF TRANSPORTATION

PUBLIC COMMENT FORM

OKLAHOMA FREIGHT & PASSENGER RAIL

We would like to thank you for taking the time to view the Oklahoma Freight & Passenger Rail Plan for 2012 & providing us with written comments. Putting your comments in writing is one of the most effective ways to have your concerns addressed.

RAIL PROGRAMS DIVISION
OKLAHOMA DEPARTMENT OF TRANSPORTATION
200 N.E. 21ST ST., Rm. 306
Oklahoma City, OK 73105-3204

Please submit comments by: 03/15/2012

NAME:

ADDRESS:

CITY: STATE: ZIP:

PHONE NUMBER: EMAIL ADDRESS:

Print Form | Reset Form | Submit via Email

FREIGHT RAIL COMMENTS:

PASSENGER RAIL COMMENTS:

ADDITIONAL COMMENTS:

Stakeholder meeting

Public Open House

Table of Contents

Table of Contents

Figures

Tables

Acronyms and Abbreviations

AAR	Association of American Railroads
ACOG	Association of Central Oklahoma Governments
ADA	Ardmore Development Authority
AIA	Ardmore Industrial Airpark
Amtrak	National Rail Passenger Corporation
AOK	Arkansas-Oklahoma Railroad Company
ARRA	American Recovery and Reinvestment Act
AT&L	Austin, Todd & Ladd Railroad
BEA	Bureau of Economic Analysis
BNGR	Blackwell Northern Gateway Railroad
BNSF	BNSF Railway Company
CAGR	compound annual growth rate
CNG	compressed natural gas
COTPA	Central Oklahoma Transit and Parking Authority
CRIP	Chicago, Rock Island and Pacific Railroad Company
CVR	Cimarron Valley Railroad
DFW	Dallas-Fort Worth Airport
DPS	Oklahoma Department of Public Safety
EIS	environmental impact statement
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FMRC	Farmrail Corporation
FRA	Federal Railroad Administration
Frisco	St. Louis-San Francisco Railway
FTZ	foreign trade zone
FY	fiscal year
GDP	gross domestic product
GIS	geographic information system
GNBC	Grainbelt Railroad
GRIP	Graphical Resource Intranet Portal
GSP	gross state product
HB	House Bill
HES	Hazard Elimination Safety
HSIPR	High Speed Intercity Passenger Rail Program
ICC	Interstate Commerce Commission
INCOG	Indian Nations Council of Governments
ITC	Intermodal Transit Center
ITS	Intelligent Transportation Systems

KCS	Kansas City Southern Railway
KDOT	Kansas Department of Transportation
KRR	Kiamichi Railroad
MAIP	Mid-America Industrial Park
MKARNS	McClellan-Kerr Arkansas River Navigation System
mph	miles per hour
MPO	municipal planning organization
MTMC	Military Traffic Management Command
MUTCD	Manual of Uniform Traffic Control Devices
NAFTA	North American Free Trade Act
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
NOKL	Northwestern Oklahoma
NPCU	non-powered control unit
OCC	Oklahoma Corporation Commission
ODOT	Oklahoma Department of Transportation
	map-based field data collection software
OK.RAIL	Oklahoma Department of Transportation Rail Assessment, Inventory, and Location (Rail Programs Division's inventory management system)
P3	public-private partnership
PC	Tulsa's Port of Catoosa
PMR	Port of Muskogee Railroad
PRIIA	Passenger Rail Investment and Improvement Act
PSO	Public Service of Oklahoma
PTC	positive train control
RMRF	Railroad Maintenance Revolving Fund
Ro-Ro	roll-on roll-off
RPSA	Rail Passenger Service Act of 1970
RRIF	Railroad Rehabilitation and Improvement Financing
SAFETEA-LU	Safe, Accountable, Efficient Transportation Equity Act—A Legacy for Users
Santa Fe	Atchison, Topeka and Santa Fe Railway
SDP	service development plan
SH	State Highway
SIB	State Infrastructure Bank
SKOL	South Kansas & Oklahoma Railroad
SLWC	Stillwater Central Railroad
SS	Sand Springs Railway
STB	Surface Transportation Board
STCC	Standard Transportation Commodity Code

STRACNET	Strategic Rail Corridor Network
TCSP	Transportation and Community and System Preservation
TEU	20-foot equivalent unit
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
TOE	Texas, Oklahoma & Eastern Railroad
Transcon	transcontinental
TRE	Trinity Railway Express
TSA	Transportation Security Administration
TSU	Tulsa-Sapulpa Union Railway
TxDOT	Texas Department of Transportation
UP	Union Pacific Railroad
USC	United States Code
USDOD	U.S. Department of Defense
USDOT	U.S. Department of Transportation
WFEC	WFEC Railroad Company
WTJR	Wichita, Tillman & Jackson Railway

Executive Summary

Rail Transportation and the State of Oklahoma

Role of rail transport in Oklahoma

Rail transportation comprises both the movement of goods (freight rail) and the movement of people (passenger rail). Freight rail transportation users in Oklahoma are served by 3 major railroads and 18 short line railroads, each a private corporation. Passenger service in Oklahoma is operated by the quasi-governmental agency, National Railroad Passenger Corporation (Amtrak), on lines owned by the freight carrier, BNSF Railway Company (BNSF). Oklahoma's only passenger train is the *Heartland Flyer,* running between Oklahoma City and Fort Worth. While operated by Amtrak, the *Heartland Flyer* is a state-sponsored train with Oklahoma and Texas participating in its support.

Freight railroads have proven to be vital in maintaining the nation's and the state's economy. The efficiency of steel wheel on steel rail is unmatched by either highway or air transport. This efficiency has been the underpinning that has perpetuated the rail industry through enormous changes in the economy and the competitive environment.

Freight rail brings finished goods and raw materials to Oklahoma's businesses, transports Oklahoma's products to the rest of the nation and the world, moves material between points within the state, and provides a path for traffic passing through. For Oklahoma, the freight rail system has proven valuable to the energy and agricultural industries and in support of the military.

Oklahoma's passenger train, the *Heartland Flyer,* provides an important link between the state, the Dallas/Fort Worth Metroplex, and the national Amtrak system. It provides an alternative to both auto and air transport modes and provides a transportation choice with unparalleled energy efficiency.

Purpose of the state rail plan

In 2008, state rail plans took on an increased importance when Congress passed the *Passenger Rail Investment and Improvement Act* (PRIIA) (49 USC 22705). It laid the foundation for an expanded focus on rail planning. PRIIA requires each state to have an approved state rail plan as a condition of receiving rail funding in the future for either passenger or freight improvements. PRIIA requires each state rail plan to include the following:

- Inventory of the existing rail transportation network
- Review of proposed high-speed rail corridors in the state

- Statement of the state's objectives related to rail transportation
- General analysis of rail's economic, transportation, and environmental impacts
- Long-range investment program for current and future rail freight and passenger services
- Discussion of public financing issues for rail projects and listing of current and potential rail-related funding sources
- Discussion of stakeholder-identified rail infrastructure issues
- Review of freight and passenger multimodal rail connections and facilities
- Review of publicly funded rail projects that enhance rail-related safety
- Performance evaluation of passenger rail services
- Compilation of previous high-speed rail reports and studies
- Statement that the state's rail plan complies with PRIIA

To be eligible for any future federal funds, a state must have the legal, financial, and technical capacity to execute a project. This state rail plan provides proof of this ability and will include any proposed projects for which the state may apply for funding. The Oklahoma Statewide Freight and Passenger Rail Plan has been developed to comply with the requirements of PRIIA.

Relationship between the railroads and the State of Oklahoma

Oklahoma's railroads are private businesses and, for the most part, operate on privately held property. This is a fundamental difference from much of the world, where railroads are public institutions like our highways and commercial airports. The federal government, under the commerce clause of the U.S. Constitution, is responsible for most regulation of the railroad industry, both for safety and, to a much lesser degree than in the past, economic regulation.

The State of Oklahoma, however, does impose certain controls and provides specific powers to railroad corporations. Notable among the powers granted to railroads are the power to purchase, sell, or lease property and the use of eminent domain for acquisition of right of way. Responsibilities of the railroads under state law include the requirement to fence their rights of way, to operate the railroad in a safe manner, and to remit a gross receipts tax of 4 percent on the use of freight cars. The gross receipt tax is imposed in lieu of *ad valorem* (according to value) property taxes. The Oklahoma Department of Transportation has also been granted powers by the Legislature to own railroad rights-of-way and to administer the Railroad Maintenance Revolving Fund for the upkeep of state-owned railroad rights-of-way. Revenues from the tax on freight cars and lease payments on the leased line are contributed to the fund. The state has an 8-year maintenance plan for track and bridge upkeep to ensure that the state-owned lines meet federal standards for safe operation and continue to serve customers on those lines.

The Rail Programs Division of the Oklahoma Department of Transportation (ODOT) was established in 1989 to oversee the state's interests in the 3,599 miles of rail, 428 miles of which were owned by the state at that time. The Division is responsible for acquiring and administering federal and state funds used to support operation of the *Heartland Flyer* passenger service, highway construction projects affecting railroad property, railroad crossing safety improvements, and maintenance of the state-owned rail lines. The Division

comprises five sections—State-owned Rail Line Management, Safety, Rail Passenger, Construction, and Federal Programs.

Oklahoma's Freight Railroads

Structure and routes of Oklahoma's railroads

Freight railroads own 140,000 miles of rail line in the U.S. In 2010, rail accounted for 43 percent of goods shipped in the U.S., followed by trucking with 31 percent and waterways and pipelines each accounting for 13 percent. Air cargo represents less than 1 percent of the ton-miles. Nearly all products are transported by rail, including consumer goods, industrial products, agricultural products, and natural resources.

The Surface Transportation Board (STB), which economically regulates the rail industry,[1] separates freight railroads into three categories based on revenue—Class I, Class II, and Class III.

Class I

Class I railroads are the largest railroads and are defined by the STB as railroads with annual revenues exceeding $398.7 million. The majority of rail-based freight movements occur on Class I railroads operating over 96,000 miles of rail routes. In 2010, the major railroads hauled 1.9 billion tons of freight. Currently, three of the nation's seven Class I railroads operate in Oklahoma:

- BNSF Railway Company (BNSF)
- Kansas City Southern Railway (KCS)
- Union Pacific Railroad (UP)

Class II

Class II railroads earn revenues between $31.9 million and $398.7 million annually. There are no Class II railroads operating in Oklahoma.

Class III

Class III railroads, also called *short lines*, are the smallest railroads. Revenues for each of the nation's 592 Class III railroads are less than $31.9 million annually. The importance of short lines has grown as these railroads often serve as the initial or final link between Class I railroads and rail customers. Short lines often work together with the Class I railroads to offer shippers a complete transportation solution. Eighteen short line railroads operate in Oklahoma over 927 miles of route.

Routes

There are over 3,599 route miles of railroad in Oklahoma. In 2010, this ranked Oklahoma 18th in the nation in terms of the total railroad mileage according to the Association of American Railroads (AAR). The three Class I railroads operate 2,360 miles[2] of route in the state.

[1] The Surface Transportation Board regulates business and economic matter of the railroad industry. Safety regulation is the responsibility of the Federal Railroad Administration.
[2] There is some overlap in mileages as certain lines are operated by more than one railroad.

The State of Oklahoma currently owns 428 miles of railroad. Most of these lines (420 miles) are under lease/purchase arrangements for operation by Class III railroads. The state acquired these lines mostly as the result of liquidation of the Chicago, Rock Island and Pacific Railroad Company (CRIP) following its bankruptcy and through abandonments that peaked after the 1980 economic deregulation of the rail industry. Significant mileage under the lease/purchase arrangements are reverting to the railroads as they take title to the properties. With the cash flow from the lease payment dwindling, the state will not have as robust a program as previously operated under the Rail Maintenance Revolving Fund, which was the beneficiary of the payments.

Both BNSF and UP operate north-south routes with significant freight traffic through the central portion of the state. The KCS north-south mainline from Kansas City to Houston passes along the state's eastern border. These north-south routes are vital in connecting ports on the Gulf Coast and markets in Mexico with the central U.S.

The main BNSF east-west transcontinental line from Chicago to California passes through western Oklahoma (through Alva and Woodward). The UP main Chicago to southern California east-west route crosses the panhandle through Guymon. Another former east-west line across the central portion of the state connecting Memphis, Little Rock, and Oklahoma City to California has gained recent attention of the Governor's economic task force. Some segments of this former CRIP line is operated by UP and various short line railroads with other segments inactive.

Current state of the industry in Oklahoma

Because of decades of poor performance marked by bankruptcies, railroads are often viewed as a failing, outmoded industry. Quite the opposite, America's railroads benefitted immensely from the 1980 Stagger's Act, which deregulated much of railroad commerce and restored the industry to fiscal health. Before deregulation, the industry was financially reeling from a punitive regulatory system that did not permit adaptation to existing market conditions. By 1980, seven major U.S. railroads were in bankruptcy, with one (CRIP) terminating all service and liquidating. The Stagger's Act changed the railroad's prospects allowing the freedom to negotiate with customers, alter the services offered to match those needed by customers, and dispose of unprofitable lines and services.

The three Class I railroads originated 183,238 carloads of freight and terminated 323,442 carloads of freight in Oklahoma in 2010. Due to Oklahoma's location near the middle of the country, the Class I railroads also transport a significant amount of rail freight traffic through the state that has neither an origin nor destination within Oklahoma. A majority of this traffic is either coal from mines in northeast Wyoming to electric utilities in Texas and other southeast destinations or various containerized goods moving between California ports and the mid-west.

Class I railroads have high volumes of trains per day, ranging in Oklahoma from approximately 10 trains per day on several lines to nearly 60 trains per day on BNSF's Transcon (i.e., Transcontinental) route across the northwestern part of the state.

The Class III railroads provide rail service to market areas with inadequate volume to be served profitably by the larger railroads. In most instances, the short line railroads were

once part of the network of a larger railroad. The short lines serve as the *customer service element* for many rail-served businesses and provide a collection and distribution network for the Class I railroads, which move the bulk of the rail freight volume in and out of Oklahoma. Train service on short lines may range from *as needed* or *seasonal* up to a few trains per day. Short line railroads serve as economic engines in many communities, providing the vital transportation link to the regional, national, and global economies. According to data received from the short line railroads in surveys for this plan, Oklahoma's short lines originated 69,869 rail carloads and terminated 116,658 carloads within the state during 2010.

Economy and rail traffic

Oklahoma's economy has evolved significantly over the past two decades. The collapse of oil prices in the 1980s and the following slowdown of the state's economy led Oklahoma to become less dependent on its natural resource bases of energy and agriculture. However, in recent years with the introduction of new technologies (e.g., hydraulic fracturing) and rising prices, natural resources have once again become an important part of the Oklahoma economy. Exhibit ES-1 and Exhibit ES-2 show commodity profiles of rail traffic originating and terminating in the state.

Key industry groups

Energy

According to the Federal Reserve's most recent Beige Book, in the tenth district, which includes Oklahoma, the energy sector continued to expand strongly in late 2011, with increases in drilling activity and an optimistic outlook for the future. The price of crude oil remains favorable for drilling, and the only constraints the industry faces are shortages of labor and equipment.

Oil and natural gas have been a staple of the Oklahoma state economy for many years. Oil and gas production imposes specific demands on Oklahoma's transportation system. While much of the petroleum and petroleum-refining products shipped from Oklahoma are moved by truck or pipeline, rail still has an important role to play. Gas is transmitted almost entirely by pipeline, but the rapid growth in natural gas extraction (as well as oil extraction from the Anadarko fields) provides opportunities for moving large drilling and pipeline installation materials to sites throughout the state.

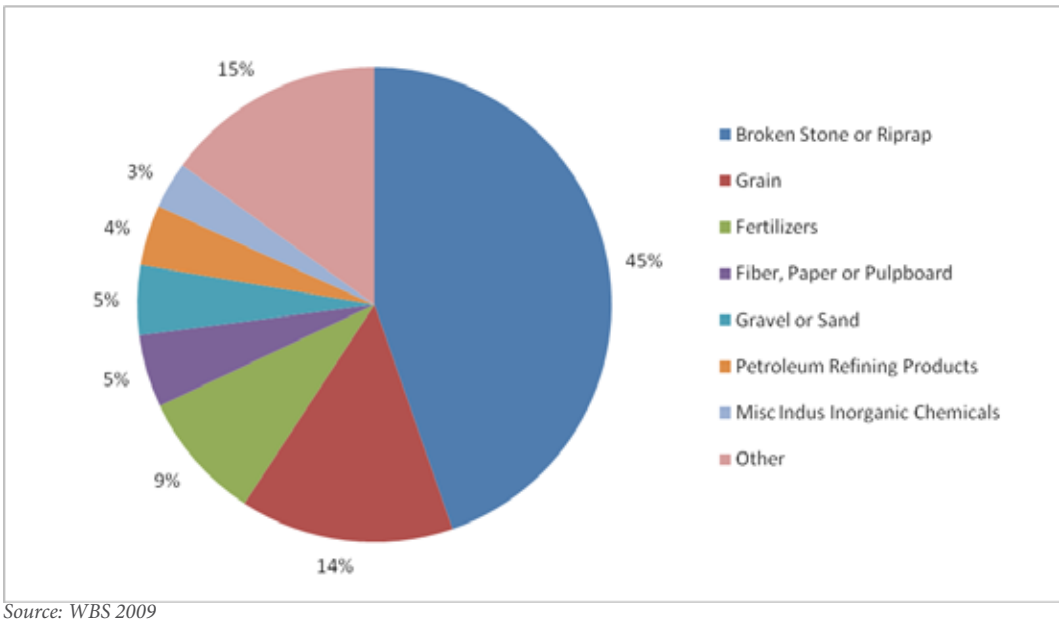
In 2009, the oil and gas sector contributed $13.4 billion to Oklahoma's gross state product (GSP), or approximately 10 percent, and employed 159,800 people.

Green energy

Green energy sectors, while small, are also of interest. Wind energy is an industry with good growth potential, particularly in the long run. Oklahoma already has a green energy sector. Bergey Wind Power Company in Norman is one of the world's leading suppliers of wind turbines. Some modern wind turbines are 236 feet tall and have rotor blades that are roughly 82 feet long. Future windmills may reach higher than 328 feet and have blades measuring 164 feet long. Transport of wind turbine equipment will require the movement of overweight and oversize loads—an important capacity issue facing the Oklahoma

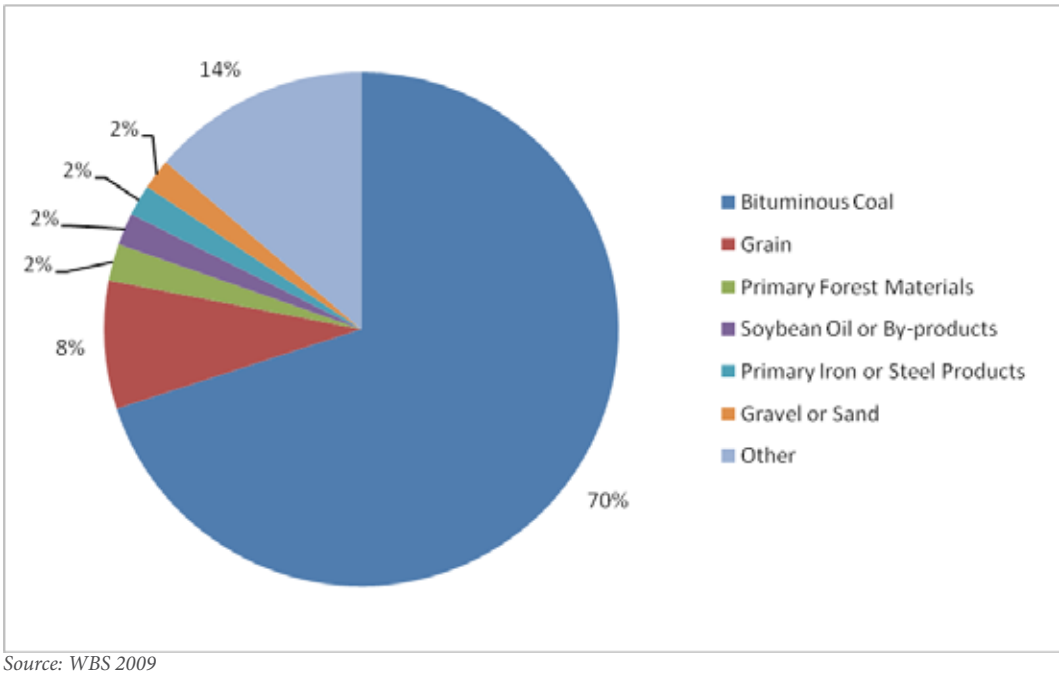
highway system. The freight railroads are interested in increasing their participation in this economic sector and will provide an alternative to moving these large loads over the highways.

Figure ES-1
Rail freight originating in Oklahoma, commodity distribution (by tons)



Source: WBS 2009

Figure ES-2
Rail freight terminating in Oklahoma, commodity distribution (by tons)



Source: WBS 2009

Minerals and mining

Oklahoma's mining economy has been in decline but remains important. In total, mined minerals contributed approximately $268 million to Oklahoma's real GSP in 2009[3] and about 2,000 jobs in direct mining. It is important to remember that GSP only uses final expenditures to measure economic activity and, as such, it is not as broad a measure as *production*, which may include the economic impacts of shipments of minerals, their marketable production, and their final sale. Oklahoma's mined minerals include gypsum, granite, limestone, aggregates, crushed stone, cement sand and gravel, clay, glass sand, salt feldspar, iodine, lime, pumice, and Tripoli (used as an abrasive).

Construction materials, such as aggregates, crushed stone, sand and gravel, and cement, are important products extracted in southern parts of the state. Railroads transport about 10 percent of broken stone and 25 percent of Portland cement.

Fertilizers and chemicals

Natural gas is used to produce nitrogen fertilizer. Therefore, domestic fertilizer production tends to be concentrated in regions rich in natural gas—the Mississippi Delta, the Texas panhandle, and Oklahoma. Major fertilizer production facilities in Oklahoma are located in Woodward, Verdigris, and Enid. Fertilizer and chemical production is an important part of the Oklahoma economy, contributing $581 million to real GSP in 2009.

Agriculture

Oklahoma is one of the nation's largest producers of livestock and wheat, generating $5.8 billion of agricultural products in 2007. Over the past decade, the state's agricultural sector has become increasingly diversified. The pork and poultry industries have increased rapidly in recent years, making Oklahoma the nation's second and third largest producer of those commodities, respectively. Grain is the dominant agricultural rail export and import for Oklahoma.

Military

Oklahoma contains five major U.S. Department of Defense (USDOD) installations. Both Fort Sill in Lawton and the McAlester Army Ammunition Depot in McAlester regularly use rail service as critical to their missions. The other three installations have discontinued rail service, but they are positioned to reactivate rail service should this decision be made by Military Traffic Management Command (MTMC).

Oklahoma is a part of the Strategic Rail Corridor Network (STRACNET), a function of the Railroads for National Defense. STRACNET consists of 38,800 miles of rail lines important to national defense serving military installations that require rail service. Both Fort Sill and the McAlester Army Ammunition Depot are actively connected to STRACNET, while Vance Air Force Base, Altus Air Force Base, and Tinker Air Force Base all have the capability to reconnect to STRACNET should the need arise.

Freight multimodal connectivity

The concept of multimodalism, broadly, is the use of two or more transportation modes to move goods efficiently from origin to destination.

[3] Based on Bureau of Economic Analysis statistics; U.S. Geological Survey estimates the value to be in excess of $800 million.

A category of multimodalism is intermodal transportation. Intermodal transportation is commonly defined as the movement of goods by rail in trailers or containers on specialized flatcars. The use of containers also opened international markets to intermodal transportation as boxes could be readily exchanged between rail and ships. The most important development has been the invention of the double-stack freight car, which revolutionized the economics of container transportation.

In 2005, BNSF closed its intermodal terminal near Oklahoma City due to lack of demand. When BNSF closed the terminal, Oklahoma lost its only container transfer facility. Although exceptions exist, a viable terminal today requires at least 10,000 containers each month. Since then, Oklahoma rail intermodal shippers have had to move containers by truck to terminals in other states. Dallas-Fort Worth, Kansas City, and Denver each have terminals operated by BNSF and UP.

Several factors determine the success of intermodal terminals. They are important considerations when railroads select locations for new terminals:

- Terminals must be located on the railroad intermodal network
- Terminal volumes must be sufficient to support frequent, long trains
- Terminals must be optimally spaced

The immediate development of new intermodal container terminals in Oklahoma is unlikely because of the considerations outlined above.

Transloading is a term describing another category of multimodal transportation, typically involving the transfer of non-containerized freight from one mode to another. Transloading freight occurs because of delivery constraints (i.e., a freight shipper or receiver can only access one mode) or because there are financial benefits to switching modes during shipping. Transload operations involve products shipped either in bulk or as semi-bulk, dimensional cargo.

Grain elevators are a type of transload facility. Grain is delivered to the elevator by truck where it is stored and eventually transferred to covered hopper rail cars. The elevator serves the purpose of consolidating smaller shipments into freight cars or train-size lots and also storing grain until demand appears.

At one time, industrial parks were small facilities serving local needs, typically populated by a few industrial companies. While these small parks are still prevalent, there has been increasing interest in larger multimodal facilities providing a range of logistics services. Major industrial parks developing in Oklahoma with multimodal capabilities include

- Ardmore Industrial Airpark
- Mid-America Industrial Park
- Clinton-Sherman Industrial Airpark (Oklahoma Spaceport)

The McClellan-Kerr Arkansas River Navigation System (MKARNS) is Oklahoma's primary navigable waterway originating at the Port of Catoosa and flowing southeast connecting to the Mississippi River. MKARNS is 445 miles long and has 18 locks and 10 dams that enable year-round navigation.

The MKARNS can accommodate a *tow* of eight jumbo barges and the towboat. There is an initiative underway to deepen the MKARNS channel from 9 feet to 12 feet from the Mississippi River to the Tulsa Port of Catoosa. The 3-foot difference would allow a barge to increase its loading capacity by 33 percent. Much of the MKARNS channel is currently 12 feet deep, but 75 miles would require dredging at an estimated cost of $180 million.

Ports in Oklahoma along the MKARNS include

- Tulsa Port of Catoosa
- Port of Muskogee
- More than 30 private river terminals

Benefits of rail transport accruing to Oklahoma

The rail industry has had a great impact on the establishment and economic success of Oklahoma. Oklahoma's railroads played a key role in converting the previous frontier into one of the largest energy and agricultural producing regions of the U.S. The rail system has experienced many changes in the last 30 years and has evolved into the network that exists today.

While the diesel-powered locomotives that operate in the state contribute to air and noise pollution, the principal alternative, truck transportation, has a far greater impact on the environment. According to Environmental Protection Agency data for 2009, rail transportation contributed only 2 percent of the greenhouse gas emissions in the U.S. By contrast, heavy-duty trucks contributed 20 percent of transportation greenhouse gas emissions. Rail traffic was 38 percent greater than truck traffic (measured in ton-miles).

Rail transportation is also highly fuel-efficient. According to the AAR, U.S. freight railroads move a ton of freight 484 miles on a gallon of diesel fuel. This is four times as energy efficient as a truck. Using the 12.8 billion ton-miles that rail traffic originated in Oklahoma in 2007, Oklahoma shippers saved 75 million gallons of fuel using rail transportation.

Rail transportation has an impact on roadway congestion. Nearly 278 million tons of freight moves over Oklahoma's rail network each year. A truck hauling freight between cities typically has an average capacity of 18 tons. If all rail traffic were to move by truck, Oklahoma's highways would see an additional 15.4 million trucks per year, without considering the return movement of empty trucks.

Railroads in Oklahoma employ approximately 1,770 citizens. The vast majority (84 percent) work for one of the three Class I railroads in the state. In 2010, the combined payroll of all railroad companies totaled approximately $115.8 million. Also in Oklahoma that year, the railroads spent $15.1 million on in-state purchases and $6 million on capital improvements. This employment and spending by the railroads has direct impacts on the Oklahoma economy and also produces indirect and induced impacts. Induced impacts stem from the re-spending of wages earned by workers benefiting from both direct and indirect activity of the industry (e.g., those employed by the railroads directly as well as those employed by companies who provide goods and services to the railroads).

Oklahoma's Passenger Rail

Passenger services

For purposes of state rail plans, passenger rail does not include urban systems, such as light rail. Passenger rail services are broadly categorized as

- **Conventional intercity rail service**—These are medium- and long-distance trains that operate between towns and cities across the country with maximum train speeds of 79 miles per hour. Conventional intercity services operate over lines owned by freight railroads.
- **High-speed intercity rail service**—Although prevalent in Europe and Asia, currently the only high-speed rail service in the U.S. is on the Northeast Corridor between Washington and Boston. Most of that corridor is rated at 125 miles per hour with 150 miles per hour over selected segments. High-speed rail services generally require tracks that are separate from slower freight operations for safety and efficiency.
- **Commuter rail**—Service normally connects urban cores with suburban locations. The services are heavily concentrated during the morning and evening work commutes when travel is the highest. Currently, 24 commuter rail services operate in the U.S.

Intercity passenger rail services were once provided by private railroads. As part of an effort to remedy the financial problems that the railroads were facing in the last half of the 20th century, the federal government relieved the railroads of their passenger service obligations in the early 1970s. In a complex arrangement, Amtrak took over operation of the passenger trains with rights to operate those trains over the tracks of the freight railroads.

Oklahoma passenger service

Passenger rail service in Oklahoma is provided by the *Heartland Flyer* with one train per day in each direction between Oklahoma City and Fort Worth, Texas. The service commenced in 1999, following a 20-year absence of passenger service in Oklahoma.

The *Heartland Flyer* makes station stops in Norman, Purcell, Pauls Valley, and Ardmore before serving Gainesville, Texas, in addition to Oklahoma City and Fort Worth. Connections can be made in Fort Worth to Amtrak's Texas Eagle, which operates between Chicago and Los Angeles via San Antonio. The *Heartland Flyer* carried over 81,000 riders in 2010; this represented an 11-percent increase over 2009. Ridership continued to grow in 2011. The *Heartland Flyer* operates on tracks owned by BNSF. In 2010, the *Heartland Flyer* won Amtrak's President's Award for its high-quality service.

The *Heartland Flyer* passenger rail operation is funded through two sources—an annual line item state appropriation that goes into the Oklahoma Passenger Rail and Tourism Revolving Fund and House Bill (HB) 1873, passed in 1994, that established a dedicated public transit revolving fund. This passenger rail fund amounted to approximately $1.2 million.

Commuter and passenger service development

There are three new intercity and high-speed passenger railroad services under evaluation for Oklahoma. The first would extend the existing *Heartland Flyer* northward to Newton, Kansas, to provide a connection to Amtrak's *Southwest Chief* service between Chicago and Los Angeles. A second proposed service would operate in part over the same line as the *Heartland Flyer* between Fort Worth and Newton; however, the route would extend to Kansas City. This alternative combined with the *Heartland Flyer* would provide two trains in each direction between Oklahoma City and Fort Worth. Investigation of these potential services is being led by the Kansas Department of Transportation (KDOT) with ODOT and the Texas Department of Transportation (TxDOT) supporting.

The third proposal being evaluated is a high-speed rail service between Tulsa and Oklahoma City. This line would connect both of Oklahoma's million-person urban areas. Initially studied in 2001–2002, a preferred high-speed alignment was identified along the Turner Turnpike. ODOT will be initiating additional studies in 2012.

Several other smaller scale initiatives are receiving consideration in Oklahoma to improve passenger services:

- The Central Oklahoma Transit and Parking Authority (COTPA)is planning overall fixed-guideway transit improvements for Oklahoma City. Its 2005 Fixed Guideway Study includes the modern streetcar downtown circulator, bus rapid transit, and commuter rail (www.gometro.org/fgp).
- Since the 2005 Fixed Guideway Study, further work has been conducted on the modern streetcar downtown circulator. The most recent information on the ongoing planning process can be found at www.letstalktransit.com.
- In coordination with the COTPA studies on fixed guideway transit in the Oklahoma City region, the Association of Central Oklahoma Governments (ACOG) has recently published a comprehensive study for an intermodal hub to connect the wide variety of planned transportation options on the edge of the downtown district. The 2011 Intermodal Transportation Hub Master Plan for Central Oklahoma can be downloaded from www.acogok.org/Newsroom/Downloads11/hubreport.pdf.
- In the Tulsa region, the Indian Nations Council of Governments (INCOG) released its comprehensive transit development plan in October 2011. Entitled *FastForward*, the final report can be obtained at www.fastforwardplan.org.

Multimodal passenger rail connectivity

As with any mass transportation mode, from local transit to the airline industry, passengers must have the ability to reach their final destinations with a degree of convenience. Consequently, the presence of *last mile* alternatives is critical to the success of intercity or high-speed passenger rail services.

At the Fort Worth end of the *Heartland Flyer* route, a number of connections are available for transportation around Fort Worth, and the Trinity Railway Express provides a connector to Dallas and its well-developed public transportation network. Current connections

in Oklahoma are more limited, although the Oklahoma City transit system can be accessed from near the station.

The initiatives outlined in the section above could be instrumental in providing convenient connections and, if properly coordinated, could provide superior service to Oklahoma's travelers.

Current Railroad Development Initiatives

Freight railroad and short line development

Oklahoma freight rail upgrade project

ODOT received Transportation Investment Generating Economic Recovery (TIGER)[4] funding for the upgrade of the rail line serving the Anadarko Basin. The improvements will expand the capacity of the line and permit higher speeds for trains serving the Anadarko Basin oil fields.

Great Plains freight rail project

KDOT, on behalf of the South Kansas & Oklahoma Railroad (SKOL), received TIGER funding for the construction of a new yard and rail line improvements that will permit the operation of heavier freight cars at higher speeds. Part of the improvement project is located in Oklahoma.

Passenger rail development

Oklahoma City Amtrak station access improvement

ODOT is improving access to the former Santa Fe Railroad station in downtown Oklahoma City. The project, funded through a fiscal year (FY) 2010 Federal Railroad Administration (FRA) high-speed and intercity passenger rail (HSIPR) construction grant, will include the installation of a power switch and new rail line to provide the *Heartland Flyer* in-and-out access to the station.

Tulsa–Oklahoma City high-speed rail corridor investment plan

With funding received from an FY 2010 FRA HSIPR planning grant, ODOT will be developing a federally mandated high-speed rail corridor investment plan for a new service between Tulsa and Oklahoma City. The investment plan will comprise an updated service development plan and documentation required to comply with *National Environmental Policy Act* (NEPA) requirements. At the conclusion of the plan development, the project can enter the design phase.

Service development plan for expanded passenger rail service—Fort Worth–Oklahoma City–Kansas City

ODOT is participating in the preparation of a passenger rail service development plan evaluating the investment required to expand passenger rail service in the region. Two alternatives are under consideration—extension of existing *Heartland Flyer* service from Oklahoma City to Newton, Kansas, to connect with Amtrak's Los Angeles–Chicago

[4] TIGER is a competitive grant program established by the *American Recovery and Reinvestment Act of 2009*.

Southwest Chief, and the introduction of a new train operating between Fort Worth and Kansas City.

South Central HSIPR corridor study—Oklahoma City to South Texas

An FY 2010 FRA HSIPR planning grant was awarded to TxDOT to develop a plan for high-speed passenger rail service from the Mexican border to Oklahoma City with the direction to examine initially the Fort Worth–Oklahoma City segment.

Future of Oklahoma Rail Transport

Strategic initiatives

Outreach meetings and stakeholder interviews identified strategic initiatives that should be considered by ODOT in its rail programs. These initiatives fell into several categories:

- Communication and education
- Economic development
- Funding
- Infrastructure and system improvements
- Legislative
- Passenger rail service
- Safety
- Studies

The following initiatives are designed to move ODOT from a position of preserving rail service to one of industry growth in the state. As with many states, Oklahoma is facing several strategic challenges:

- The need to support and promote rational growth of the short-line industry and passenger rail service in the state
- The need to find new sources of funds to replace lease revenues lost as rail lines owned by the state revert to the rail operators as part of the lease-purchase program
- The need to exploit the economic and public benefits of rail transportation
- The need to inform the public of the benefits of rail transportation

Communication and education

Continue developing effective relationships between ODOT and freight railroads

Maximize the efficiency of the state's rail network and the public and private investments made in that network by continuing to have regular and effective dialogue and communication between ODOT and the railroads through the Oklahoma Railroad Association and other venues. The railroads have requested development of a mutual forum to keep them current on proposed future highway projects with rail infrastructure impacts. This cooperative effort would enhance planning efforts, and it would lead to more efficient project coordination.

Use the state rail plan as a platform for the continuation of a rail information program

As ODOT continues to be active in rail planning and other related programs, the need to educate the public on the benefits of rail transportation will increase. General public education information campaigns should build off the plan.

Better inform the public on rail policies and requirements

The public would benefit from a better understanding of ODOT activities and programs, such as the rail line acquisition program and its ongoing passenger rail service development.

Incorporate passenger rail stations into the Oklahoma official state travel map

Add notations for passenger rail station locations to the state's travel map that is distributed to motorists and other travelers.

Initiate a state rail workshop

Convene a workshop on a recurring basis with relevant state agencies, such as the Departments of Transportation, Agriculture, and Commerce, along with representatives of the metropolitan planning organizations (MPO), the rail industry, and major shippers, to discuss current rail issues affecting Oklahoma.

Establish regular rail forums between shippers and railroads

Improving relationships and communication between railroads and shippers would enhance the economy of the state. Such events would allow participants to better understand opportunities and issues related to existing and emerging markets as well as rail service issues and infrastructure needs faced by both the railroads and the shippers.

Continue partnering with adjacent states regarding rail passenger service

Continue to meet on a regular basis with Kansas, Texas, and Missouri DOTs—a practice started with the preparation of the Fort Worth–Oklahoma City–Kansas City passenger rail service development plan—to create a regional base of support to enhance existing rail passenger services and create a regional passenger rail vision for the future, which includes regional extensions of existing rail passenger services.

Economic development

Integrate rail into Oklahoma's economic development process

ODOT should coordinate with the Governor's Task Force on Economic Development and Job Creation in regard to implementing the rail-related recommendations in that Task Force's report entitled *Bold Ideas for Oklahoma*.

Leverage the railroads connections with Mexico to stimulate business with Mexico

The *North American Free Trade Act* (NAFTA), and subsequent related legislation, has opened up numerous new business opportunities with Mexico. Oklahoma should explore the potential for creating new business alliances with Mexico that would benefit both Oklahoma shippers and producers but also its short line and Class l railroads.

Promote rail-served industries, industrial parks, and transload facilities at strategic locations

The need to establish more rail-served industrial parks was a theme at the workshop/open house meetings around the state. They would not only generate new rail business for the short line and Class l railroads but would also generate additional economic development for Oklahoma's economy.

ODOT and the Department of Commerce should conduct a workshop on freight rail transportation and invite short line and Class l railroads, regional economic development agencies, Oklahoma Chambers of Commerce, and other stakeholders.

Should funding be available, the ODOT railroad assistance program should be expanded to include transload and transfer facilities.

Integrate land use and transportation planning

ODOT should provide leadership in the integration of freight and passenger transportation and land use planning at local, regional, and state levels with both governments and businesses.

Establish a trackside land preservation education program

ODOT and the Oklahoma Department of Commerce would work with local economic development agencies to preserve trackside for rail-dependent industrial use.

Establish an industrial rail access program

There is a need for funding for rail spurs and industrial rail leads connecting Oklahoma's industrial properties to the Oklahoma rail network. The state should explore the creation of an industrial rail access program and sources of funding for the program.

Monitor and promote opportunities for development of an intermodal terminal in Oklahoma

Although conditions today are not favorable to the development of an intermodal container terminal in the state, the future may be different. The recent interest by the railroads in short haul domestic containerization may provide a future opportunity for a new terminal strategically located in Oklahoma.

Partner with the Waterways Advisory Board to implement recommendations of Oklahoma's Intermodal Capacity Study and to encourage increased transportation of commodities by both rail and water

Develop strategies with ODOT's Waterways Advisory Board and the ports at Catoosa and Muskogee to increase transportation of commodities and goods by rail and water, to increase access to both waterways and railways, and to take advantage of the efficiencies of these two modes of transport and relieve Oklahoma's highways of unnecessary heavy truck traffic.

Funding

Explore and analyze innovative funding and financing alternatives, including public-private partnerships

The transfer of state-owned rail properties to rail operators as part of the state's lease/purchase program will reduce revenues for rail improvements. ODOT will need to assess current approaches to infrastructure funding to compensate for reduced availability of resources.

Continue to pursue regional approaches to secure federal rail related funding

ODOT should explore multi-state regional initiatives for obtaining federal funding for both freight and passenger rail related projects.

Explore development of innovative local funding mechanisms such as the Port Authority concept

Oklahoma should explore what is required for the creation of local authorities, such as Kansas Port Authorities, that can issue bonds for rail development.

Educate stakeholders on existing rail funding programs and processes

Educate rail stakeholders on the processes for applying for rail-related grants/loans, including TIGER, Community Development Block Grants (CDBG), and Section 108 loans.

Infrastructure and system improvements

Support increasing freight rail speeds where supported by business

Increasing permitted speeds on short lines serves to both increase capacity and reduce operating costs. This should be done where warranted to support traffic growth.

Continue to support the development of emerging industries to strengthen Oklahoma's economy

Provide the capacity in the state's rail network to allow for the use of the rail network in the development of emerging industries, such as the Bakken Shale and wind energy.

Support the upgrading short line rail lines to accommodate 286,000-pound rail cars

As with most states, the short line railroad industry in Oklahoma faces the issue of keeping its infrastructure on a par with its larger counterparts, the Class I railroads. Currently, the standard loaded rail car weighs 286,000 pounds. For railroads with infrastructure that cannot accommodate cars of this size are limited in their ability to interchange freight cars with Class I railroads, significantly affecting the local shippers. It is important that Oklahoma's short line industry be able to maintain its infrastructure at the heavier 286,000-pound classification.

Create a rail corridor preservation program

Continue to preserve abandoned rail lines for future use, even in those instances where the tracks have been removed or salvaged.

Legislative

Continue to promote legislative action to enable public-private-partnership opportunities

Current state law in Oklahoma does not permit public funding in private corporations or businesses. Legislative changes need to continue to be pursued and implemented to provide other funding alternatives.

Passenger rail service

Continue supporting Oklahoma City as a multimodal hub

Facilitate institutional arrangements that would enable Oklahoma City to become a coordinated multimodal passenger rail hub—*Heartland Flyer*, additional proposed intercity rail services, new proposed commuter rail services, proposed high-speed rail, and intercity bus service, as well as local transit services serving the Oklahoma City metropolitan area.

Develop strategies with the Oklahoma City area MPO to enhance the connectivity of passenger rail options

Strategies should address the development of selected commuter rail lines that would include linking the downtown area to the Will Rogers World Airport.

Evaluate potential enhancements to existing passenger rail services on an ongoing basis

Evaluate the potential for rail passenger operators other than Amtrak for the *Heartland Flyer* and other new proposed rail passenger services. Also, evaluate potential state-ownership of rail passenger equipment.

Safety

Partner with the railroads to enhance safety

Specific elements of this effort should include developing plans to contact ODOT in the event of an emergency or when conducting emergency medical services field training.

Studies

Periodically perform an analysis of Oklahoma's rail network to identify future connectivity gaps based on changing freight patterns

Periodically, re-evaluate the rail freight network in Oklahoma to identify potential gaps in freight service due to issues such as abandonments or lines taken out of service. The analysis should take into consideration emerging freight economic sectors and distribution patterns.

Conduct a grain supply chain study to determine future multimodal needs

Conduct a study, in cooperation with the Oklahoma Department of Agriculture, to evaluate the future supply chain requirements of the agriculture industry. The study should consider changes in grain distribution, future railroad service practices, freight car supply, storage capacity, and modal connectivity.

Prepare and disseminate a GIS-based statewide rail database

Create a publicly accessible geographic information system (GIS) and web-based railroad inventory which includes items such as right-of-way ownership, weight of rail, 286,000pound load capability, etc.

Develop an unused rail siding inventory

In conjunction with the Department of Commerce, develop an inventory of all unused rail sidings in the state. This information would be valuable to economic development in identifying sites and locations for potential rail-served businesses in the state.

Projects

A number of rail infrastructure improvement projects for the State of Oklahoma have been identified through submittals from Class I and short line railroads, as well as through identifying potential passenger rail operations projects, including both intercity and commuter rail. At present, ODOT does not have adequate resources to fund all of the major capital improvement projects compiled.

Funding

State funding

State rail funding in Oklahoma is collected from several sources and deposited into the Railroad Maintenance Revolving Fund (RMRF). This fund is then utilized for projects on Oklahoma's state-owned rail system. Major revenue sources for the fund are highlighted below.

Oklahoma freight car tax

This fund, composed of an annual 4-percent tax on freight rail car revenues, yields a nearly constant annual income because the freight car tax rate has not been changed since its inception in 1978.

Lease agreements

ODOT Rail Programs Division receives annual lease and operations payments from seven separate short line rail operators. At this time, almost all the state-owned rail line is under lease and in operation.

Right-of-way sales

ODOT occasionally sells portions of land deemed as excess to its needs, and some of these sales are former rail rights-of-way. There are situations where sales are generated as a result of a mature lease-purchase agreement. Recently, ODOT sold a former rail segment known as the Guthrie to Fairmont Line following exhaustive efforts to return the rail line to active use. These sales are infrequent and do not constitute any significant amount of annual funding.

Federal funding

Passenger rail improvement and investment act

PRIIA was enacted in October 2008 and provided for the reauthorization of the National Railroad Passenger Corporation (Amtrak). It tasked Amtrak, the U.S. Department of Transportation (USDOT), the FRA, individual states, and other stakeholders with improving operations, facilities, and service. PRIIA authorizes over $13 billion between 2009 and 2013 and promotes the development of new and improved intercity rail passenger services, state-sponsored corridors throughout the U.S., and the development of high-speed rail corridors.

PRIIA established three new competitive grant programs for funding high-speed intercity passenger rail improvements:

- Intercity Passenger Rail Service Corridor Capital Assistance Program
- High-speed Rail Corridor Development Program
- Congestion Grants

ODOT has received three FRA HSIPR grants, providing matching planning and capital funds towards the state's effort to improve and expand its passenger rail service. These funds are being used to complete planning and environmental studies for the proposed high-speed rail route from Tulsa to Oklahoma City, to complete the state's Oklahoma Statewide Freight and Passenger Rail Plan, and to improve infrastructure at Oklahoma City's Santa Fe Depot related to operation of the *Heartland Flyer*.

Section 130 highway-rail grade crossing program

Section 130 provides federal support to projects in an effort to reduce the incidence of accidents, injuries, and fatalities at public rail-highway crossings. States may utilize funds to improve the safety of railroad crossings, including installing or upgrading warning devices, eliminating at-grade crossings through grade separation, or consolidating or closing at-grade crossings. The federal share for these funds is 90 percent, with the remaining 10 percent to be provided by local matching funds.

Rail line relocation and improvement capital grant program

This program authorizes funding for the purpose of providing financial assistance for local rail line and improvement projects. Any construction project that improves the route or structure of a rail line and (1) involves a lateral or vertical relocation of any portion of the rail line or (2) is carried out for the purpose of mitigating the adverse affects of rail traffic on safety, motor vehicle traffic flow, community quality of life, or economic development is eligible.

Congestion mitigation and air quality improvement program

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program funds transportation projects and programs that improve air quality by reducing transportation-related emissions in non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter. Examples of CMAQ-funded rail projects include intermodal facilities, track rehabilitation, diesel engine retrofits, idle-reduction projects, and new rail sidings.

Surface transportation program

This is a grant program available for improvement of any federal-aid highway, bridge, or transit capital project. The program is meant to provide flexible funding to be used by states and localities. Eligible rail improvements include lengthening or increasing vertical clearance of bridges, eliminating crossings, or improving intermodal connectors.

Rail and fixed guideway modernization

This transit capital investment program (49 USC 5309) provides capital assistance for new rail systems (New Starts/Small Starts program), bus systems (Bus and Bus Related Equipment and Facilities program), and modernization of existing rail systems (Fixed Guideway Modernization program). Funding can be used for a variety of purposes, including the following:

- Purchase and rehabilitation of rolling stock, track, line equipment, structures, signals, and communications
- Development of power equipment and substations
- Construction of passenger stations and terminals
- Purchases of security equipment and systems
- Construction of maintenance facilities
- Operational support equipment, including computer hardware and software
- System extensions
- Preventive maintenance

Transportation and community and system preservation pilot program

The Transportation and Community and System Preservation (TCSP) Pilot Program provides funding for initiatives including planning and implementing grants; performing research to investigate and address the relationships between transportation, community, and system preservation; and identifying private-sector-based initiatives.

Transportation enhancement program

Enhancement funds are available to strengthen the cultural, aesthetic, and environmental aspects of the nation's transportation system. Eligible projects include the rehabilitation of historic transportation facilities, and the preservation of abandoned rail corridors. A number of environmental preservation, scenic beautification, and historic preservation projects would also qualify.

1. Background

Although a critical element in the development of Oklahoma and the West, the U.S. rail system suffered a significant decline during the mid-20th Century. Excessive regulation coupled with significant government investment in the national highway system hurt the rail industry. Following several decades of decline, the rail industry is experiencing resurgence. Having become a significant driver of economic growth, the U.S. freight railroads are leaders in the world. Interest is also increasing in passenger rail with Amtrak experiencing a steady growth in ridership.

The State of Oklahoma has been involved in rail transportation since the mid-1970s. The state's participation increased in 1978 with the Oklahoma Legislature's passing of the *Railroad Rehabilitation Act*. This legislation established the RMRF—the principal source of funding for maintaining and rehabilitating state-owned rail lines.

Periodically, Oklahoma prepares a state rail plan detailing the existing condition of rail transportation in the state and outlining the state's future participation in rail transportation. Many other states also actively participate in rail planning. The passage of PRIIA has made the preparation of a state rail plan necessary for participation in certain federal funding. State plans have evolved since the 1970s. This *Oklahoma Statewide Freight and Passenger Rail Plan* is the first Oklahoma plan to be prepared under these new requirements.

States have been developing rail plans since the 1970s as shown below:

- **1970s**—Plans focused on federal funding (Local Rail Service Assistance Program) to support rail freight service on lines subject to abandonment. The other focus of these early rail plans was on state-funded Amtrak routes.
- **Late 1980s–Early 1990s**—Plans focused on funding from a new federal program, the *Local Rail Freight Assistance Act*, which continued assistance to improve light freight traffic density lines subject to abandonment.
- **1990s–2008**—Plans focused more on state investments and linking rail to the federal multimodal planning efforts of the federal surface transportation re-authorization legislation.
- **2008**—*Passenger Rail Investment and Improvement Act* (PRIIA)—Legislation mandated updating state rail plans and developing a national rail plan. It also authorized $3.7 billion for high-speed and intercity passenger service and rail congestion mitigation.
- **2009**—*American Recovery and Reinvestment Act* (ARRA)—This provided an additional $8.0 billion for high-speed and intercity rail corridors and created the $1.5 billion Transportation Investment Generating Economic Recovery (TIGER) grants program.
- **2010**—Appropriation under the federal Surface Transportation Program of

$50 million for state planning studies and an additional $2.5 billion for high-speed rail corridors.

In 2008, state rail plans took on increased importance when Congress passed PRIIA (49 USC 22705). While the primary purpose of the act was to provide for improving passenger rail service in the U.S., it also laid the foundation for an expanded focus on rail planning. The act requires each state to have an approved state rail plan as a condition of receiving future rail funding for either passenger or freight improvements. PRIIA requires each state rail plan to include the following:

- Inventory of the existing rail transportation network
- Statement of the state's objectives related to rail transportation
- General analysis of rail's economic, transportation, and environmental impacts
- Long-range investment program for current and future rail freight and passenger services
- Discussion of public financing issues for rail projects and listing of current and potential rail-related funding sources
- Discussion of stakeholder-identified rail infrastructure issues
- Review of freight and passenger intermodal rail connections and facilities
- Review of publicly funded rail projects that enhance rail-related safety
- Performance evaluation of passenger rail services
- Compilation of previous high-speed rail reports and studies and a comprehensive review of a state's high-speed rail corridor(s) when present
- Statement that the state's rail plan complies with PRIIA

To be eligible for any future federal funds, a state must have the legal, financial, and technical capacity to carry out a project. The state rail plan will provide proof of this ability and will include any currently proposed projects for which the state or its associated rail stakeholders may apply for funding.

The *Oklahoma Statewide Freight and Passenger Rail Plan* has been developed to comply with PRIIA. In addition to meeting the requirements, the plan and planning process are to have the following additional purposes:

- Educate the public on the importance of freight and passenger rail transportation to the economy of Oklahoma, the welfare of the state's communities, and its environment
- Synthesize the perspectives of the public, State of Oklahoma government agencies, local governments and planning agencies, shippers, Class I and short line rail carriers, and other stakeholders and interested parties
- Set forth state freight and passenger rail transportation policy
- Present priorities and strategies to enhance freight and passenger rail service beneficial to the public
- Advance a rail improvement plan that serves as the basis for federal and state funding of rail infrastructure and service investments

The *Oklahoma Statewide Freight and Passenger Rail Plan* has been developed to ensure that the benefits of freight and passenger rail are balanced as Oklahoma plans for the future. The rail plan will comprise the railroad element of the state's next long-range multimodal transportation plan. Figure 1-1 illustrates the Oklahoma rail system.

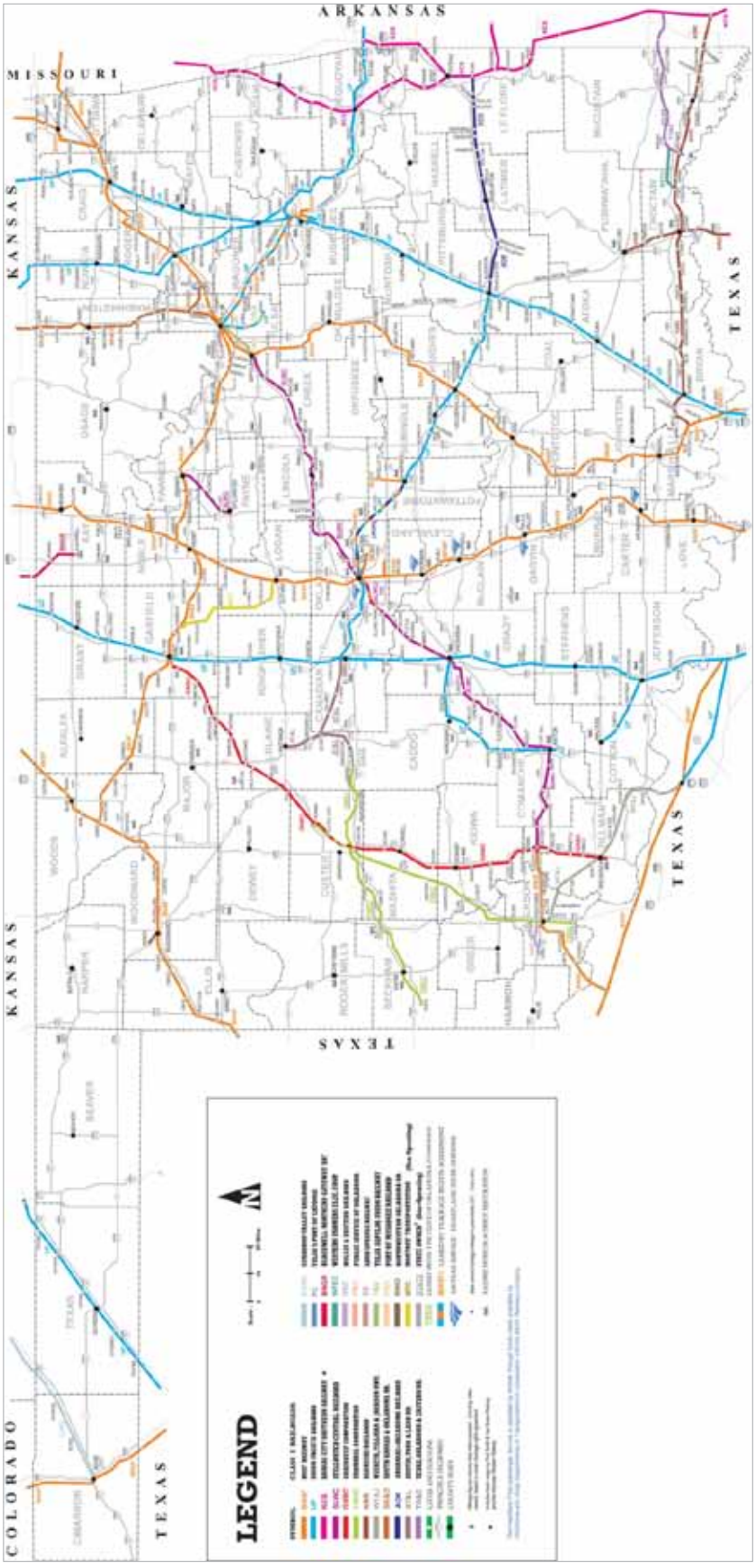


Figure 1-1
Oklahoma 2011-2012 State Railroad Map

2. The Railroad Industry

Rail transportation comprises both the movement of goods (freight rail) and the movement of people (passenger rail). Until 1971 with the formation of Amtrak, railroad companies operated both freight rail and passenger rail services. To preserve intercity passenger rail service in the U.S., the federal government created Amtrak. The railroad companies had been losing money for decades on their passenger services and sought relief from the regulations requiring provision of those services. Amtrak provided that relief. Today, two parallel rail systems operate with Amtrak providing service on lines owned by the freight railroads throughout the country (other than the northeast where Amtrak owns the lines over which it operates). In addition to Amtrak, commuter rail services operate in many metropolitan areas.

Freight Rail

The freight rail industry plays a critical role in the country's economic well-being. Freight railroads own 140,000 miles of rail lines in the U.S. In 2010, rail accounted for 43 percent of goods tonnage shipped in the U.S., followed by trucking with 31 percent, and with waterways and pipelines accounting for 13 percent each. Air cargo represents less than 1 percent of the tonnage. Nearly all product types are transported by rail, including consumer goods, industrial products, agricultural products, and natural resources.

The STB, which regulates the rail industry, separates freight railroads into three categories, based primarily on revenue. The three railroad categories are Class I, Class II, and Class III.

Class I

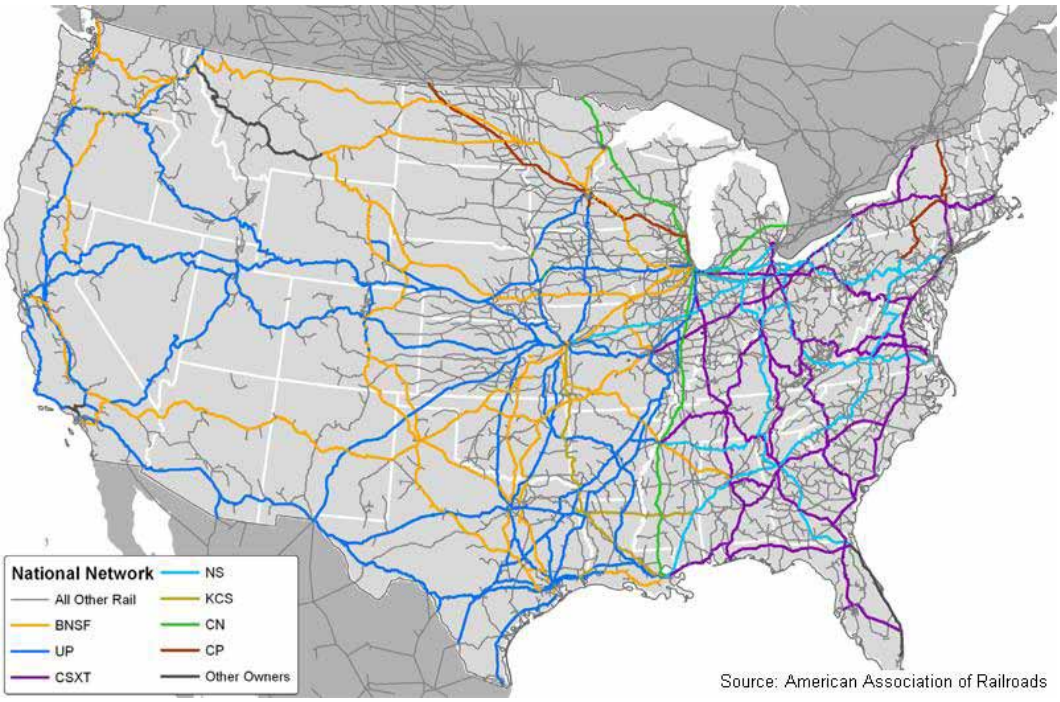
Class I railroads are the nation's larger railroads. Class I railroads are defined by the STB as railroads with annual revenues exceeding $398.7 million.[1] The majority of rail-based freight movements occur on Class I railroads operating over 96,000 miles of rail routes. In 2010, the major railroads hauled 1.9 billion tons of freight.Currently, there are seven Class I railroads operating in the United States:

- BNSF Railway Company (BNSF)
- CSX Transportation
- Canadian National Railway
- Canadian Pacific
- Kansas City Southern Railway (KCS) Norfolk Southern
- Union Pacific Railroad (UP)

Three of the Class I railroads operate in Oklahoma—BNSF, KCS, and UP.

[1] American Association of Railroads, *Class I Railroad Statistics*, Nov. 2011. Revenue levels defining the STB railroad classes are adjusted for inflation annually. Figures given are for 2011.

Figure 2-1
U.S. Class I railroads



Class II

Class II railroads are commonly called regional railroads and are smaller in revenue and network than Class I railroads. Class II railroads have revenues between $31.9 million and $398.7 million. According to the AAR, there are 12 Class II railroads in operation in the U.S. None operate in Oklahoma.

Class III

Class III railroads—also called *short lines*—are the smallest railroads. Many are former lines of larger railroads that were sold because they were unprofitable. Revenues for each of the nearly 592 Class III railroads are less than $31.9 million annually. The importance of short lines has grown as these railroads often serve as the initial or final link between Class I railroads and rail customers. Short lines often work together with the Class I railroads to offer shippers a complete transportation solution. Eighteen short line railroads operate in Oklahoma:[2]

- Arkansas-Oklahoma Railroad Company (AOK)
- Austin, Todd & Ladd Railroad (AT&L)
- Blackwell Northern Gateway Railroad (BNGR)
- Cimarron Valley Railroad (CVR)
- Farmrail Corporation (FMRC)
- Grainbelt Corporation (GNBC)
- Kiamichi Railroad (KRR)
- Northwestern Oklahoma Railroad (NOKL)
- Tulsa's Port of Catoosa (PC)
- Port of Muskogee Railroad (PMR)

[2] American Association of Railroads, *Class I Railroad Statistics*, November 2011.

- Public Service of Oklahoma (PSO)
- Sand Springs Railway (SS)
- South Kansas & Oklahoma Railroad (SKOL)
- Stillwater Central Railroad (SLWC)
- Texas, Oklahoma & Eastern Railroad (TOE)
- Tulsa-Sapulpa Union Railway (TSU)
- Western Farmers Electric Cooperative Railroad Company (WFEC)
- Wichita, Tillman & Jackson Railway (WTJR)

Types of services

Freight rail services are categorized as follows:

- **Bulk unit train services** are for commodities such as coal, sand, gravel, grain, and other merchandise and materials moved by unit trains. Unit trains are a set of railcars all carrying the same commodity from one origin point to one destination point in full trainload quantities. Other bulk products moved by rail include barley, oats, animal feed, wood pellets, and auto parts, but rarely in unit trains.
- **Auto unit train services** are unit trains for assembled automobiles, trucks, vans, and other vehicles on stacked rail cars.
- **General merchandise train services** are trains comprising various freight car types from multiple origins to multiple destinations. The freight cars include boxcars, tank cars, and open gondola cars among others. These trains can transport products that move in unit trains but principally haul non-unit train commodities.
- **Intermodal train services** are for commodities that move in containers or in trailers on flat cars. These trains move between major terminals where the containers are transferred between rail cars and trucks or rail cars and ships. Unlike other service types where the railroad picks up or delivers freight cars directly to customers, intermodal shipments begin or end by truck.

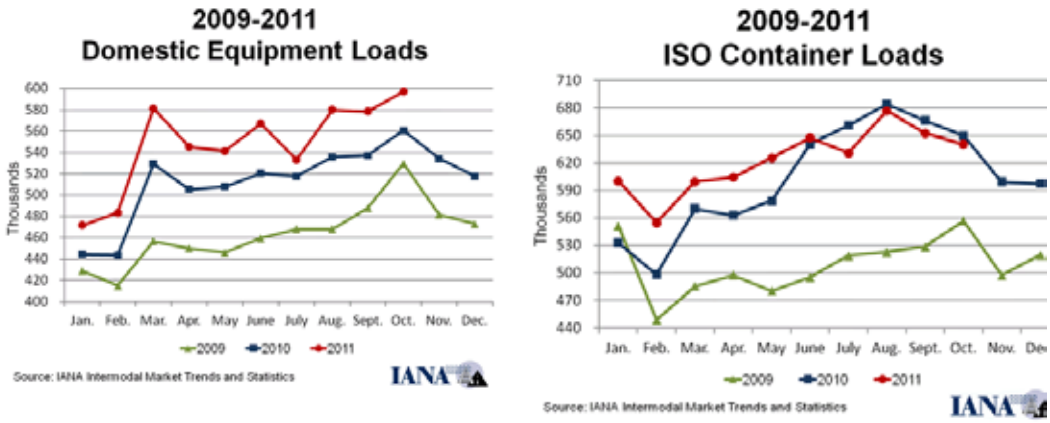
Rail freight volume and capacity utilization data can serve as a gauge of economic activity. In general, the volume of goods moved by train is a good indicator for future economic conditions as raw materials are moved to factories or consumer goods are delivered to warehouses.

Importance of intermodal train services

The intermodal business segment has become a railroad growth area. Since 1980, intermodal freight traffic has more than tripled. The principal enabler of intermodal growth has been the *double-stack* freight car—flat cars permitting the stacking of one container on another. This results in a freight train with a carrying capacity operating at nearly the same cost as a train with half the capacity. The cost savings afforded by this technology have encouraged railroads to invest heavily in the removal of height restrictions, such as low bridges and other obstructions, along their lines to expand the use of double-stack intermodal trains.

Products from China and other Pacific Rim countries accounted for most of the historic intermodal growth. However, recently, a considerable shift of domestic truck shipments

Figure 2-2
Intermodal traffic composition

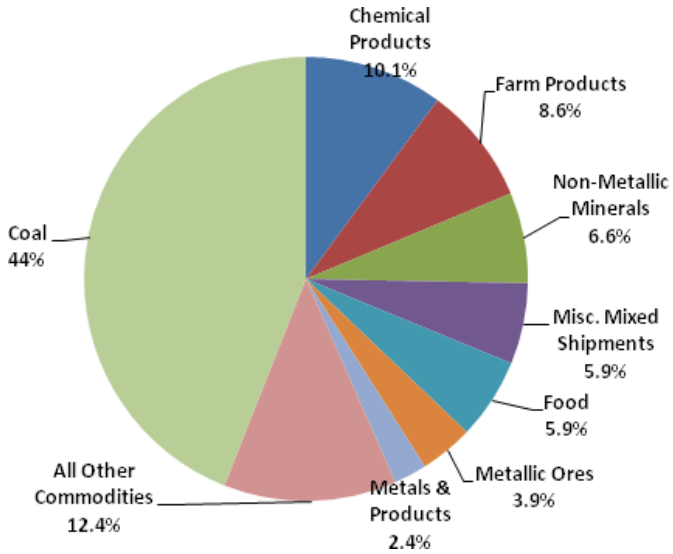


to intermodal has been occurring due to improved handling and technology. Figure 2-2 shows the recent shift to domestic intermodal.

Commodity moved by rail

Figure 2-3 shows the share of goods moved by Class I railroads in 2010.

Figure 2-3
U.S. rail freight commodity mix (tonnage)



Note: ISO Containers are standard international containers of standardized size for stacking on ships.

The most significant single commodity carried by U.S. railroads is coal. In terms of tonnage, coal movements comprise approximately 44 percent of all commodities moved by rail in the U.S. Coal remains the primary means of electricity generation, though its share has dropped consistently as natural gas continues to increase. Coal exports, however, are on pace to exceed levels not seen since the early 1990s.

Passenger Rail

Passenger rail service is broadly categorized as conventional intercity passenger rail service, high-speed intercity passenger rail service, and commuter rail service.

- **Conventional intercity rail service**—These are medium- and long-distance trains that operate between towns and cities across the country with maximum train speeds of 79 miles per hour. Amtrak is the operator, providing service on over 30 routes (Figure 2-4). Conventional intercity services operate over lines owned by

Figure 2-4
Amtrak route system

the freight railroads.

- **High-speed intercity rail service**—Although prevalent in Europe and Asia where some trains operate in excess of 220 miles per hour, the only high-speed rail service currently in the U.S. is on the Northeast Corridor between Washington, D.C., and Boston. Most of the corridor is rated at 125 miles per hour with speed limits of up to 150 miles per hour over selected segments. High-speed rail services require tracks that are separate from the slower freight operations to prevent interference.
- **Commuter rail**—These services normally connect urban cores with suburban locations and are heavily concentrated during the morning and evening work commute periods when travel is the highest.

High-speed rail expansion

The USDOT has been working with states to plan, fund, and develop high-speed rail services. This usually requires the construction of new track to ensure segregation from freight rail traffic. Since 1991, the FRA identified 11 high-speed rail corridors, positioning them for federal funding. The Tulsa–Oklahoma City–Dallas corridor was officially designated as a high-speed rail corridor in 2000. It is known as the South Central Corridor. Figure 2-5 shows the corridors.

Passenger rail in Oklahoma

The Oklahoma-funded *Heartland Flyer* provides passenger rail service in Oklahoma which Amtrak operates. Amtrak operates one train per day in each direction between Oklahoma City and Fort Worth, Texas. The *Heartland Flyer* makes station stops in Norman, Purcell, Pauls Valley, and Ardmore before serving Gainesville, Texas, in addition to Oklahoma City and Fort Worth. Connections can be made in Fort Worth to Amtrak's Texas Eagle, which operates between Chicago and Los Angeles via San Antonio. According to Amtrak, the *Heartland Flyer* carried over 81,000 riders in 2010; this represented an 11-percent increase over 2009. The *Heartland Flyer* operates on tracks owned by BNSF. In

Figure 2-5
U.S. high-speed rail corridors

2010, the *Heartland Flyer* won Amtrak's President's Award for its service.

Future passenger rail in Oklahoma

Three passenger railroad corridors are under evaluation for Oklahoma. Extension and expansion of the existing *Heartland Flyer* is being examined, as is service between Oklahoma City and Tulsa. ODOT and KDOT just completed a *Service Development Plan* looking at expansion of the *Heartland Flyer* from Oklahoma City to Newton, Kansas, as well as a new standalone daytime service between Kansas City and Fort Worth via Oklahoma City. TxDOT, in coordination with ODOT and KDOT, will soon begin a study looking at the corridor from Oklahoma City to southern Texas that will include examination of expanding the *Heartland Flyer* with a second frequency as well as performance improvements. And lastly, ODOT just began development of a service development plan and an environmental impact statement for the corridor from Oklahoma City to Tulsa. This line would connect both of Oklahoma's million-person urban areas. Initially studied in 2001–2002, a preferred high-speed alignment was identified along the Turner Turnpike. This new study will reinvestigate all options, including those previously examined.

3. Oklahoma Freight Railroads

The State of Oklahoma has a freight rail network that serves as a key state economic driver moving a wide variety of products that either are produced or consumed in the State as well as move through the state. Its freight railroads are integral to the national and regional rail system.

This section of the *Oklahoma Statewide Freight and Passenger Rail Plan* is an inventory of the freight railroads that operate within and through the state. Oklahoma has 21 railroad companies that provide freight rail service over 3,599 miles of railroad. In 2010, this ranked Oklahoma 18th in the nation in terms of the total railroad mileage.[1]

The State of Oklahoma owns 428 miles of railroad. These lines are leased for operation by the state to Class III railroads.

Class I Railroads

The three Class I railroads in the state are BNSF, which operates 1,037 route-miles in the state, UP with 1173 route-miles, and KCS with 150 route-miles. These three railroads combined originated 183,238 carloads of freight and terminated 323,442 carloads of freight in Oklahoma in 2010.[2] Because of Oklahoma's location near the middle of the country, the Class I railroads also transport a significant amount of rail freight traffic through the state that has neither an origin nor a destination within Oklahoma. A majority of this traffic is either coal from mines in northeast Wyoming to electric utilities in Texas and other southeast destinations or various goods moving between California ports and the Mid-West.

Class I railroads have high volumes of trains per day, ranging in Oklahoma from approximately 10 trains per day on several Class I lines to nearly 60 trains per day on BNSF's Transcon route.

BNSF Railway

BNSF operates the largest number of route-miles in the state and is also one of the largest rail networks in North America. BNSF owns approximately 23,000 miles of track and, additionally, operates over 9,000 miles of trackage rights on lines owned by other railroads throughout 28 states and 2 Canadian provinces. Through connections with railroads operating east of the Mississippi River, in Canada, and in Mexico, industries located on BNSF rails in Oklahoma can ship products to or receive products from any market in North America. Its connections to the Pacific Coast and Gulf of

[1] Association of American Railroads
[2] Association of American Railroads

Figure 3-1
BNSF rail system

Source: BNSF Railway

Figure 3-2
BNSF Oklahoma rail network

Source: BNSF Railway

Mexico seaports links Oklahoma to economic centers throughout the world. Figure 3-1 shows the BNSF national rail system.

BNSF owns 1,037 miles of Oklahoma rail routes and operates over another 372 miles owned by other railroads giving it the most extensive rail network in the state. BNSF operates over two primary corridors in Oklahoma. The Transcon operating between Chicago and California traverses the northwest corner of the state and the MidCon, which operates between Canada and the Gulf Coast, generally follows or parallels the I-35 corridor through Oklahoma. Another through route traverses Oklahoma from Kansas City to Dallas-Fort Worth; an east/west route through Oklahoma connects Springfield, Missouri, to the Transcon at Avard. In all, BNSF moved 3.5 million carloads of freight over these routes in Oklahoma in 2010, most of them passing through the state. Figure 3-2 depicts the BNSF route network in Oklahoma.

Union Pacific Railroad

UP operates in 23 states, owning over 26,000 route-miles of track and, additionally, operates over another 6,000 miles of trackage rights. Like its western competitor, BNSF, UP also provides service throughout North America through the connecting railroads. UP owns 26 percent of Mexico's largest railroad, Ferromex.

UP operates the second largest network in the state with 1,173 route-miles in three primary corridors. The Golden State Route, operating between Chicago and California through Kansas City, traverses the Oklahoma panhandle. The former Missouri Pacific and KATY lines in the eastern portion of the state connect the Kansas City area and Texas, Mexico, and destinations in the southeast. An additional north/south route connects Wichita, Kansas, to Fort Worth, Texas.

Source: Union Pacific Railroad

Figure 3-3
Union Pacific rail system

Figure 3-4
Union Pacific Oklahoma rail network

Kansas City Southern Railway

The KCS railway network consists of the Kansas City Southern Railroad and the Texas Mexican Railway (operating solely in Texas) as well as two railroads operating outside the U.S.—Kansas City Southern de Mexico and the Panama Canal Railway Company. KCS operates in 10 states, owning approximately 2,600 miles of track and, additionally, operates over 600 miles of trackage rights.

KCS owns 150 miles of track in eastern Oklahoma. KCS serves the central and southern U.S. and has the shortest route between Kansas City and the Gulf of Mexico.

KCS operations in Oklahoma are primarily overhead shipments of coal and feed products traveling between the Kansas City area and destinations in Texas and Mexico. KCS originates and terminates approximately 20,000 total carloads per year in the State of Oklahoma. The route is the north/south mainline of KCS through Arkansas, which enters into Oklahoma near Watts and exits the state near Page (Figure 3-6).

Figure 3-5
KCS rail system

Figure 3-6
KCS Oklahoma rail network

Class III Railroads

The primary purpose of Class III railroads, also commonly referred to as short line railroads, is to provide rail service to market areas with inadequate volume to be served profitably by the larger railroads. In most instances, the short line railroads were once part of the network of a larger railroad. The short lines serve as the customer service element of many rail-served businesses and serves as a collector network for the Class I railroads which move the bulk of the rail freight volume in and through Oklahoma. Train volumes on short lines may range from as needed or seasonal up to six trains per day. Short line railroads serve as economic engines in many communities, providing the vital transportation link to regional, national, and global economies. According to data received from the short line railroads in surveys for this plan, Oklahoma's short lines originated 69,869 rail carloads and terminated 116,658 rail carloads within the state during 2010.

Role of the State of Oklahoma

The State of Oklahoma stepped in and assisted in saving many rail lines from being abandoned and dismantled in the 1980s after several Class I railroads declared bankruptcy. CRIP discontinued service in late 1979. In 1980 and 1981, the Oklahoma legislature appropriated $12 million and $10 million, respectively, to be invested in the Oklahoma rail system. The State of Oklahoma acquired nearly 500 miles of railroads from CRIP and the Missouri-Kansas-Texas Railroad Company in 1981–1983. To this date, the state continues to own track and leases the majority of these tracks to Class III railroads in order to have continued rail service for many Oklahoma communities and businesses.

Railroad Profiles

Figure 3-7 through Figure 3-27 are profiles of Oklahoma's railroads. The Class l railroads are listed first, followed by the Class III railroads. *Route-miles* is the number of combined miles owned, leased, or under trackage rights agreements. Information for the profiles was provided by the railroad companies.

Figure 3-7
BNSF Railway (BNSF) Profile

Railroad Profile

BNSF Railway (BNSF)

For more than a century, BNSF Railway Company (BNSF) has played an important role in Oklahoma's economy. As the state's primary freight rail transporter, BNSF links Oklahoma's agricultural industry to markets around the world.

Annually, BNSF moves more than 39,000 carloads of wheat, soybeans, corn, and other agricultural products from Oklahoma to facilities around the country for domestic use and to ports for export abroad. Also, BNSF helps Oklahoma farmers expand their markets by providing a vital transportation link for the state's emerging ethanol industry.

As a national leader in intermodal transportation (truck trailers and containers), BNSF delivers a wide variety of consumer products, packaged goods, paper products, mail, clothes, appliances, electronics, and automobiles to Oklahoma retailers and businesses through the ports BNSF serves on the West Coast and the Gulf of Mexico.

BNSF delivers cleaner-burning Power River Basin coal from Wyoming and Montana to provide the energy that helps power the Oklahoma economy, as well as lumber and other building materials from the Northwest and the Southeast to satisfy construction demands throughout the state, and fertilizer from facilities around the country to feed crops on the Oklahoma plains.

In all, BNSF moves more than 3.5 million carloads of freight in Oklahoma annually.

Since, 2008, BNSF has been instrumental in locating 18 new or expanded facilities in Oklahoma, creating more than 300 jobs and nearly $60 million in investments. Projects include Koch Nitrogen Fertilizer in Enid, Farmers Coop Association in Eldorado, and Base Industries in Tulsa.

Track Data

Route Miles	1037
Miles of Trackage Rights –	372
Miles of Abandoned Track (since 2007) –	1.54
Miles of Out-of-Service Track –	None
Non-286,000 lb Rail Structures –	None

Economic Data

2010 Employees (in Oklahoma) -	975
2010 Annual Payroll –	$ 64,766,809
2010 In-State Purchases -	$ 106,600,000
2010 Capital Improvements Spending (in Oklahoma) –	Not Available

Rail Cars Originated in OK

2007 –	Not Available
2008 –	Not Available
2009 –	Not Available
2010 –	127,727

Rail Cars Terminated in OK

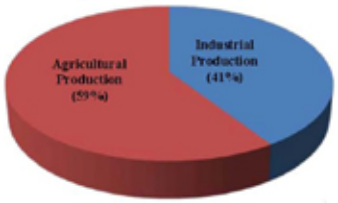
2007 –	Not Available
2008 –	Not Available
2009 –	Not Available
2010 –	153,937

Oklahoma Top Commodities Originated (By Volume)

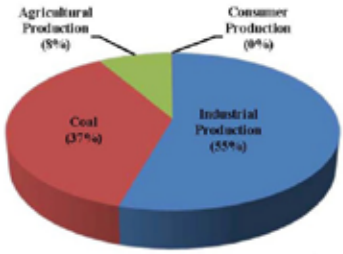
Agricultural Production –	39,378 Cars
Industrial Production –	88,349 Cars

Oklahoma Top Commodities Terminated (By Volume)

Coal –	83,807 Cars
Industrial Production -	57,043 Cars
Agricultural Production –	12,912 Cars
Consumer Production –	175 Cars



Commodities Originated



Commodities Terminated

Railroad Profile

Kansas City Southern Railway (KCS)

KCS owns 150 miles of track in eastern Oklahoma. KCS serves the central and southern United States, and has the shortest route between Kansas City and the Gulf of Mexico. KCS also has the second largest rail hub in the country in Kansas City. KCS' North American rail holdings and strategic alliances are the primary components of a NAFTA Railway system, linking the commercial and industrial centers of the U.S., Mexico and Canada.

KCS is the smallest and second-oldest (founded in 1887) Class I Railroad Company operating in the United States today. KCS also owns and indirectly operates Kansas City Southern de Mexico (KCSM) in the central and northeastern states of Mexico, and is the only Class I Railroad to own any track both inside and outside of Mexico's boundaries.

Track Data

Route Miles	150
Miles of Trackage Rights –	1
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	None
Weight of Rail –	None
Non-286,000 lb Rail Structures –	None

Economic Data

2010 Employees (in Oklahoma) -	172
2010 Annual Payroll –	$ 9,954,587
2010 In-State Purchases -	Not Available
2010 Capital Improvements Spending (in Oklahoma) -	$ 17,000,000

Rail Cars Originated in OK

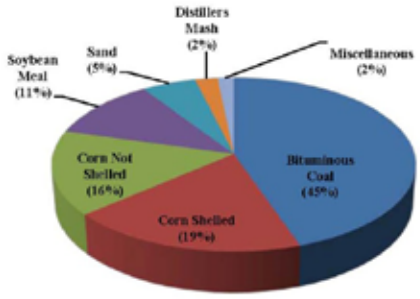
2007 –	4,535
2008 –	4,446
2009 –	3,326
2010 –	2,472

Rail Cars Terminated in OK

2007 –	16,563
2008 –	17,993
2009 –	16,711
2010 –	194,687

Oklahoma Top Commodities Originated (By Volume)

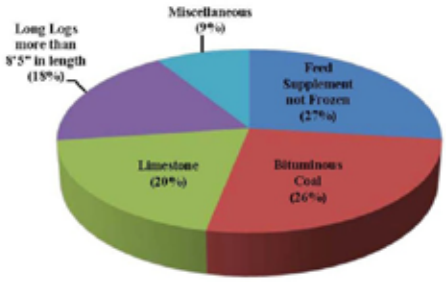
Feed Supplement not Frozen –	666 Carloads
Bituminous Coal –	649 Carloads
Limestone –	488 Carloads
Long Logs more than 8'5" in length –	448 Carloads
Miscellaneous –	223 Carloads



Commodities Originated

Oklahoma Top Commodities Terminated (By Volume)

Bituminous Coal –	8,713 Carloads
Corn Shelled -	3,678 Carloads
Corn Not Shelled –	3,064 Carloads
Soybean Meal –	2,198 Carloads
Sand –	1,059 Carloads
Distillers Mash –	441 Carloads
Miscellaneous –	316 Carloads



Commodities Terminated

Figure 3-8
Kansas City Southern Railway (KCS) Profile

Figure 3-9
Union Pacific Railroad (UP) Profile

Railroad Profile

Union Pacific Railroad (UP)

Union Pacific Railroad (UP) was incorporated in 1862 and currently owns and operates track in 23 U.S. states. Oklahoma is a vital link in Union Pacific's north-south corridor between the Midwest and the Gulf Coast. Grain bound for export moves through the state as well as coal bound for southern power plants. Union Pacific also ships Oklahoma wheat, cement and aggregates out of the state. Wagoner is the crossroads for Union Pacific trains in Oklahoma; nearly all the north-south traffic funnels through the city.

Another UP north-south line in western Oklahoma serves Enid, El Reno and Duncan. It connects Kansas wheat producers to the Texas ports. Muskogee, Tulsa, Oklahoma City, Chickasha, Enid and McAlester are home to UP switch yards and facilities.

The railroad has one of the most diversified commodity mixes in the industry, including chemicals, coal, food and food products, forest products, grain and grain products, intermodal, metals and minerals, and automobiles and auto parts.

Track Data

Route Miles	1,173
Miles of Trackage Rights –	250
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	78
Non-286,000 lb Rail Structures –	None

Economic Data

2010 Employees (in Oklahoma) -	334
2010 Annual Payroll –	$ 30,200,000
2010 In-State Purchases -	$106,600,000
2010 Capital Improvements Spending (in Oklahoma) -	$ 44,300,000

Rail Cars Originated in OK

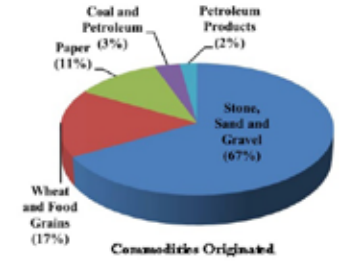
2007 – 75,583
2008 – 75,135
2009 – 50,698
2010 – 53,039

Rail Cars Terminated in OK

2007 – 211,338
2008 – 214,119
2009 – 152,360
2010 – 150,037

Oklahoma Top Commodities Originated (By Volume)

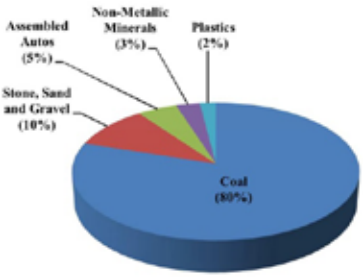
Stone Sand and Gravel –	31,823 Cars
Wheat and Food Grains –	7,956 Cars
Paper –	5,304 Cars
Coal and Petroleum –	1,591 Cars
Petroleum Products –	1,061 Cars



Commodities Originated

Oklahoma Top Commodities Terminated (By Volume)

Coal –	120,030 Cars
Stone Sand and Gravel –	15,003 Cars
Assembled Autos –	7,502 Cars
Non-Metallic Minerals –	4,501 Cars
Plastics –	3,000 Cars

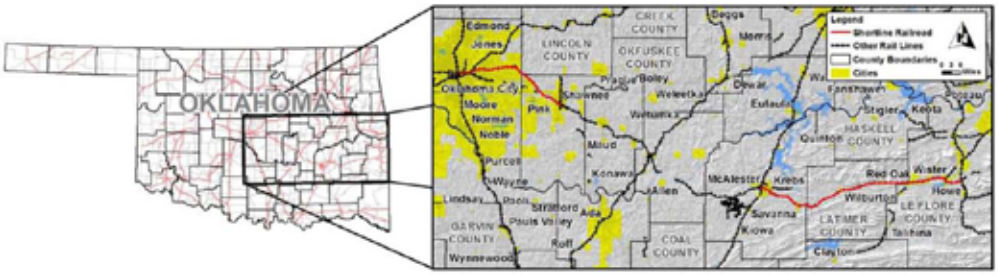


Commodities Terminated

Railroad Profile

Arkansas – Oklahoma Railroad Company (AOK)

Arkansas – Oklahoma Railroad Company is a family owned and operated Class III railroad serving customers along a 118-mile corridor between Howe, OK to McAlester, OK and Shawnee, OK to Midwest City, OK. The key commodities received are wheat, corn, oats, corn soy milk, feed ingredients, frac sand, ceramic proppant, auto's plastic resin pellets, drilling fluid products, hydrochloric acid, lumber, and hydro processing catalyst. The key commodities that are shipped are coal, aggregate, and decorative stone. The AOK can accommodate unit pipe trains at Midwest City, OK, McAlester, OK and Wister, OK.



Track Data

Route Miles	118
Miles of Trackage Rights –	36
Miles of Abandoned Track (since 2007) –	0
Miles of Out-of-Service Track –	0
Weight of Rail –	MP 482-458 is 112# continuous welded rail
	MP 458-455 is 110# continuous welded rail
	MP 455-446 is 112# continuous welded rail
	MP 372-361 is 110# jointed rail
	MP 361-327 is 112# jointed rail
	MP 327-308 is 90# jointed rail
	MP 308-295 is 110# jointed rail

Non-286,000 lb Rail Structures – All bridges rated 263K

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – 3,200	2007 – 7,500
2008 – 3,500	2008 – 7,900
2009 – 4,500	2009 – 8,200
2010 – 5,000	2010 – 9,000

Oklahoma Top Commodities Originated (By Volume)

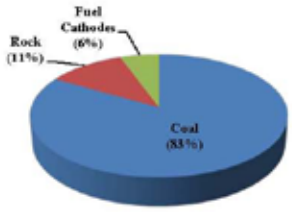
Coal –	75,000 Tons
Rock –	10,000 Tons
Fuel Cathodes –	5,000 Tons

Oklahoma Top Commodities Terminated (By Volume)

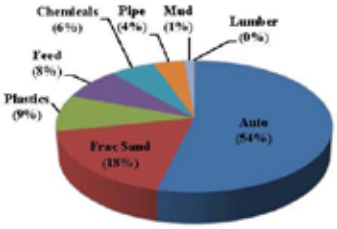
Auto –	450,000 Tons
Frac Sand –	150,000 Tons
Plastics –	75,000 Tons
Feed –	65,000 Tons
Chemicals –	50,000 Tons
Pipe –	35,000 Tons
Mud –	10,000 Tons
Lumber –	1,000 Tons

Economic Data

2010 Employees (in Oklahoma) -	45
2010 Annual Payroll -	$1,125,000
2010 In-State Purchases -	$2,100,000
2010 Capital Improvements Spending (in Oklahoma) -	$450,000



Commodities Originated



Commodities Terminated

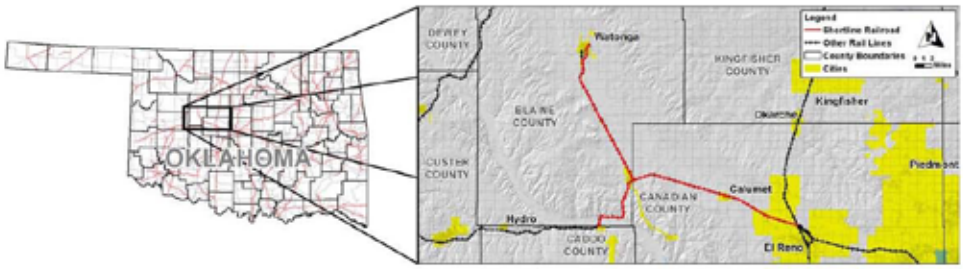
Figure 3-10
Arkansas-Oklahoma Railroad Company (AOK) Profile

Figure 3-11
AT&L Railroad (AT&L) Profile

Railroad Profile

AT&L Railroad (AT&L)

The AT&L Railroad was started in May 1985 by the Wheeler Brothers Grain Company operating about 49 miles of former Chicago, Rock Island and Pacific Railroad track in Oklahoma. It replaced the North Central Oklahoma Railway who operated the track between 1983 and 1985. The AT&L is based in Watonga, Oklahoma. AT&L operates freight service from Watonga, Oklahoma to Geary to El Reno, Oklahoma 39.7 miles and 9.6 miles through Geary, Oklahoma to Bridgeport, Oklahoma. The line transports grain, fertilizer and agricultural products.



Track Data

Route Miles	47
Miles of Trackage Rights –	0
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	1.5
Weight of Rail – **Watonga to El Reno**	
MP 0-8.5 80#	
MP 8.5-17 90#	
MP 17-28 100#	
MP 28-39 112#	

Non-286,000 lb Rail Structures – **None**

Economic Data

2010 Employees (in Oklahoma) -	6
2010 Annual Payroll -	$222,966
2010 In-State Purchases -	$242,470
2010 Capital Improvements Spending (in Oklahoma) -	$794,453

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – **2,394**	2007 – **40**
2008 – **4,010**	2008 – **43**
2009 – **1,553**	2009 – **17**
2010 – **2,275**	2010 – **10**

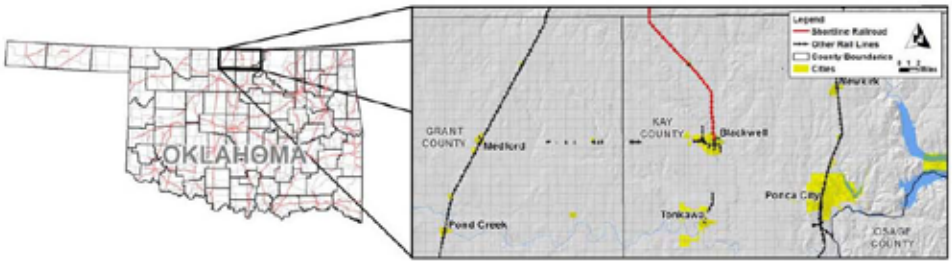
Oklahoma Top Commodities Originated (By Volume)
Wheat – **227,500 Tons**

Oklahoma Top Commodities Terminated (By Volume)
Fertilizer – **10,000 Tons**

Railroad Profile

Blackwell Northern Gateway Railroad (BNGR)

Owned by the Blackwell Industrial Authority (BIA) and Oklahoma Department of Transportation (ODOT), this line is operated by US Rail Partners, Ltd. The line serves the Blackwell Industrial Park at its south end and connections are made at Wellington, KS with BNSF Railway and Union Pacific. Blackwell Northern Gateway Railroad (BNGR) provides transloading opportunities thru US Rail Partners Logistics Services. Located centrally between Wichita, KS and Tulsa and Oklahoma City, OK, this location provides an ideal central distribution point for products destined for all three population centers.



Track Data

Route Miles	18
Miles of Trackage Rights –	0
Miles of Abandoned Track (since 2007) –	0
Miles of Out-of-Service Track –	18
Weight of Rail –	predominately 85#

Non-286,000 lb Rail Structures – **Trestles at the following milepost: 0.1, 7.4, 7.7, 9.4, 14.0, 15.5, 18.4, 19.1, 19.3, 19.6, 19.9, 20.1, 21.9, 24.9, 25.6, 26.0, 26.3, 26.8, 27.1, 27.8, 28.1, 28.9, 29.9, 30.4, 30.7, 33.1, 33.6, 124.5**

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – 114	2007 – 178
2008 – 113	2008 – 357
2009 – 393	2009 – 521
2010 – 344	2010 – 202

Oklahoma Top Commodities Originated (By Volume)

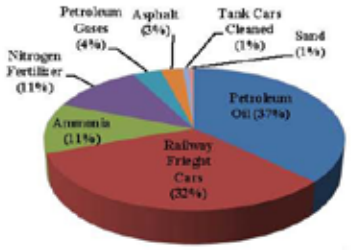
Petroleum Oil –	7,969 Tons
Railway Freight Cars –	6,923 Tons
Ammonia –	2,486 Tons
Nitrogen Fertilizer –	2,443 Tons
Petroleum Gases –	772 Tons
Elevated Temp. Liquid (Asphalt) –	584 Tons
Tank Cars Cleaned –	167 Tons
Sand –	132 Tons

Oklahoma Top Commodities Terminated (By Volume)

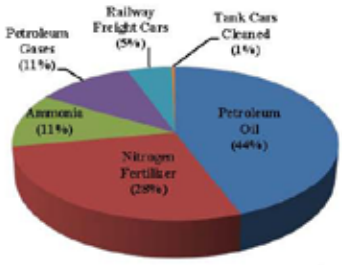
Petroleum Oil –	3,912 Tons
Nitrogen Fertilizer –	2,443 Tons
Ammonia –	994 Tons
Petroleum Gases –	984 Tons
Railway Freight Cars –	452 Tons
Tank Cars Cleaned –	36 Tons

Economic Data

2010 Employees (in Oklahoma) -	6
2010 Annual Payroll –	Not provided
2010 In-State Purchases -	None
2010 Capital Improvements Spending (in Oklahoma and Kansas) -	$150,000



Commodities Originated



Commodities Terminated

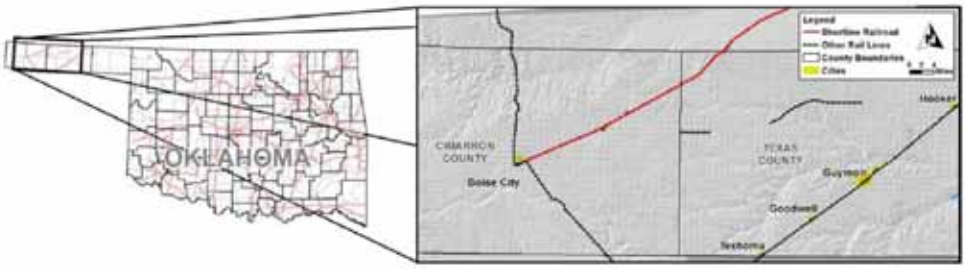
Figure 3-12
Blackwell Northern Gateway Railroad (BNGR) Profile

Figure 3-13
Cimarron Valley Railroad (CVR) Profile

Railroad Profile

Cimarron Valley Railroad (CVR)

The Cimarron Valley Railroad is based in Satanta, Kansas, and consists of the former Santa Fe C.V. and Manter Subdivisions (Dodge City, KS – Boise City, OK and Satanta to Springfield, CO, respectively). The railroad operates a total of 254 miles of track; traffic is mostly grain and agricultural, but the company handles some chemical and general merchandise traffic as well. CVR began operation in February 1996.



Track Data

Route Miles	35
Miles of Trackage Rights –	5
Miles of Abandoned Track (since 2007) –	0
Miles of Out-of-Service Track –	0
Weight of Rail –	MP 120-MP 155-90#
Non-286,000 lb Rail Structures –	0

Economic Data

2010 Employees (in Oklahoma) -	0
2010 Annual Payroll –	$0
2010 In-State Purchases -	$2,500
2010 Capital Improvements Spending (in Oklahoma) -	$30,000

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – **30**	2007 – **6**
2008 – **60**	2008 – **8**
2009 – **45**	2009 – **5**
2010 – **107**	2010 – **5**

Oklahoma Top Commodities Originated (By Volume)
Wheat – **13,910 Tons**

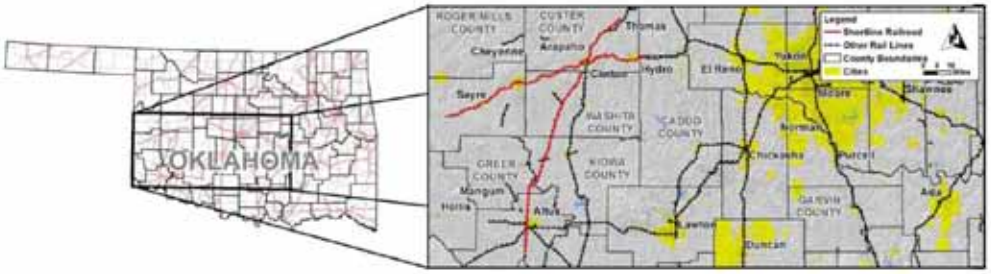
Oklahoma Top Commodities Terminated (By Volume)
Fertilizer – **650 Tons**

Farmrail
Western Oklahoma's Regional Railroad

Railroad Profile

Farmrail (FMRC)

Farmrail Corporation (FMRC) began operation in 1981 and became a wholly owned subsidiary of Farmrail System, Inc., an employee-owned holding company, in 1987. It is the lessee-manager of 161 miles of main line owned by Oklahoma Department of Transportation serving six rural counties in western Oklahoma and connects with other railroads at Clinton, Frederick and Altus. Principal commodities handled are winter wheat, crushed stone, oilfield supplies, and petroleum products. Service is coordinated with affiliated carrier GNBC, with which personnel, equipment and facilities are shared.



Track Data

Route Miles	161	
Miles of Trackage Rights – (over GNBC, Ewing-Foley)	12.7	
Miles of Abandoned Track –	None	
Miles of Out-of-Service Track –	20.4	
Weight of Rail –	MP 562.0-MP 629.0 – 100#	(Weatherford-Sayre)
	MP 399.0-MP 479.9- 70#	(Clinton-Elmer)

Economic Data

2010 Employees (in Oklahoma) –	22
2010 Annual Payroll –	$ 704,752
2010 In-State Purchases -	$2,360,116
2010 Capital Improvements Spending (in Oklahoma) -	$ 205,993

Non-286,000 lb Rail Structures – **One of 110 bridges has a verified rating for 286,000#; the rating for track and other structures is 268,000#.**

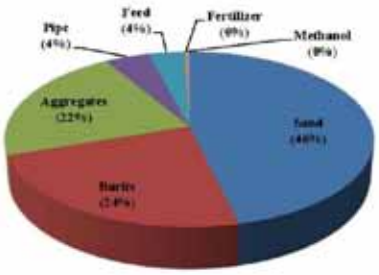
Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – 1,472	2007 – 3,672
2008 – 1,804	2008 – 3,774
2009 – 496	2009 – 2,887
2010 – 1,357	2010 – 5,210

Oklahoma Top Commodities Originated (By Volume)

Wheat – 160,000 Tons

Oklahoma Top Commodities Terminated (By Volume)

Sand –	229,600 Tons
Barite –	117,100 Tons
Aggregates –	107,400 Tons
Pipe –	22,200 Tons
Feed –	18,100 Tons
Fertilizer –	1,300 Tons
Methanol –	1,000 Tons



Commodities Terminated

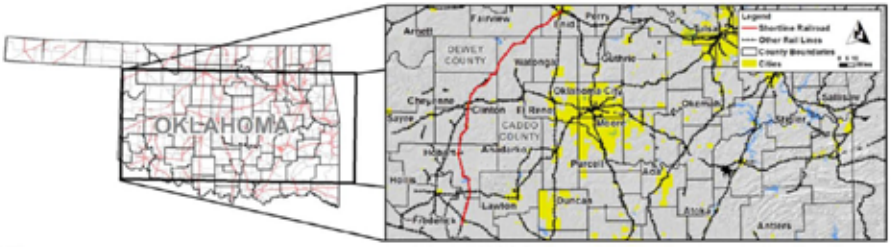
Figure 3-14
Farmrail (FMRC) Profile

Figure 3-15
Grainbelt (GNBC) Profile

Railroad Profile

Grainbelt (GNBC)

Grainbelt Corporation (GNBC) began operation in 1987 as a wholly owned subsidiary of Farmrail System, Inc., an employee-owned railroad holding company. It operates 176 miles of main line acquired from a predecessor of BNSF Railway Company serving eight rural counties in western Oklahoma and connects with other railroads at Enid, Clinton, Snyder and Altus. GNBC also has 25 miles of trackage rights in Oklahoma to facilitate connections with BNSF. Principal commodities handled are oilfield supplies, winter wheat, crushed stone, gypsum products, feed ingredients, agricultural chemicals, and petroleum products. Service is coordinated with affiliated carrier FMRC, with which personnel, equipment and facilities are shared.



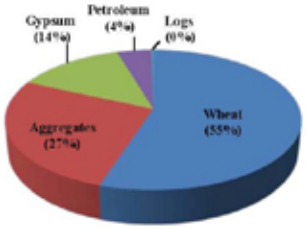
Track Data

Route Miles	176
Miles of Trackage Rights –	25
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	None
Weight of Rail –	MP 588.3-MP 666.2- 90# (Enid-Foley)
	MP 666.2-MP 681.0-115# (Foley-Ewing
	MP 681.0-MP 733.0- 90# (Ewing-Roosevelt
	MP 733.0-MP 738.5-100# (Roosevelt-Mountain Park)
	MP 738.5-MP 764.0- 90# (Mountain Park-Frederick)

Non-286,000 lb Rail Structures – **Six of 100 bridges are rated for 286,000# (based on engineering assessment); the rating for track and other structures is 268,000#.**

Economic Data

2010 Employees (in Oklahoma) –	30
2010 Annual Payroll –	$ 936,791
2010 In-State Purchases -	$3,829,072
2010 Capital Improvements Spending (in Oklahoma) -	$ 648,610



Commodities Originated

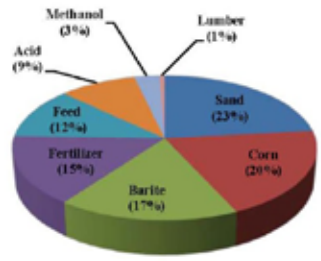
Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – 5,772	2007 – 3,023
2008 – 7,194	2008 – 2,429
2009 – 3,214	2009 – 2,109
2010 – 2,713	2010 – 2,740

Oklahoma Top Commodities Originated (By Volume)

Wheat –	221,800 Tons
Aggregates –	107,400 Tons
Gypsum –	55,100 Tons
Petroleum –	17,900 Tons
Logs –	800 Tons

Oklahoma Top Commodities Terminated (By Volume)

Sand –	63,900 Tons
Corn –	54,300 Tons
Barite –	45,400 Tons
Fertilizer –	42,200 Tons
Feed –	31,500 Tons
Acid –	25,600 Tons
Methanol –	8,400 Tons
Lumber –	1,700 Tons



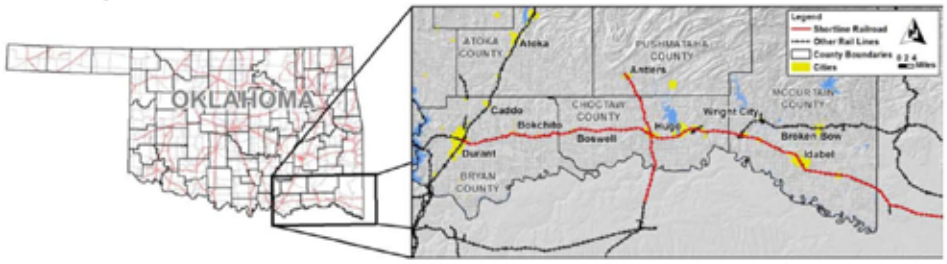
Commodities Terminated

Figure 3-16
Kiamichi Railroad (KRR) Profile

Railroad Profile

Kiamichi Railroad (KRR)

The Kiamichi Railroad Company is a Class III short-line railroad headquartered in Hugo, Oklahoma. KRR operates two lines totaling 231 miles which intersect in Hugo, as well as maintaining trackage rights on an additional 45 miles of track. The main line (186 miles) runs from Hope, Arkansas (where it interchanges with Union Pacific Railroad) to Lakeside, Oklahoma, then along 20 miles of BNSF Railway trackage rights to a BNSF interchange point at Madill, Oklahoma. Along this line, KRR interchanges with Union Pacific at Durant, Oklahoma, with Kansas City Southern Railway at Ashdown, Arkansas, and with De Queen and Eastern Railroad via Texas, Oklahoma and Eastern Railroad at Valliant, Oklahoma. A 40-mile branch line runs from Antlers, Oklahoma to Paris, Texas. KRR traffic generally consists of coal, lumber, paper, glass, cement, pulpwood, stone and food products.



Track Data

Route Miles	158
Miles of Trackage Rights –	20
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	2
Weight of Rail – MP 620.2 – 702 generally	115#
MP 702.2 – 805.5 generally	90#
MP 541.6 – 581.5 generally	90#

Non-286,000 lb Rail Structures – MP-702.2 – 805.5
MP-541.6 – 581.5

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – 12,600	2007 – 40,159
2008 – 14,000	2008 – 38,927
2009 – 10,200	2009 – 31,646
2010 – 10,450	2010 – 30,766

Oklahoma Top Commodities Originated (By Volume)

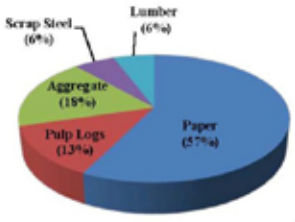
Paper –	600,000 Tons
Pulp Logs –	135,000 Tons
Aggregate –	190,000 Tons
Scrap Steel –	60,000 Tons
Lumber –	60,000 Tons

Oklahoma Top Commodities Terminated (By Volume)

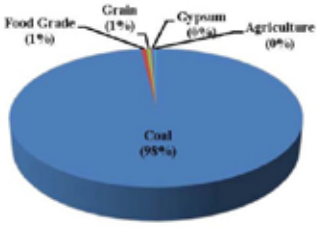
Coal –	1,600,000 Tons
Food Grade –	120,000 Tons
Grain –	90,000 Tons
Gypsum –	60,000 Tons
Agriculture –	50,000 Tons

Economic Data

2010 Employees (in Oklahoma) -	57
2010 Annual Payroll –	$3,500,000
2010 In-State Purchases -	$4,000,000
2010 Capital Improvements Spending (in Oklahoma) -	$2,500,000



Commodities Originated



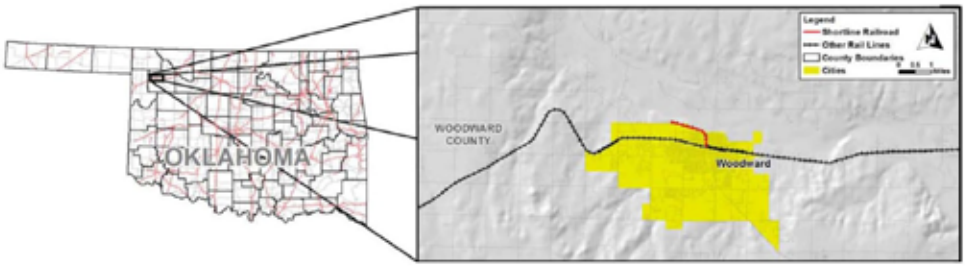
Commodities Terminated

Figure 3-17
Northwestern Oklahoma (NOKL) Profile

Railroad Profile

Northwestern Oklahoma (NOKL)

Based in Woodward, the Northwestern Oklahoma Railroad connects with the BNSF. Its major customer is a car rebuilding facility located in Woodward. The railroad owns a sizeable car fleet and its cars can be found operating on class ones, regionals, and other shortlines throughout North America. The railroad's only locomotive is a 65-ton GE center-cab switcher . The NOKL operates 5 miles of trackage in Oklahoma.



Track Data

Route Miles	**5**
Miles of Trackage Rights –	**0**
Miles of Abandoned Track (since 2007) –	**None**
Miles of Out-of-Service Track –	**None**

Weight of Rail – **combination of 136# continuous welded rail and 90# and 110# jointed rail.**

Non-286,000 lb Rail Structures – **None**

Economic Data

2010 Employees (in Oklahoma) -	**3**
2010 Annual Payroll –	**Not Available**
2010 In-State Purchases –	**Not Available**
2010 Capital Improvements Spending (in Oklahoma) –	**Not Available**

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – **0**	2007 – **450**
2008 – **0**	2008 – **493**
2009 – **0**	2009 – **88**
2010 – **0**	2010 – **1,330**

Oklahoma Top Commodities Originated (By Volume)

Oklahoma Top Commodities Terminated (By Volume)

(Tons Not Available)

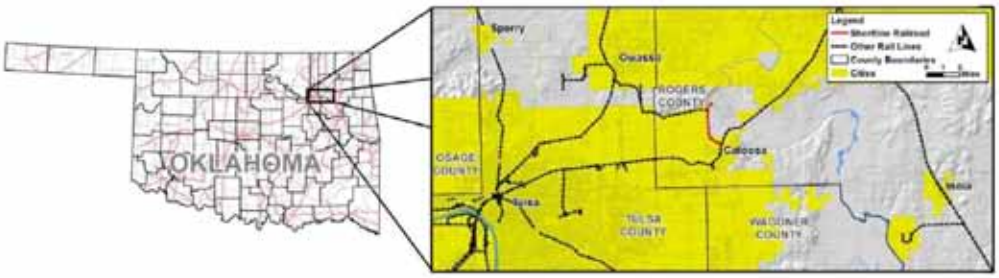
Sand
Pipe
Cement
Bentonite

Railroad Profile

TULSA PORT OF CATOOSA

Tulsa's Port of Catoosa (PC)

The Port is served by both of the remaining Western Class I Carriers, the BNSF (direct) and the U.P. via a short-line switch on the South Kansas and Oklahoma Railroad. The South Kansas and Oklahoma is a Class III with an extensive network in both Kansas and Oklahoma. Rail service is usually booked with the origin carrier who typically provides the cars. The Port is a scheduled service point for all three carriers. Rail transit times for most bulk and break-bulk cargo are roughly equal to barge within 750 miles and are days shorter beyond 1000 miles.



Track Data

Route Miles	16
Miles of Trackage Rights –	0
Miles of Abandoned Track (since 2007) –	0
Miles of Out-of-Service Track –	0
Weight of Rail –	
Non-286,000 lb Rail Structures –	0

Economic Data

2010 Employees (in Oklahoma) -	4
2010 Annual Payroll –	$200,000 - $250,000
2010 In-State Purchases -	$0
2010 Capital Improvements Spending (in Oklahoma) -	$0

Rail Cars Switched in OK

2006 – **Est. @ 13,000**

Oklahoma Top Commodities (By Volume)

Not Available

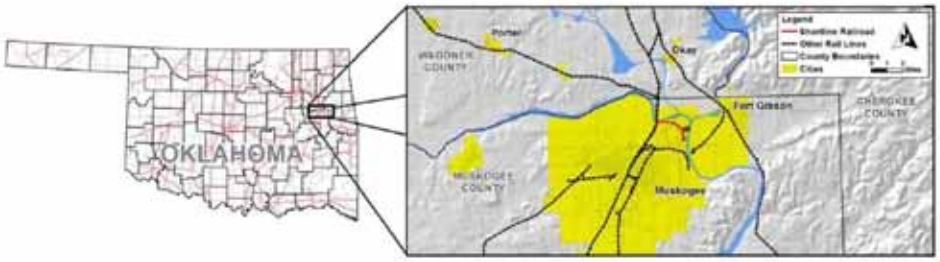
Figure 3-18
Tulsa's Port of Caloosa (PC) Profile

Figure 3-19
Port of Muskogee Railroad (PMR) Profile

Railroad Profile

Port of Muskogee Railroad (PMR)

The Port of Muskogee is a full-service facility that offers easy access to rail, truck, and barge transportation. Its inland location along the McClelland-Kerr Navigational system allows freight to be transported to the Gulf Coast and around the world via the Arkansas and Mississippi Rivers. The Port of Muskogee has a rail marshalling yard and an internal track system that is within the Muskogee switching limits of the Union Pacific Railroad. The port railroad switches cars within the Port for the mainline railroad. Multiple switches are provided to businesses within the Port on an as needed basis.



Track Data

Route Miles	4.5
Miles of Trackage Rights –	0
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	None
Weight of Rail –	Not Available
Non-286,000 lb Rail Structures –	None

Economic Data

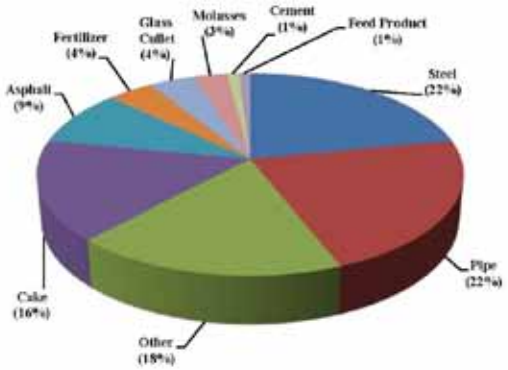
2010 Employees (in Oklahoma) - **0**
2010 Annual Payroll – **$0**
2010 In-State Purchases - **$0**
2010 Capital Improvements Spending (in Oklahoma) - **$0**

Rail Cars Switched in OK

2007 – **3,500 (Est.)**
2008 – **4,000 (Est.)**
2009 – **2,100 (Est.)**
2010 – **3,425**

Oklahoma Top Commodities Originated (By Volume)

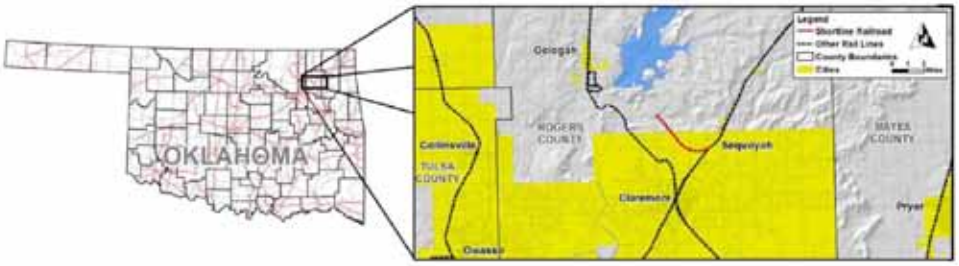
Steel –	68,325 (Estimated Tons)
Pipe –	68,325 (Estimated Tons)
Other –	55,000 (Estimated Tons)
Cake –	49,700 (Estimated Tons)
Asphalt –	27,950 (Estimated Tons)
Fertilizer –	12,425 (Estimated Tons)
Glass Cullet –	12,425 (Estimated Tons)
Molasses –	9,325 (Estimated Tons)
Cement –	3,100 (Estimated Tons)
Feed Product –	3,100 (Estimated Tons)



Railroad Profile

Public Service of Oklahoma (PSO)

Northeastern Station is a coal and gas fueled power-generating station in the Public Service Company of Oklahoma (PSO) subsidiary, which includes six generating facilities located in Oklahoma. This site is located in Rogers County near Oologah, Oklahoma.



Track Data

Route Miles	**10**
Miles of Trackage Rights –	**0**
Miles of Abandoned Track (since 2007) –	**0**
Miles of Out-of-Service Track –	**Inactive**
Weight of Rail –	**132#**
Non-286,000 lb Rail Structures –	**0**

Economic Data

2010 Employees (in Oklahoma) –	**0**
2010 Annual Payroll –	**$0**
2010 In-State Purchases -	**$0**
2010 Capital Improvements Spending (in Oklahoma) -	**$0**

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – **0**	2007 – **0**
2008 – **0**	2008 – **0**
2009 – **0**	2009 – **0**
2010 – **0**	2010 – **0**

Oklahoma Top Commodities Originated (By Volume)
None

Oklahoma Top Commodities Terminated (By Volume)
Coal

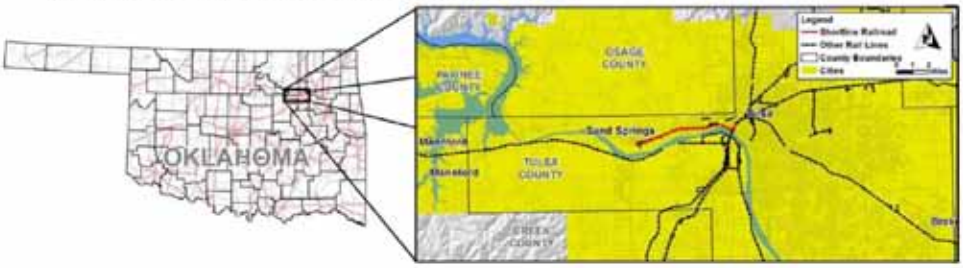
Figure 3-20
Public Service of Oklahoma (PSO) Profile

Figure 3-21
Sand Springs Railway (SS) Profile

Railroad Profile

Sand Springs Railway (SS)

The Sand Springs Railway is a class III railroad operating in Oklahoma.
It provides freight rail service between Sand Springs and Tulsa over a 20-mile route. The company primarily hauls steel, pulp, scrap iron, scrap paper, petroleum products, plastic, and lumber. It interchanges with the Union Pacific Railroad, BNSF Railway and the South Kansas & Oklahoma Railroad.



Track Data

Route Miles		20
Miles of Trackage Rights –		0
Miles of Abandoned Track (since 2007) –		None
Miles of Out-of-Service Track –		2
Weight of Rail –	Adams – 65th St.:	133#
	65th – 33rd St.:	90#
	33rd – New Block Park:	90#
	New Block Pk – Tulsa BNSF Intchg:	110#
	Morrow Rd. to HWY. 97:	90#
	Yard Tracks:	90, 75 and 110#

Non-286,000 lb Rail Structures – None

Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – 3,900	2007 – 5,250
2008 – 3,400	2008 – 5,000
2009 – 1,600	2009 – 2,050
2010 – 1,650	2010 – 2,000

Oklahoma Top Commodities Originated (By Volume)

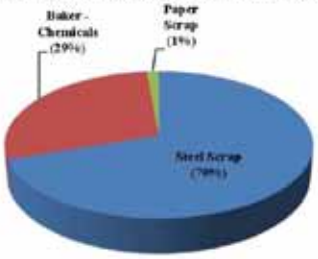
Steel Scrap –	85,000 Tons
Baker - Chemicals –	35,000 Tons
Paper Scrap –	1,800 Tons

Oklahoma Top Commodities Terminated (By Volume)

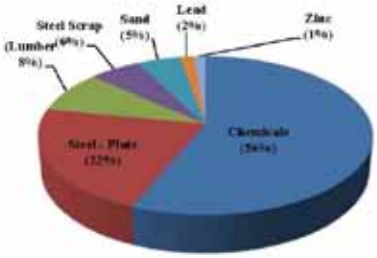
Chemicals –	100,000 Tons
Steel-Plate –	39,000 Tons
Lumber –	15,000 Tons
Steel Scrap –	10,000 Tons
Sand –	8,700 Tons
Lead –	2,800 Tons
Zinc –	2,300 Tons

Economic Data

2010 Employees (in Oklahoma) -	10
2010 Annual Payroll –	$900,000
2010 In-State Purchases -	None
2010 Capital Improvements Spending (in Oklahoma) -	$28,000,000



Commodities Originated

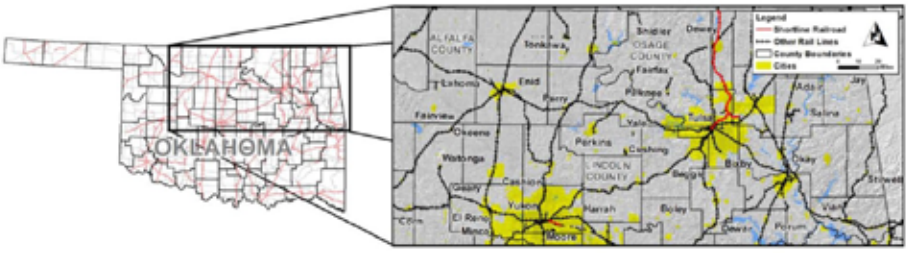


Commodities Terminated

Railroad Profile

South Kansas & Oklahoma Railroad (SK&O)

The SK&O operates freight service from a connection with BNSF and UP at Tulsa, OK North 147 miles to Iola, KS, and from Chanute to Winfield (BNSF) and Wellington (BNSF, UP), KS, 129 miles. A third line runs from Cherryvale (BNSF) to a connection with UP and the affiliated Southeast Kansas Railroad at Coffeyville, KS, 18.7 miles. SK&O also serves the Tulsa Port Authority via an 8-mile branch from Owasso, OK to the Port of Catoosa. Traffic includes grain, flour, cement and aggregates.



Track Data

Route Miles	67
Miles of Trackage Rights –	0
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	None
Weight of Rail – 157.2-165.5	90#
0-42.1A	90#
42.1A-50.9A	131#
50.9A-67A	90#
67A-71.3A	112#
71.3A-71.9A	90#
71.9A-76.1A	112#
76.1A-87.9A	90#
87.9A-88.1A	110#
88.1A-89.7A	90#
89.7A-90.1A	110#
90.1A-90.3A	90#

Economic Data

2010 Employees (in Oklahoma) -	16
2010 Annual Payroll –	$618,576
2010 In-State Purchases -	None
2010 Capital Improvements Spending (in Oklahoma) -	$254,184

Non-286,000 lb Rail Structures – **Tulsa Sub MP 157.2 to 165.5 and 0 to 90.3 263,000#.**

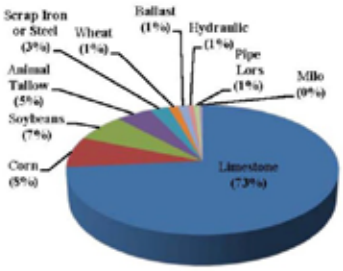
Rail Cars Originated in OK	Rail Cars Terminated in OK
2007 – 1940	2007 – 4843
2008 – 2742	2008 – 5030
2009 – 2718	2009 – 3939
2010 – 3329	2010 – 4100

Oklahoma Top Commodities Originated (By Volume)

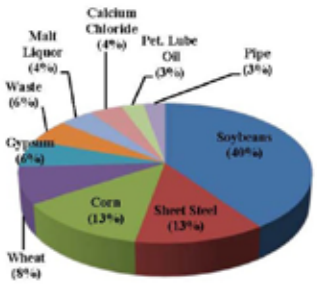
Limestone-	277,469 Tons	Wheat-	5,179 Tons
Corn-	28,918 Tons	Ballast-	4,731 Tons
Soybeans-	25,952 Tons	Hydraulic-	3,143 Tons
Animal Tallow-	18,012 Tons	Pipe Iors-	2,864 Tons
Scrap Iron or Steel-	9,623 Tons	Milo-	1,666 Tons

Oklahoma Top Commodities Terminated (By Volume)

Soybeans-	177,084 Tons	Waste-	24,332 Tons
Sheet Steel-	55,650 Tons	Malt Liquor-	18,897 Tons
Corn-	56,380 Tons	Calcium Chloride-	18,202 Tons
Wheat-	37,426 Tons	Pet. Lube Oil-	12,434 Tons
Gypsum-	27,896 Tons	Pipe-	12,046 Tons



Commodities Originated



Commodities Terminated

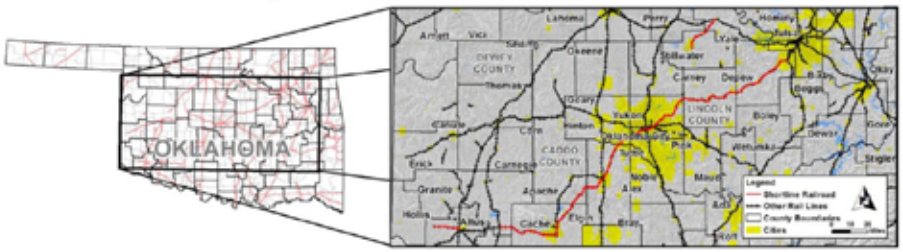
Figure 3-22
South Kansas & Oklahoma Railroad (SKOL) Profile

Figure 3-23
Stillwater Central Railroad (SLWC) Profile

Railroad Profile

Stillwater Central Railroad (SLWC)

Stillwater Central Railroad is a shortline railroad operating in Oklahoma. A subsidiary of the Watco Companies, the SLWC operates over 275 miles of track in the state from Sapulpa through Oklahoma City (state owned track) through Lawton to Snyder and has trackage rights over BNSF from Sapulpa to Tulsa, and from Snyder to Altus. SLWC also operates the former Hollis & Eastern from Altus to Hollis. SLWC operates a branch from Stillwater to a connection with BNSF at Pawnee. Primary business is handling mined, mineral, and industrial products.



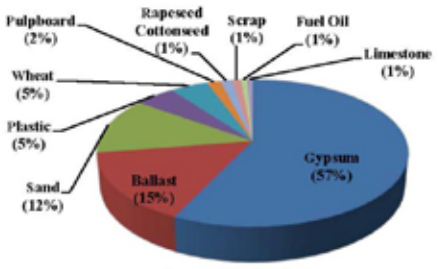
Track Data

Route Miles	240
Miles of Trackage Rights –	42
Miles of Abandoned Track (since 2007) –	0
Miles of Out-of-Service Track –	0
Weight of Rail –	1.0 – 14.2 90#
	438.9 – 540.0 115#
	541.2 – 542.9 136#
	542.9 – 558.0 112#
	558.0 – 560.0 132#
	560.0 – 668.7 112#

Non-286,000 lb Rail Structures – **Per the completion of the 2011 capital year all of the Sooner and Lawton Sub will be 286,000# rail. The Cowboy sub will remain 263,000#. The Duke sub is 263,000#.**

Economic Data

2010 Employees (in Oklahoma) -	58
2010 Annual Payroll –	$1,756,499
2010 In-State Purchases -	$1,299
2010 Capital Improvements Spending (in Oklahoma) -	$731,923



Commodities Originated

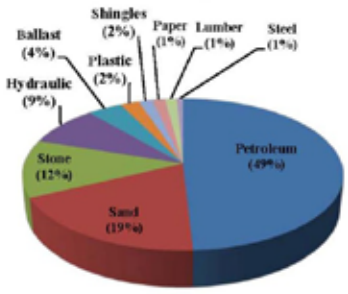
Rail Cars Originated in OK		Rail Cars Terminated in OK	
2007 –	11,779	2007 –	28,315
2008 –	12,005	2008 –	32,465
2009 –	7,512	2009 –	23,737
2010 –	8,669	2010 –	42,536

Oklahoma Top Commodities Originated (By Volume)

Gypsum –	469,510 Tons	Rapeseed/Cottonseed -	11,707 Tons
Ballast –	125,780 Tons	Scrap –	9,018 Tons
Sand –	102,740 Tons	Fuel Oil -	5,867 Tons
Plastic –	39,838 Tons	Limestone –	5,703 Tons
Wheat –	37,719 Tons		
Pulpboard –	13,532 Tons		

Oklahoma Top Commodities Terminated (By Volume)

Petroleum –	1,510,795 Tons	Shingles –	50,086 Tons
Sand –	574,823 Tons	Paper –	45,465 Tons
Stone –	377,910 Tons	Lumber –	42,447 Tons
Hydraulic –	260,807 Tons	Steel –	21,126 Tons
Ballast –	124,536 Tons		
Plastic –	67,366 Tons		



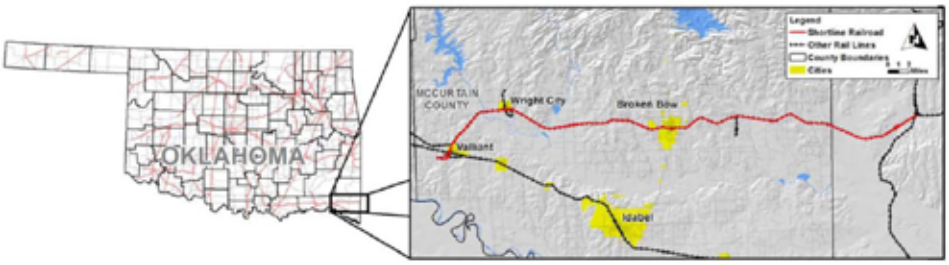
Commodities Terminated

Figure 3-24
Texas, Oklahoma & Eastern Railroad (TOE) Profile

Railroad Profile

Texas, Oklahoma & Eastern Railroad (TO&E)

The company was incorporated October 21, 1910, and opened from Valliant to Broken Bow (24.5 miles) on July 15, 1911. The final 15.3 miles from Broken Bow to West Line, AR opened in 1921. Passenger service ended in 1948. In 2011, the DQE was purchased by Patriot Rail from Weyerhaeuser. TO&E operates in conjunction with the DeQueen & Eastern Railroad (DQE) from a connection with DQE at West Line, AR to a connection with the Kiamichi Railroad at Valliant, OK (39.8 miles). Traffic consists of forest products, gypsum board, grain and paper.



Track Data

Route Miles	**41**
Miles of Trackage Rights –	**0**
Miles of Abandoned Track (since 2007) –	**0**
Miles of Out-of-Service Track –	**0**
Weight of Rail –	**MP 0-27.05: 112-115#**
	MP 27-28.27: 100#
	MP 28.27-28.6: 115#
	MP 28.6-29.4: 100#
	MP 29.4-31.1: 115#
	MP 31.1-33.8: 100#
	MP 33.8-34.3: 115#
	MP 34.3-35.3: 100#
	MP 35.3-41: 115#
Non-286,000 lb Rail Structures –	**0**

Economic Data

2010 Employees (in Oklahoma) -	**12**
2010 Annual Payroll –	**Not Available**
2010 In-State Purchases –	**Not Available**
2010 Capital Improvements Spending (in Oklahoma) –	**Not Available**

Rail Cars Originated in OK

2007 – **Not Available**
2008 – **Not Available**
2009 – **11,501**
2010 – **13,635**

Rail Cars Terminated in OK

2007 – **Not Available**
2008 – **Not Available**
2009 – **10,765**
2010 – **16,097**

Oklahoma Top Commodities Originated (By Volume)

Container Board –
Oriented Strand Board –
Aggregate -

Oklahoma Top Commodities Terminated (By Volume)

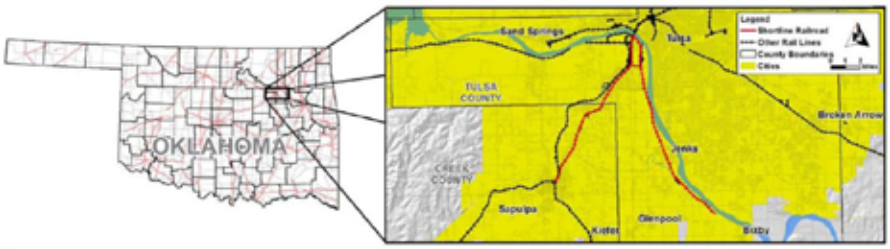
Wood Chips (fiber) –
Wasterpaper –
Chemicals –
Grain –
Chips -

Figure 3-25
Tulsa Sapulpa Union Railway (TSU) Profile

Railroad Profile

Tulsa-Sapulpa Union Railway (TSU)

The Tulsa-Sapulpa Union Railway Co. (TSU) is a small Oklahoma shortline railway that operates between Sapulpa and Tulsa, Oklahoma. It is one of Oklahoma's oldest operating railroads with origins dating back to 1907. The railroad operates trackage between Tulsa and Sapulpa serving St. Gobain Glass Plant, Prescor Inc., Greenbay Packaging Inc., Atlantis Plastics, CG Martin Company and Technotherm Corporation. The railway also operates trackage between Tulsa and Jenks, Oklahoma on behalf of Union Pacific Railroad (UP). This trackage serves Sinclair Oil Refinery, Kentube, Word Industries, Pepsi Cola Co., and Kimberly Clark Corporation. TSU has a direct connection with the Union Pacific in Tulsa, and BNSF railroad in Sapulpa, serving customers throughout the Tulsa Metropolitan area.



Track Data

Route Miles	23
Miles of Trackage Rights –	13
Miles of Abandoned Track (since 2007) –	None
Miles of Out-of-Service Track –	None

Weight of Rail – **Predominately 75-90#; some up to 115#**
Non-286,000 lb Rail Structures – **All is 263K**

Economic Data

2010 Employees (in Oklahoma) -	8
2010 Annual Payroll –	$394,566
2010 In-State Purchases -	None
2010 Capital Improvements Spending (in Oklahoma) -	$328,019

Rail Cars Originated in OK

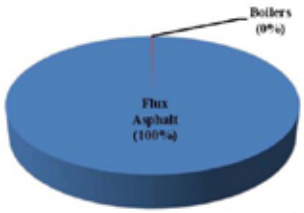
2007 – **1,815**
2008 – **2,521**
2009 – **1,339**
2010 – **949**

Rail Cars Terminated in OK

2007 – **4,090**
2008 – **4,449**
2009 – **3,960**
2010 – **3,906**

Oklahoma Top Commodities Originated (By Volume)

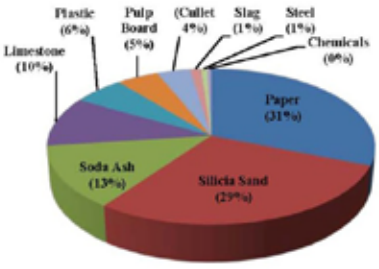
Flux Asphalt –	71,000 Tons
Boilers –	160 Tons



Commodities Originated

Oklahoma Top Commodities Terminated (By Volume)

Paper –	116,466 Tons
Silica Sand –	107,613 Tons
Soda Ash –	48,755 Tons
Limestone –	38,548 Tons
Plastic –	21,938 Tons
Pulp Board –	17,763 Tons
Cullet –	14,112 Tons
Slag –	4,794 Tons

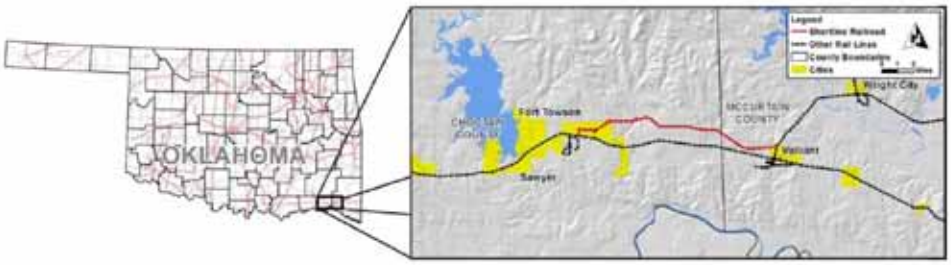


Commodities Terminated

Railroad Profile

WFEC Railroad Company (WFEC)

WFEC Railroad Company exists to assist in the transportation of coal to one of WFEC's electric generating plants near Fort Towson, OK. All operations and maintenance of the railroad are contracted out to private contractors. The railroad has 14 miles of track in Oklahoma and does not own or operate any locomotives or railcars.



Track Data

Route Miles	14.1
Miles of Trackage Rights –	0
Miles of Abandoned Track (since 2007) –	0
Miles of Out-of-Service Track –	0
Weight of Rail –	136# rail
Non-286,000 lb Rail Structures –	0

Economic Data

2010 Employees (in Oklahoma) -	0
2010 Annual Payroll –	$0
2010 In-State Purchases -	$73,000
2010 Capital Improvements Spending (in Oklahoma) -	$0

Rail Cars Originated in OK

2007 – 0
2008 – 0
2009 – 0
2010 – 0

Rail Cars Terminated in OK

2007 – 0
2008 – 0
2009 – 0
2010 – 0

Oklahoma Top Commodities (By Volume)

None

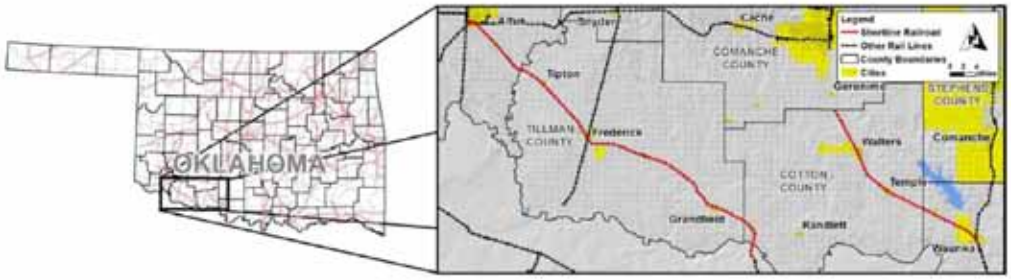
Figure 3-26
WFEC Railroad Company (WFEC) Profile

Figure 3-27
Wichita, Tillman & Jackson Railway (WTJR) Profile

Railroad Profile

Wichita, Tillman & Jackson Railway (WT&J)

WT&J operates freight service from a connection with BNSF (and UP via trackage rights over BNSF) at Wichita Falls, TX to a connection with BNSF and Farmrail at Altus, OK (77.6 miles). Another connection is made with Grainbelt at Frederick, OK. A second disconnected line runs from a connection with UP at Waurika, OK to Walters, OK (24 miles). Traffic includes grain, fertilizer, gypsum board, sand, soda ash and chemicals used in glass manufacturing.



Track Data

Route Miles	85
Miles of Trackage Rights –	0
Miles of Abandoned Track (since 2007) –	0
Miles of Out-of-Service Track –	24
Weight of Rail –	MP 17.54-19.0: 90#
	MP 19.00-26.7: 85#
	MP 26.07-78.6: 90#

Non-286,000 lb Rail Structures – **Bridge 76.1 (28 ft. Timber)**
Bridge 52.4 (78 ft. Timber)

All Southbound traffic from OK to Intchg. @ Wichita Falls passes over 4 timber structures in TX rated at 263k & 12.2 miles 85# rail.

Economic Data

2010 Employees (in Oklahoma) -	8
2010 Annual Payroll –	Not Available
2010 In-State Purchases -	$454,480
2010 Capital Improvements Spending (in Oklahoma) -	$572,360

Commodities Originated

Rail Cars Originated in OK

2007 –	2,283, incl. 1,012 bridged cars
2008 –	1,560, incl. 478 bridged cars
2009 –	1,469, incl. 482 bridged cars
2010 –	3,073, incl. 1,496 bridged cars

Rail Cars Terminated in OK

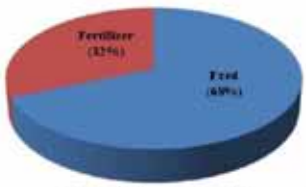
2007 –	36
2008 –	149, incl. 138 bridged cars
2009 –	96, incl. 61 bridged cars
2010 –	91, incl. 78 bridged cars

Oklahoma Top Commodities Originated (By Volume)

Wheat –	289,200 Tons
Scrap Metal –	2,400 Tons
Fertilizer –	15,700 Tons

Oklahoma Top Commodities Terminated (By Volume)

Feed –	6,300 Tons
Fertilizer –	2,900 Tons



Commodities Terminated

4. History of Railroad Development in Oklahoma

Railroads have long played a significant role in Oklahoma's development. By the time of the *Land Run of 1889,* the state's railroad network had begun to develop. After the Civil War, the Missouri-Kansas-Texas Railroad (known as the Katy) laid the first rails in Oklahoma in 1870, completing a north-south line to Denison, Texas, in late 1872. The railroad network has been meeting the demand for transportation in the state for over 100 years except for a brief absence of passenger rail in the 1980s and 1990s. A majority of today's highways and roadways in the state lie adjacent to existing or abandoned railroad corridors.

The advent of the Interstate Highway System in the mid-1950s changed the way Americans traveled. The automobile began to replace passenger rail as a preferred mode of long distance travel for a majority of Americans. Commercial air travel also hastened the demise of long distance passenger rail service. The extensive network of passenger trains that served Oklahoma in the 1950s had largely disappeared by the 1970s. As passenger rail declined in popularity, the private railroad companies focused almost entirely on freight.

The creation of the National Rail Passenger Corporation (Amtrak) in 1971 signaled the end of most passenger service in Oklahoma. Passenger services were eliminated, other than the Amtrak route between Chicago, Kansas City, Wichita, Oklahoma City, Fort Worth, and Houston. Amtrak terminated this service in 1979. The states of Oklahoma and Texas reestablished passenger service between Oklahoma City and Fort Worth in 1999 with the operation of the *Heartland Flyer*.

The Class I railroads continue to transport the largest share of rail freight in Oklahoma. Rail moves much of the bulk commodity tonnage in Oklahoma. More recently, the development of intermodal freight operations with trains of containers has grown. These trains carry standard shipping containers either 40, 48, or 53 feet long, stacked in two levels on special freight cars. Large numbers of these trains are seen on the BNSF Transcon corridor, the east-west rail line connecting California ports with Chicago and eastern rail lines, and on the connecting line through Enid, Perry, Tulsa and on to Memphis and points in the southeast. UP also handles large numbers of containers on its Chicago–Southern California route (Golden State route) across Oklahoma's panhandle.

The railroad, more than any other institution, has been responsible for the building of communities and industry throughout U.S. history. Oklahoma was no exception. Virtually all major cities established in the latter half of the 19th century were located where a railroad line crossed a river. Water and transportation are perhaps the two most important elements needed by a community. Before there were pipelines, nearness to rivers was the source of a community's water, and the train was the most effective means of

transportation, especially for long distance travel or goods movement. Oklahoma City and Tulsa developed by having both water and railroads.

The Early Years—Development of Oklahoma's Rail Network

Until the mid-19th Century, railroads were not allowed to cross Indian Territory. However, following the Civil War, permits were issued to railroad companies to cross Indian lands. While the Katy line passed through the eastern part of the Territory in the early 1870s, the first railroad allowed through the Unassigned Lands of Central Oklahoma[1] was the Atchison, Topeka and Santa Fe Railway (Santa Fe). The Santa Fe was chartered in Kansas in 1859, but construction actually began in 1868. The Santa Fe reached the future site of Oklahoma City in 1887. That line was initially part of the Southern Kansas Railroad, wholly owned by the Santa Fe. Oklahoma construction started in 1885 and was completed to Purcell in 1887. The Southern Kansas also built the rail line from Kiowa, Kansas, through Woodward to Amarillo, Texas, in 1887 (now part of the BNSF Transcon).

At the time of the Land Run of 1889, the new Choctaw Line, later part of CRIP, was approaching Oklahoma City from the east, from Little Rock and Memphis. Since Oklahoma City was also located on the north-south Santa Fe line, which was the only means of long distance goods transportation in the region, it became the trade center for nearby towns to its east and west. In 1890, the Chicago, Kansas and Nebraska Railroad line (after 1891 owned by CRIP), being constructed between Kansas and Texas, reached El Reno. In 1892, the Choctaw Coal and Railway Company (also later acquired by CRIP) completed a line from El Reno to Oklahoma City. This was followed by various company expansions and acquisitions, and El Reno became the crossroads of the main north-south and east-west lines of the CRIP system, including a line west to Amarillo and connecting with the Southern Pacific at Santa Rosa, New Mexico. Another key CRIP line between Kansas City and the Southern Pacific at Santa Rosa passed through the Oklahoma panhandle at Guymon.

During the same period, the St. Louis-San Francisco Railway (Frisco) was building a line from Joplin, Missouri, to Tulsa. Local Oklahoma City developers formed the St. Louis and Oklahoma City Railroad to extend to Sapulpa connecting with the Frisco and bringing a third line to Oklahoma City. Thus, the Frisco came to Oklahoma City in 1898. At that time, Oklahoma City became the only community in the state with three railroad lines and became the state's principal distribution center. Two more rail lines were to follow—the Missouri-Kansas-Texas Railroad in 1902 and the Oklahoma City and Western in 1903.

The Katy actually laid its first rails in Oklahoma in 1870, reaching Vinita in 1872. In the early 1900s, the Katy connected Shreveport, Louisiana, San Antonio, Texas, and Tulsa and Oklahoma City. Through aggressive expansion, the Katy developed a 3,865-mile system extending from St. Louis and Kansas City to Galveston and San Antonio on its north-south axis and east-west from Shreveport to the Oklahoma panhandle. The Katy main line passed through Vinita, Muskogee, and McAlester en route from Kansas City and St. Louis to Dallas and Fort Worth.

[1] The Unassigned Lands were several county areas in central Oklahoma that had not been assigned to any native tribe by treaty. In 1889, these lands were opened to settlement and were the objective of the Oklahoma Land Rush.

The Atlantic & Pacific Railroad, which subsequently became part of the Frisco, reached Vinita in 1871. It was extended to Tulsa in 1881–1882 and reached Sapulpa in 1886. It was not until the St. Louis & Oklahoma City Railroad Company built from Sapulpa to Oklahoma City in 1898 that the Atlantic & Pacific enjoyed adequate revenue.

Santa Fe's main line entered the state just south of Arkansas City, Kansas, and passed through Ponca City, Perry, and Guthrie into Oklahoma City, then south to Fort Worth. This line is still in use today as a main line of BNSF, successor to the Santa Fe, and is the route of the *Heartland Flyer* between Oklahoma City and Fort Worth. An alternative main line was constructed between 1900 and 1904 from Newkirk, located on the original main line, through Cushing and Shawnee to Pauls Valley, where it rejoined the original main line. The alternative line through Cushing is no longer in operation except for 8 miles between Shawnee and Aydelotte.

The Santa Fe network in the state filled out as numerous branches were added, chiefly promoted by nominally independent companies. Two important railroads were the Kansas, Oklahoma Central and Southwestern, absorbed by the Santa Fe in 1900 (currently operated by SKOL), with a line from Owen to Owasso and Tulsa, and the Oklahoma Central, with trackage from Lehigh to Chickasha by way of Ada and Purcell. The latter at one time was a principal east-west route, but operations ceased in 1942.

In the Panhandle, the Southern Kansas Railway of Texas, in 1914 renamed Panhandle and Santa Fe, built several lines around Boise City with connections into Kansas and Texas, but the Santa Fe operated the lines from the beginning. The Kansas City, Mexico and Orient, with its line from Waldron, Kansas, through Fairview, Clinton, and Altus into Texas became part of the Santa Fe in 1928.

Eventually, an extensive network of Santa Fe main and branch lines covered Oklahoma. Altogether, some 1,500 miles connected most of the oil fields with markets throughout the country and provided transportation for agriculture and industry. Most of the Santa Fe main lines are still in use today with only the old Eastern Oklahoma line, Newkirk–Shawnee–Pauls Valley, and the Oklahoma Central lines having been abandoned, along with some other branches. In 1997, the Santa Fe merged with the Burlington Northern Railroad to form the Burlington Northern Santa Fe system (now BNSF), which also includes the former St. Louis-San Francisco Railway (Frisco).

The Frisco also contributed to Oklahoma's development. It operated an extensive route network that was permitted throughout the entire state and built when Oklahoma was still Indian Territory. Oil was discovered adjacent to the Frisco line in 1907 and the Frisco rails reached many important oil fields.

Another independent rail line was constructed from Sapulpa to Denison, Texas, in the late 1890s. This line was almost 200 miles long, with a little more than 190 miles located in Oklahoma. The line, equipment, and other property became part of the Frisco in 1901.

Many other rail lines started operations in Oklahoma, contributing to the state's early development. The Oklahoma City & Western Railroad Company, an Oklahoma corporation, together with the Oklahoma City & Texas Railroad Company, a Texas corporation, built the line from the end of the track of the former St. Louis & Oklahoma City Railroad

Company, at Oklahoma City, to Quanah, Texas. Approximately 175 miles of this road was in Oklahoma.

The Arkansas Valley & Western Railway Company, incorporated in Oklahoma Territory in 1902, constructed a line connecting West Tulsa to the Santa Fe at Avard in 1904. The Blackwell, Enid & Southwestern Railway Company, incorporated in 1900, constructed the railroad from Blackwell through Enid to Red River north of Vernon, Texas. The Ozark & Cherokee Central Railway Company, an Arkansas corporation, constructed a railroad from Fayetteville, Arkansas, to Muskogee, completed in 1903. In 1895 the Kansas City, Pittsburg and Gulf, predecessor to today's Kansas City Southern Railway, constructed a line through the eastern part of the Indian Territory along the Missouri and Arkansas borders.

Reshaping of Oklahoma's Railroads

As noted in *Railroads of Oklahoma*, by Preston George and Sylvan Wood, first published in 1943 and reprinted by ODOT in the 1970s, "the network of railroads in Oklahoma was virtually completed during the 37-year period between 1870 and 1907." Many smaller branch lines were abandoned in the subsequent decades, but the major changes in the nation's rail network began in the 1970s with major mergers and line abandonments. Key events during the last decades of the 20th Century affecting these mergers and abandonments include:

- **1956**—*Federal-Aid Highway Act of 1956* signed into law on June 29 for the construction of 41,000 miles of interstate highways over a 20-year period. This national highway network had immense adverse economic consequences for the nation's railroads. Rail traffic had been declining since World War II and the interstate system further contributed to the reduction in rail shipping and use of passenger trains.
- **1968**—In January, the nation's two largest railroads blanketing the Northeast and Midwest, the Pennsylvania and New York Central, merged to become Penn Central Transportation Company.
- **1970**—The Chicago Burlington & Quincy, Northern Pacific, Great Northern, and Spokane Portland & Seattle railroads merged to form the Burlington Northern Railway in March. In June, Penn Central went into bankruptcy, the largest business failure in the U.S. at that time, affecting the entire rail industry. By 1976, Penn Central was one of seven major Northeast and Midwest railroads in bankruptcy.
- **1971**—On May 1, Amtrak (the National Railroad Passenger Corporation) took over operation of most intercity passenger trains from the freight railroads in a stopgap to keep trains running across Penn Central and other bankrupt carriers until the service could be ended or sold.
- **1974–80**—Development of the Powder River Basin in northeastern Wyoming into the largest coal source in the U.S. provided western railroads with expanded business opportunities. The Chicago & North Western Railway gained access to the Powder River Basin in 1984 and was eventually acquired by Union Pacific.
- **1975**—The effect of bankruptcies on the major railroads reached Oklahoma with CRIP's filing for bankruptcy protection in February. CRIP served Oklahoma on a

north-south route from Wichita to Fort Worth through El Reno and an east-west route from Memphis to New Mexico, connecting to California.

- **1980**—CRIP shut down at the end of March and was later liquidated. Freight service on the previous CRIP route was reinstated with the purchase of its lines by the State of Oklahoma and lease to Union Pacific under a purchase-lease agreement.
- **1980**—The *Staggers Rail Act of 1980*,[2] signed into law by President Carter on October 14, deregulated the U.S. railroad industry, replacing the regulatory structure that existed since the *1887 Interstate Commerce Act*. This landmark legislation was one of three major acts passed in a 2-year period culminating in the transport regulation reform effort begun in 1971 during the Nixon Administration.[3] The rail act was meant to restore the nation's freight rail network to economic health following the wave of industry bankruptcies.
- **1982**—Missouri Pacific Railroad and Western Pacific Railroad were merged into the Union Pacific. Although operations were integrated, the legal consolidation of Missouri Pacific with Union Pacific was not complete until 1997 due to outstanding bonds.
- **1988**—The Southern Pacific was acquired by the Denver & Rio Grande Western retaining the name Southern Pacific. The Rio Grande was a regional railroad operating across the Rockies in Colorado and Utah.
- **1995**—Burlington Northern and Santa Fe merged to become the Burlington Northern Santa Fe Railway Company (later renamed BNSF).
- **1996**—Union Pacific acquired the Southern Pacific. The Union Pacific-Southern Pacific transaction essentially completed the restructuring of the railroads west of the Mississippi River. Today BNSF and UP provide service throughout the West.

Role of Oklahoma Department of Transportation in Rail Restructuring

In response to the increasing number of rail line abandonments in the 1970s and early 1980s, the State of Oklahoma acquired several rail lines threatened with abandonment. The state recognized the need to preserve branch lines that were important to Oklahoma's commerce. ODOT initially acquired over 600 miles of rail lines with $22 million in state funds. As revenues developed from the leases of these initial purchases, the state made additional acquisitions. Oklahoma now owns 428 miles of rail lines. Currently, all but less than 8 miles are in service with five different operators.

One of the important acquired group of rail lines consists of the former north-south CRIP main line between Kansas and Texas, the branch line between El Reno and Oklahoma City, and the branch line north of Lawton. These lines were subsequently leased to UP through a lease-purchase arrangement with final payment made to the state in October 2011. The line is now fully owned by UP and has become an integral part of its network.

[2] The act was named for Congressman Harley Staggers (D-WV), who chaired the House Interstate and Foreign Commerce Committee

[3] The other two acts were the *Airline Deregulation Act* (1978) and the *Motor Carrier Regulatory Reform and Modernization Act* (1980).

The former lease revenues were a major source of the funding for ODOT's program to upgrade other short lines. Subsequently, total lease revenues are now greatly reduced.

Funding for state-owned line maintenance comes from the Oklahoma Railroad Maintenance Revolving Fund established by the *Railroad Rehabilitation Act of 1978*. Revenues from a tax on freight cars and lease payments on the line are contributed to the fund. The state has an 8-year maintenance plan for track and bridge upkeep to address the basic needs of the state-owned lines to meet federal standards for safe operation and continued service.

With BNSF operating two parallel east-west lines in Oklahoma City as a consequence of merger (the former Frisco line passing through Oklahoma City's Union Station and the Packingtown Lead [also known as the Stockyards Spur south of the Oklahoma River]), ODOT recognized that rebuilding the I-40 Crosstown Freeway provided an ideal opportunity to consolidate operations and eliminate several street-level crossings through downtown. When completed, the Crosstown project will permit the removal of the deteriorating elevated highway structure through downtown Oklahoma City and provide BNSF and UP with new facilities related to further consolidating and streamlining railroad operations in Oklahoma City. This joint development of a railroad and highway corridor is an example of a cooperative transportation project that can serve as a beneficial model in the future. This project has been instrumental in the recent transformation of Oklahoma City.

5. Rail Transportation's Role in the Oklahoma Transportation Network

The Role of Freight Rail in the Oklahoma Transportation Network

The rail industry has had a great impact on the establishment and economic success of Oklahoma. Oklahoma's railroads played a key role in converting the previous frontier into one of the largest energy- and agricultural-producing regions of the U.S. The Oklahoma rail system, like systems in most states, has experienced many changes in the last 30 years as it has evolved into the network that exists today.

The Oklahoma freight system is multimodal comprising highway, air, and water transportation as well as rail. In addition, the system includes the connector facilities that make the efficient transfer of freight between modes possible. Table 5-1 describes the Oklahoma freight network.

Table 5-1
Oklahoma transportation infrastructure

Type of Infrastructure	Miles/Number
All public roads	112,634 miles
Interstate	930 miles
Class I railroad trackage	2,360 miles (2011)
Class III railroad trackage	1,239 miles (2011)
Inland waterways	150 miles
Public-use airports	8 certificated for air carrier operations

Source: Bureau of Transportation Statistics

Oklahoma's freight rail system is expected to continue to play a leading role in the state's maintaining its leadership position in the energy and agriculture sectors of the U.S. economy. The railroads in the state provide essential goods movement services that are strategically connected to other modes. Improving the rail system productivity is critical to keeping Oklahoma a significant economic force.

Oklahoma's central location within the U.S. results in the state's being a *bridge* for freight moving across the country. Notwithstanding that position, Oklahoma's economy produces and consumes significant amounts of goods, much of it moving by rail. Table 5-2 shows the modal shares of freight originating and terminating in Oklahoma.Rail transportation plays a major role in moving products produced or consumed in the state. Its lesser role in

Table 5-2
Oklahoma freight mode shares in 2007 (thousand tons)

Mode	Within		Outbound		Inbound	
	Weight	Percent	Weight	Percent	Weight	Percent
Truck	136,614	87.11%	49,106	43.21%	38,516	35.59%
Rail	2,819	1.80%	18,179	16.00%	30,597	28.28%
Water	0	0.00%	124	0.11%	1,441	1.26%
Air (including truck-air)	0	0.00%	9	0.01%	9	0.01%
Multiple modes and mail	1,267	0.81%	6,043	5.32%	4,215	3.90%
Pipeline	15,182	9.68%	39,546	34.80%	32,534	30.07%
Other and unknown	952	0.61%	625	0.55%	895	0.81%
Total	156,834	100.00%	113,632	100.00%	108,208	100.00%

Source: FHWA FAF-3

transporting freight within the state is attributable to freight distances that are too short to make rail a cost-effective alternative.

The state's central location in the U.S. emphasizes the importance of the need to work in partnership with its neighboring states relative to future improvements to moving freight within and through the state.

The Role of Passenger Rail in the Oklahoma Transportation Network

Recent development of passenger rail service

Following World War II, national transportation policy emphasized a two-mode transportation system of highways and aviation. America's relationship with its railroads was forged by forces that were very different from those that fostered our roads and airports and even our waterway transport systems.

The railroad industry's exploitive market behavior toward farmers in the late 1800s created a situation that would haunt the industry for nearly a century. Several western states, known as the *Granger*[1] states, enacted laws regulating the business practices of the railroads. These laws were overturned under the commerce clause of the U.S. constitution but were replaced by the passage of the *Interstate Commerce Act of 1887*. Regulation of the railroads by the Interstate Commerce Commission (ICC) lasted until 1980 when the Staggers Act largely deregulated the railroad business.

The railroad industry's passenger services were regulated along with its freight business. The passenger business had grown before and through World War II, with railroads being instrumental in moving troops about the country and ultimately to their points of embarkation for overseas deployment. After the war, the situation changed dramatically. As a result of the wartime demands, the rail infrastructure and equipment were distressed and

[1] The National Grange of the Order of Patrons of Husbandry (The Grange) was formed in 1867. The Grange advocated for rural agricultural interests and was instrumental in the regulation of the railroads.

in need of maintenance and reinvestment. However, without wartime demand, rail business dwindled reducing capital available for improvements.

Before the war, competition from air travel was minor. Some of the railroads even participated by offering long-distance plane and train services where passengers flew by day and slept on the train at night. At war's end, large numbers of military transport aircraft were made available at surplus prices for conversion to passenger airliners.[2] This permitted passenger airlines to be established with inexpensive aircraft flying to a network of military-built airports throughout the country.

Possibly of greater consequence were the improvements to the highway system. Based on observations of Germany's autobahns by General Dwight Eisenhower, the interstate highway system was established and provided fast automobile travel on a national scale. The interstate highways also fostered the diversion of freight from railroads to trucks, further eroding the railroad industry's revenues.

In spite of the new competition faced by the railroad passenger services, passenger trains were required to operate regardless of their profitability. This situation continued to worsen until the late 1960s when passenger service losses eventually threatened the financial viability of the entire rail industry. In response, Congress passed the *Rail Passenger Service Act of 1970*. The act established the National Railroad Passenger Corporation (Amtrak). Railroad participation in Amtrak was voluntary but permitted railroad companies to relieve themselves of their passenger service obligations.

The Amtrak business arrangements with the volunteer railroads were based on the following principles:

- In exchange for capital stock in Amtrak, a railroad transferred title to its passenger train equipment to Amtrak
- The railroad granted to Amtrak the right to operate passenger trains on any tracks in its system
- The railroad was granted relief from its passenger service obligations
- Amtrak paid the railroad the incremental cost of maintaining its lines over which Amtrak operated (the costs covered where those required to maintain the freight tracks up to passenger track standards)
- The railroad was indemnified for most liability arising out of passenger operations

Oklahoma passenger rail service

Amtrak commenced operating on May 1, 1971. Passenger train operations in Oklahoma prior to the formation of Amtrak can be found in Chapter 11. From the commencement of Amtrak until October 9, 1979, Oklahoma's sole remaining passenger train was the Texas Chief, renamed the Lone Star on March 15, 1974. The train operated on the tracks of the Santa Fe Railroad between Chicago and Houston. Congressional action required Amtrak to rationalize their system in 1979 by eliminating the least financially viable trains. Congress accepted Amtrak's plan, which included termination of the Lone Star.

[2] Particularly the Douglas C-47, which was built in large numbers for military use and is easily converted to its civilian counterpart, the DC-3.

Oklahoma remained without any passenger rail service until 1999 when the *Heartland Flyer* began operations.

Passenger rail service in Oklahoma plays a limited role in its transportation system. The *Heartland Flyer* operates between Oklahoma City and Fort Worth, Texas ,daily with intermediate stops in Oklahoma at Norman, Purcell, Pauls Valley, and Ardmore. The southbound train departs Oklahoma City at 8:25 a.m., and the northbound train departs Fort Worth in the dinner hour, arriving at Oklahoma City at 9:39 p.m. A convenient connection to Amtrak's Chicago to San Antonio and Los Angeles Texas Eagle is available at Fort Worth.

The *Heartland Flyer* is co-sponsored by the states of Texas and Oklahoma and sanctioned by Amtrak under Section 403(b) of the *Rail Passenger Service Act of 1970*. Section 403(b) provides a mechanism for a state, regional, or local entity to establish a passenger rail service using local funds but benefiting from the operating authorities granted to Amtrak under the law. Oklahoma has chosen to be an active investor in its train service, paying close attention to the service quality since its inception on June 14, 1999. The state's stewardship has resulted in the award of the Amtrak President's Award for outstanding service and has also resulted in a trend of growing ridership over the past decade. A more complete description of the *Heartland Flyer* is provided in Chapter 11.

The emerging trend toward regional train system growth is exemplified by the service. Several states—California, North Carolina, and New York being notable—have developed successful, multiple daily departure trains serving their constituents. These services are both cost and time competitive with highway travel. Long-distance travel is dominated by the airlines, but recent trends have the airlines reducing or eliminating shorter routes because of increasing costs per seat-mile, most evident on the shorter flights.

The substitution of trains for short-haul air travel has not been universally accepted in the U.S. as it has in other parts of the world. France's famed TGV trains serve Paris' Charles de Gaulle airport directly. London's Heathrow, Gatwick, Stansted, and Luton airports have direct train service, as do many others in Europe and Asia. Several American airports have rail connections but, with the exceptions of Newark Liberty and Baltimore's Thurgood Marshall Airport, Burbank's Bob Hope Airport, and Anchorage International, the connections are to local transit or commuter rail systems if any connection at all.

America's transportation policies tend to cast each mode of transport into its own *silo*, treating each mode separately. Highway, rail, air, and water transportation each have their own funding mechanisms and funding of improvements rarely straddles multiple modes. Although multimodal transportation improvement programs are often discussed and, sometimes even planned, the boundaries set by the funding mechanisms impede their implementation. Because of the unique relationship between the federal government and the railroad industry, public funding for rail has always been comparatively limited. Transit and commuter rail services do receive funding through the Federal Transit Administration, but intercity rail funds have mostly been restricted to Amtrak.

In 2009, the Obama Administration announced plans to develop high-speed intercity rail with the goal of serving 80 percent of the American population within 25 years.

An initial funding package of $8 billion was made available through ARRA, plus an additional $2.5 billion through transportation appropriations. Largely resulting from budgetary restraints following the 2008 recession, further funding has not been forthcoming. However, various states, including Oklahoma, continue to plan commuter, intercity, and high-speed rail improvements assuming that funding will resume as the economy improves.

Travel between Oklahoma's two largest metropolitan areas, Oklahoma City and Tulsa, provide an attractive market for intercity rail transport. The 110 miles separating Oklahoma City and Tulsa represents a distance where the economics of rail technology are very favorable. Both cities also plan to develop commuter rail services connected to their suburban areas providing linkages to surrounding population centers. Chapter 12 provides more information on future rail transportation plans.

6. Impacts of Rail Transportation

Both freight and passenger rail transportation in Oklahoma has significant impacts on the state's industries and the public. This chapter outlines the impacts on the environment, energy consumption, and the overall quality of life. Chapter 7 describes the impact of the rail industry to Oklahoma's economy.

Impact on the Environment

While the diesel-powered locomotives operating in the state contribute to air and noise pollution, the principal alternative, truck transportation, has a far greater adverse impact on the economy. According to the U.S. Environmental Protection Agency data for 2009, rail transportation contributed only 2 percent of the greenhouse gas emissions in the U.S. By contrast, heavy-duty trucks contributed 20 percent of transportation greenhouse gas emissions (Figure 6-1). Rail traffic, measured in ton-miles, was 38 percent greater than truck ton-miles.

U.S. Greenhouse Gas Emissions By Economic Sector: 2009

Economic Sector	Tg CO2 Eq.	% of Total
Electric. generation	2,193.0	33.1%
Residential	360.1	5.4%
Industry	1,322.7	19.9%
Agriculture	490.0	7.4%
Transportation	1,812.4	27.3%
Commercial	409.5	6.2%
U.S. Territories	45.5	0.7%
Total	6,633.2	100.0%

Data are in teragrams of CO2 equivalents.

U.S. Greenhouse Gas Emissions from Transportation: 2009

Economic Sector	Tg CO2 Eq.	% of Transp. Total
Trucking	365.6	20.4%
Freight Railroads	**37.2**	**2.1%**
Waterborne Freight	13.5	0.8%
Pipelines	35.2	2.0%
Aircraft	127.8	7.1%
Recrational Boats	16.9	0.9%
Passenger Railroads	6.0	0.3%
Cars, Light Trucks, Motorcycles	1,180.6	65.8%
Buses	11.2	0.6%
	1,794.0	100.0%

Source: EPA, *Inventory of U.S Greenhouse Gas Emissions and Sinks: 1990-2009*, Tables ES-7, A-111, and A-112. Totals for "transportation" in the two tables do not match because the table on the left includes emissions from sources considered to be transportation but not considered to be passenger or freight (e.g., lubricants).

Figure 6-1
Source of greenhouse gas emissions

Figure 6-2 provides another perspective on the efficiency of rail transportation. It shows the cumulative benefit of shifting freight from trucks to rail, in this case the impact of a 10-percent diversion.

Although data are not available to readily calculate the exact benefits of rail transportation to the Oklahoma environment, the importance can be quantitatively demonstrated. In 2007, rail freight originating in Oklahoma measured 12.8 billion ton-miles as it moved to destinations throughout North America. Those rail shipments produced 394,000 tons of carbon dioxide emissions.[1] If rail transportation were not available, those same shipments would have

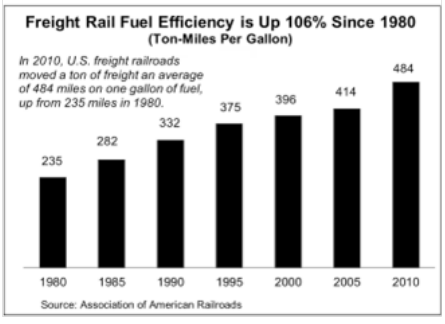


Figure 6-2
Impact of rail on greenhouse gases

Source: Association of American Railroads

[1] CSX Transportation Emissions Calculator

generated 1.1 million tons of emitted carbon dioxide, nearly three times the level of green house gas pollutants produced by rail.

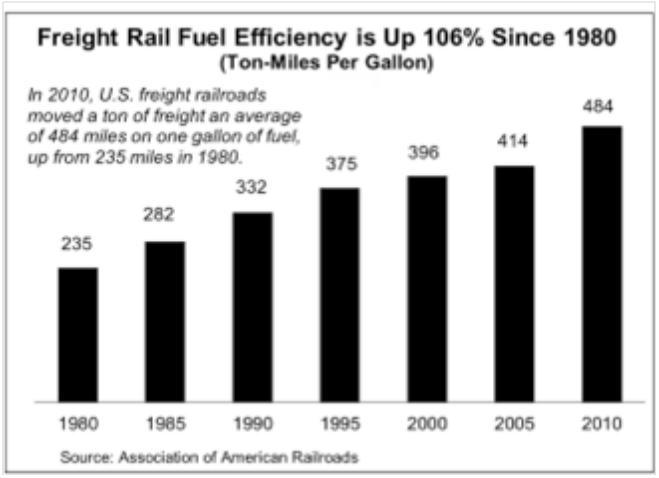
Comparable ton-mileage data are not available for freight rail traffic destined or passing through the state. However, with rail tonnage terminating nearly double the originating tonnage and an additional 229 million tons passing through the state, the reduction in emissions is significant, more than ten times the tonnage originated.

The railroads are also focusing on reducing other forms of pollutants. Advances in locomotive technology have produced new locomotives that meet the most stringent Environmental Protection Agency (EPA) standards for nitrous oxide and particulate matter emissions. Locomotives now emit 67 percent less nitrous oxide and 50 percent less particulate matter than they did 10 years ago. The railroads are also participants in EPA's SmartWay Transport partnership. The partnership includes freight carriers and shippers who are targeting reducing emissions.

Energy Impacts

Rail transportation has become increasingly fuel-efficient more than doubling its capability to move freight on a gallon of fuel from 30 years ago, as shown in Figure 6-3. The U.S. freight railroads moved a ton of freight 484 miles on a gallon of diesel fuel in 2010 up from 235 miles in 1980. According to the AAR, this is four times as energy efficient truck transportation.

Figure 6-3
Rail fuel efficiency trend



Using the 12.8 billion ton-miles that rail traffic originated in Oklahoma in 2007, Oklahoma shippers saved 75 million gallons of fuel using rail transportation. As with the reduced emissions, even greater fuel savings can be assumed for inbound freight consumed by Oklahoma's residents and industries.

The railroads have been focused on reducing fuel consumption because it is a significant cost of operations, and greater efficiencies improve the railroads' competitive position with respect to trucks.[2] The railroads have taken a number of initiatives:

- Increased the carrying capacity of rail cars and increased the number of cars in a train through a combination of technology and infrastructure improvements—Train productivity has increased 61 percent over 1980. Some freight cars can now transport up to 140 tons with some trains up to 180 cars long.
- The use of energy efficient locomotive technology.

[2] Association of American Railroads, *Freight Railroads Help Reduce Greenhouse Gas Emissions*, November 2011.

- The application of computer technology to control operations that maximize fuel efficiency of a single train and the fuel efficiency of the network by controlling train schedules—The technology also is designed to reduce delays in train operations, thus benefiting the railroads' customers.
- Reduced idling of locomotives—Technology is being used to turn off locomotive power when conditions permit.
- The adoption of distributed power, a practice where locomotives are positioned in the middle and the end of trains and controlled by technology in the front locomotive—This practice reduces required horsepower and permits operation of longer trains.

Quality of Life Impacts

One important area that rail transportation has an impact on is roadway congestion. Nearly 278 million tons of freight is transported over Oklahoma's rail network each year. A truck hauling freight between cities typically has an average capacity of 18 tons. If all the rail traffic were to move by truck, Oklahoma's highways would see an additional 42,300 trucks each day, 15.4 million trucks per year, without considering the movement of empty trucks.

7. Relationship of Oklahoma's Freight Rail System to the Oklahoma Economy

This section describes the impacts of rail transportation on Oklahoma and how Oklahoma's economy is affected by freight mobility. The key questions it addresses are

- What are Oklahoma's top rail-dependent industry sectors?
- What is the economic geography of major rail-dependent industry sectors within Oklahoma; where are these industries distributed geographically?
- What role does rail play in the supply chain for these industry sectors?
- What is the contribution of rail-dependent sectors to the Oklahoma economy?
- What do freight railroads contribute directly to the Oklahoma economy, in terms of employment, in-state purchases, and indirect and induced economic impacts?

Defining and Measuring Freight Rail Importance

Rail freight importance for Oklahoma's industries may be measured in a number of ways:

- In economic terms, by how much is spent on transportation as a share of the total output of industries
- By the value of goods exported to the rest of the U.S. and the world on freight rail from Oklahoma
- By the volume and value of goods shipped by rail and other freight modes

Economic measurement of freight transportation importance

Describing overall freight transportation dependency, the USDOT and the Bureau of Economic Analysis (BEA) Transportation Satellite Account database provides national data on the per-dollar amount of industrial output that is spent on transporting each industry's product.[1] Unfortunately, Transportation Satellite Account data are relatively outdated, having been developed in the 1990s. Since then, technologies, logistics practices, and industry structures have changed greatly. However, the Transportation Satellite Account database continues to provide valuable information about freight dependencies of different industry sectors.

According to Transportation Satellite Account data, the industries with the greatest shares of direct transport requirements of industry output are natural resources and mining (21 percent), manufacturing (36 percent), and information (17 percent). In other words, to produce $1 of output, the mining industry requires 21 cents in transportation output. Of those industries, natural resources and mining rely heavily on rail, whereas manufacturing tends to use truck and the information industry relies on air.

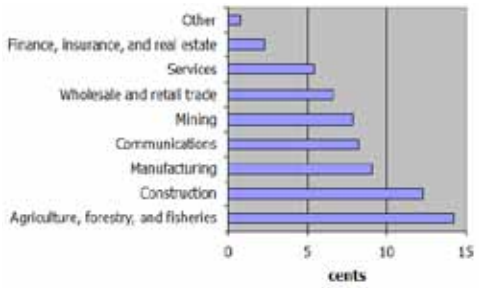
The TSA data shows that in-house transportation (i.e., transportation services that take place within non-transportation industries, such as proprietary fleets owned by major

[1] www.bea.gov/industry/tourism_data.htm

retail chains) and for-hire transportation generated $121.5 billion and $191.6 billion of value added,[2] respectively. Together, this accounted for approximately 5 percent of U.S. gross domestic product (GDP) in 1992.

From a value-added perspective, Figure 7-1 summarizes the transportation share of industry output by the major *two-digit industry sectors*, as defined by the North American Industry Classification System (NAICS). NAICS codes have been developed from standard industrial classification codes to harmonize industry definitions among the U.S., Canada, and other countries participating in the NAICS accounting protocols.

Figure 7-1
Transportation contribution to value added by major two-digit industry in cents per value added



Note: Total requirements, direct and indirect, per dollar of delivery to final demand, at producers' prices

At an aggregate level, agriculture products, construction, and manufacturing are the most transport-dependent sectors. For example, transportation services contribute 14.2 percent to the value added for the agriculture, forestry, and fisheries sector (i.e., transportation adds about 14 percent to the value of all products sent to market by agriculture, forestry, and fishing enterprises).

Of the key industries in Oklahoma, in terms of contribution to GSP,[3] agriculture and mining have the largest transportation value-added component (i.e., 14 cents and 8 cents for each $1 increase in demand, respectively).

Table 7-1 disaggregates further the two-digit sector dependencies by mode. As shown, trucking, which includes both motor freight and in-house transportation, comprises by far the largest share of transportation's contribution to value added of any mode, followed by railroads.

Volume as a measure of freight rail importance

Generally, low-value commodities are moved in large volumes by the lower-cost rail or barge modes, while the higher-value products are typically transported by truck or intermodal rail or as air cargo. The containerized products are usually shipped over longer distances to or from a port or major intermodal transfer facility. The very-high-value goods are typically shipped by plane with trucks providing local connections.

In 2009, 18.4 million tons of rail freight originated in Oklahoma. Of the rail freight originating in Oklahoma, 7.2 million tons (45 percent) were broken stone or riprap, 2.3 million tons (14 percent) were grain, and 1.4 million tons (9 percent) were fertilizer.

[2] Value-added for an industry is the gross receipts of the firms in that industry minus the purchase of intermediate goods and services used. Output on the other hand simply represents the value of industry production and does not remove costs faced by the industry.

[3] GSP measures the value of all goods and services produced in a state in a given year using the prices prevailing in that year, while real GSP is the value of all goods and services expressed in the prices of the base year. In evaluating the state economy over a period of time, real GSP is often used instead of GSP. This is because GSP can over-estimate the growth of the economy—the general increase in prices over time (inflation) can cause GSP to increase even if the volume of the state's goods and services produced remains unchanged. Real GSP growth is adjusted for inflation and, thus, a more accurate measure of how much the economy has grown in terms of output over a given period of time.

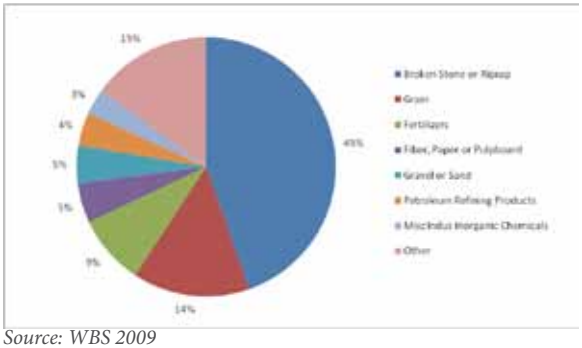
	Agriculture, Forestry, and Fisheries	Mining	Construction	Manufacturing	Communications and Utilities	Wholesale and Retail Trade
Railroads	0.011	0.010	0.006	0.010	0.013	0.002
Motor freight transportation and warehousing	0.033	0.017	0.032	0.035	0.039	0.009
Water transportation	0.004	0.004	0.002	0.003	0.003	0.001
Air transportation	0.006	0.005	0.005	0.008	0.005	0.006
Pipelines, freight forwarders, and related services	0.004	0.002	0.003	0.006	0.004	0.002
State and local passenger transit	0.001	0.001	0.001	0.001	0.001	0.0002
In-house transportation	0.085	0.038	0.073	0.027	0.016	0.046
Total Transportation	0.14230	0.07853	0.12286	0.09078	0.08242	0.06605

Example: for every $1 of final goods sold by the agriculture, forestry, and fisheries industries, $0.011 was spent on railroad transportation.

Table 7-1
TSA Transportation requirements for major goods moving industries two-digit level, by mode (cents per dollar of final demand; excludes non-freight-oriented sectors, such as finance, insurance, and real estate)

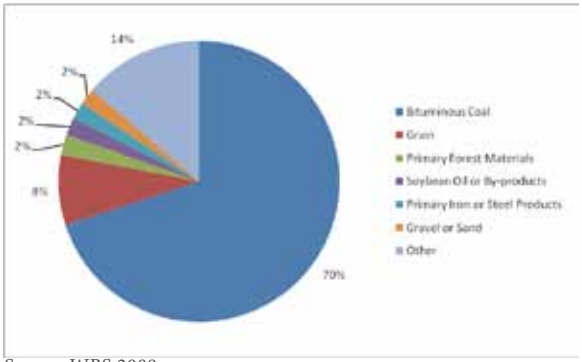
These three commodities account for almost 70 percent of all rail freight that originated in Oklahoma (Figure 7-2).

In the same year, 36.1 million tons were shipped to Oklahoma. Of the rail freight terminating in Oklahoma, 22.2 million tons were coal, making up 70 percent of all rail freight shipped into the state (Figure 7-3).



Source: WBS 2009

Figure 7-2
Rail freight originating in Oklahoma, commodity distribution (by tons)



Source: WBS 2009

Figure 7-3
Rail freight terminating in Oklahoma, commodity distribution (by tons)

Oklahoma's Economy and Key Industry Groups

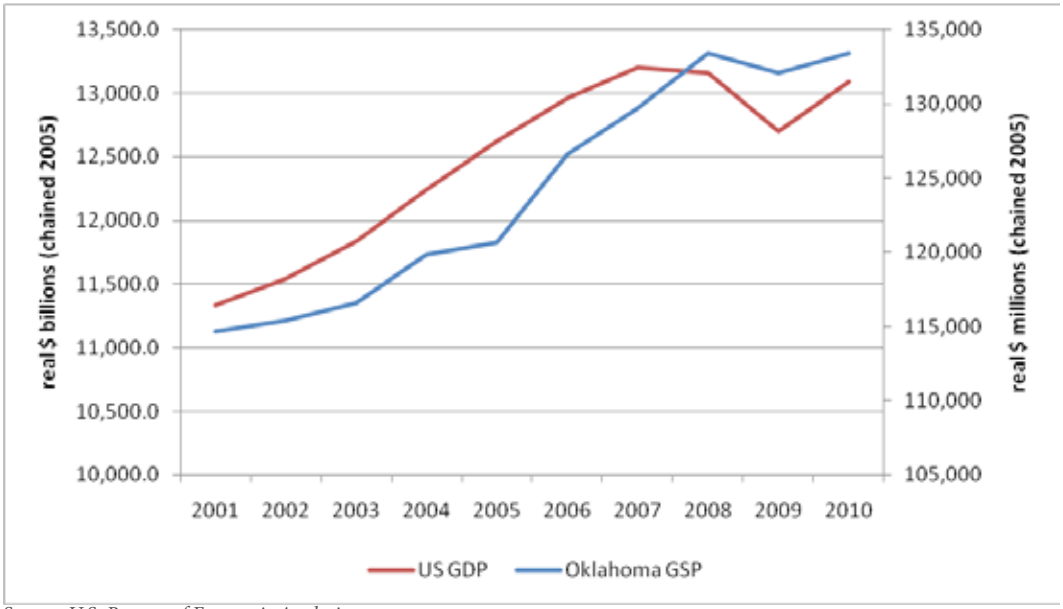
Oklahoma's economy has changed over the past two decades. The collapse of oil prices in the 1980s, with related slowdown of the state's economy, has led Oklahoma to try to become less dependent on its natural resource bases of energy and agriculture. However, in recent years with the introduction of new technologies (e.g. hydraulic fracturing) and rising prices, energy production has once again become an important part of the Oklahoma economy.

Overview of Oklahoma economy

Gross state product

In 2010, the real GSP of Oklahoma was $133 billion (chained 2005 dollars) accounting for 1 percent of U.S. real GDP. The largest contributors in 2010 to Oklahoma's real GSP, in order, were government (17.5 percent), manufacturing (11.3 percent), mining (10.9 percent), real estate (9.9 percent), retail trade (6.7 percent), health services (6.7 percent), and wholesale trade (5.5 percent). The state's real GSP increased at a compound annual growth rate (CAGR) of 1.9 percent from 2000 to 2010 and outpaced the nation's GDP growth of 1.6 percent over this same period (Figure 7-4).

Figure 7-4
U.S. gross domestic product and Oklahoma gross state product (real millions of chained 2005 $)



Source: U.S. Bureau of Economic Analysis

Table 7-2
Industry contribution to real gross state product

Direction	2006	2007	2008	2009
Oil and gas extraction	8.6%	8.8%	7.6%	10.2%
Transportation and warehousing	3.3%	3.4%	3.4%	2.9%
Military	2.2%	2.1%	2.0%	2.2%
Agriculture, forestry, fishing, hunting	1.5%	1.2%	1.3%	1.0%
Mining	0.2%	0.2%	0.2%	0.2%
Totals	15.7%	15.6%	14.5%	16.4%

Source: Bureau of Economic Analysis

The BEA maintains a national database on economic contributions of various industries, by state, to real GSP. Statistics for Oklahoma's transportation-intensive industries are shown in Table 7-2. Together, these sectors typically account for approximately 15 percent of Oklahoma's real GSP. Oil and gas extraction, which accounted for 10.2 percent of Oklahoma's 2010 GSP, is by far the sector with the greatest economic impact on the state's economy. Further, as a share of state GDP, the oil and gas industry increased its share of Oklahoma's real GSP by 1.6 percent between 2008 and 2009. Finally, over the past few years, not only has the percent that

oil and gas has contributed to Oklahoma's GSP increased, so has its dollar contribution (in real terms), again in contrast with the other sectors in this report (Figure 7-5).

Employment

According to the U.S. Bureau of Labor Statistics, total non-farm employment in the State of Oklahoma has increased at a CAGR of 0.2 percent from 2001 to 2010, outpacing the nationwide CAGR of -0.2 percent over the same time. High oil prices and the expansion of the mining sector are partly responsible for the state's higher employment growth, as is the state's expansion of its service sectors (Figure 7-6).

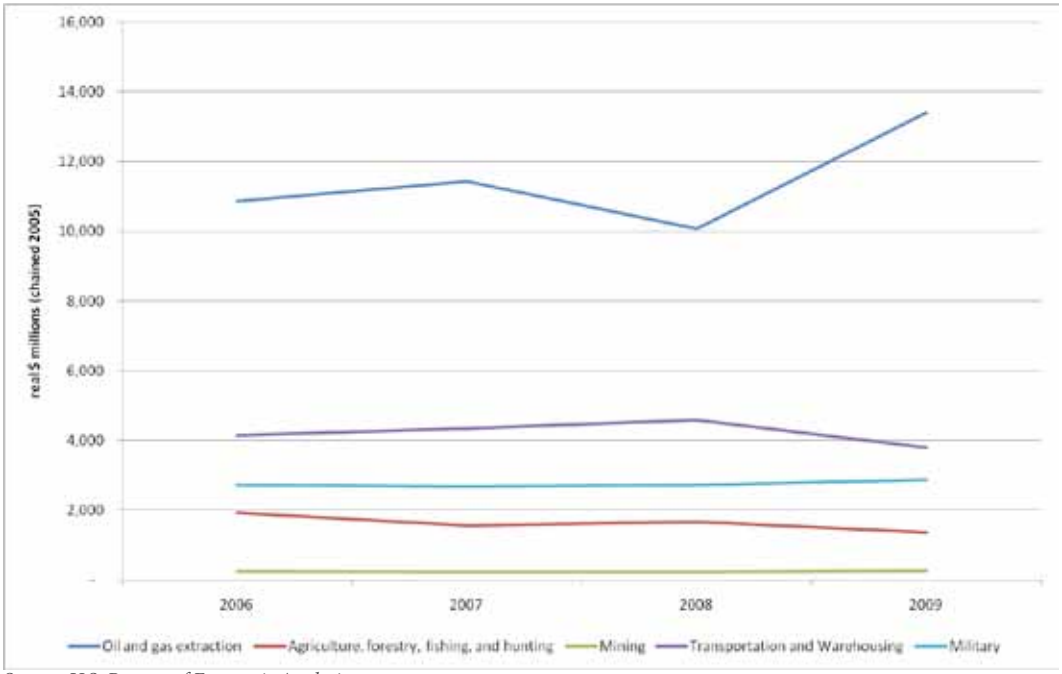


Figure 7-5
Contribution to real gross state product by freight rail dependent industries

Source: U.S. Bureau of Economic Analysis

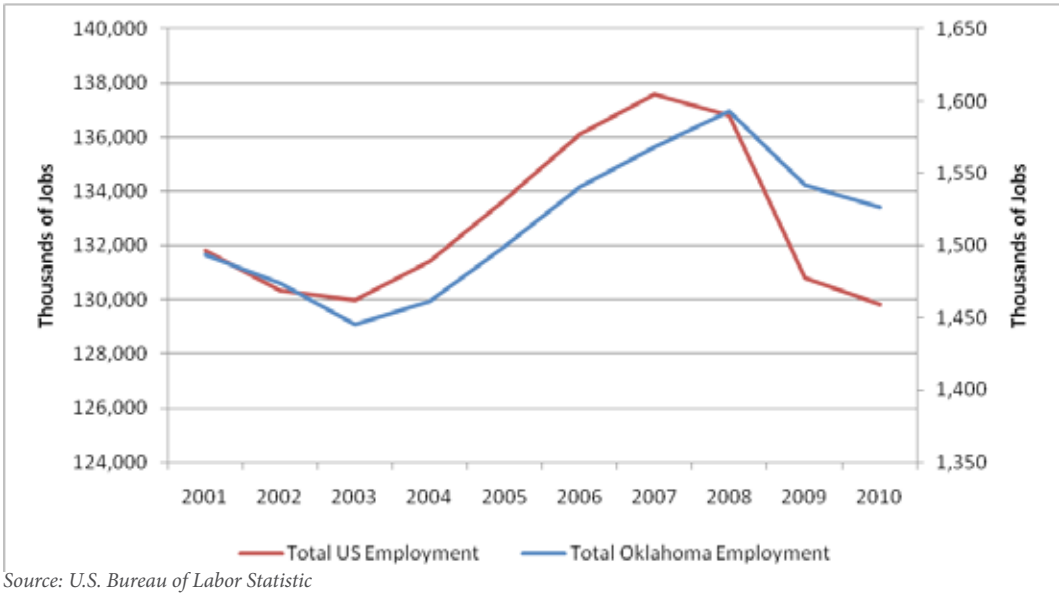


Figure 7-6
Employment trends, U.S. and Oklahoma

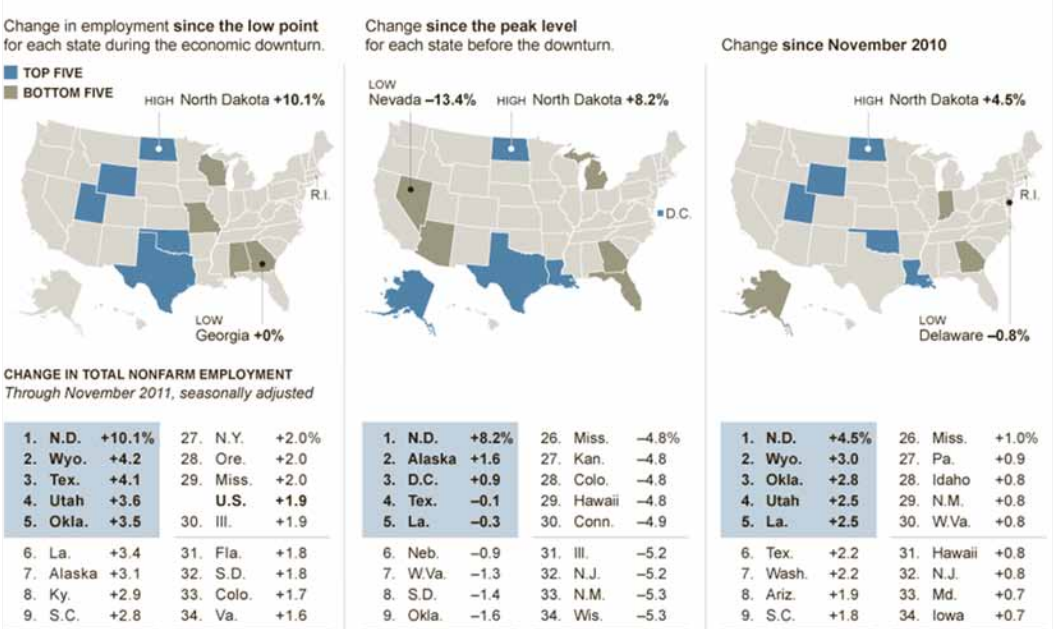
Source: U.S. Bureau of Labor Statistic

In 2010, 1.5 million individuals were employed in non-farm sectors of the Oklahoma economy. The largest employer is government, followed by trade, transportation and utilities, education and health services, and professional and business services.

In general, the economy of the West South Central Division of the U.S., which includes Texas, Oklahoma, Arkansas, and Louisiana, has done well measured by employment. Over the last two phases of the employment cycle,
it ranked first in the nation, both losing relatively fewer jobs than other regions and gaining disproportionately more. While this region accounted for 11 percent of the nation's employment before the recession, of jobs lost nationally, only 7 percent were located within this area, and post recession has captured 19.1 percent of the total national private sector job gains as of June 2011. While much of this trend has been driven by Texas, Oklahoma has followed a similar pattern in terms of job gains, most of which have come from manufacturing and energy-related activities.

Oklahoma's relative good fortune in terms of employment generation during what has been an uneven recovery can also be seen by its ranking in the top 10 states in three different measures of job recovery. In fact, the best performing states (including Oklahoma) are oil-producing states that have benefited from high oil prices (Figure 7-7).

Figure 7-7
Changes in employment over the last recession



Source NY Times

Key Industry Groups

Energy

Energy has been a strong economic driver in this region. According to the Federal Reserve's most recent *Beige Book,* in the tenth district (which includes Oklahoma), the energy sector continued to expand strongly in October and early November 2011, with

almost all respondents reporting an increase in drilling activity and an optimistic outlook for the future. The price of crude oil remains favorable for drilling, and the only constraints the industry faces are shortages of labor and equipment. This is despite the fact that during this period the district's economy has only grown moderately overall.

Oil and natural gas

Oil and natural gas have been a staple of the Oklahoma state economy for many years. Historical boom periods have helped to drive the state's economy beginning in the 1920s and this continues through today. However, the boom and bust nature of oil and gas has made it an uncertain and potentially unpredictable economic driver. Petroleum and gas are found in almost every county of Oklahoma, but the best pools have been around Tulsa, Seminole, Oklahoma, Healdton, Kingfisher, and Osage counties. Oil and gas production imposes specific demands on Oklahoma's transportation system. While much of the petroleum and petroleum-refining products that is shipped from Oklahoma is moved by truck or pipeline, rail still has an important role to play. Natural gas is transmitted almost entirely by pipeline, but the rapid growth in natural gas extraction (as well as oil extraction from the Anadarko fields) provides both substantial potential opportunities as well as places demands on the rail system—demands such as the need to move large drilling and pipeline installation materials to sites throughout the state where both oil and gas extraction are rapidly expanding in scope.

In 2009, the oil and gas sector contributed $13.4 billion to Oklahoma's GSP (approximately 10 percent) and employed 159,800 people. The oil and gas contribution to Oklahoma real GSP in chained 2005 dollars from 2006 through 2009[4] follows:

- 2006—$10,853,000
- 2007—$11,441,000
- 2008—$10,078,000
- 2009—$13,416,000

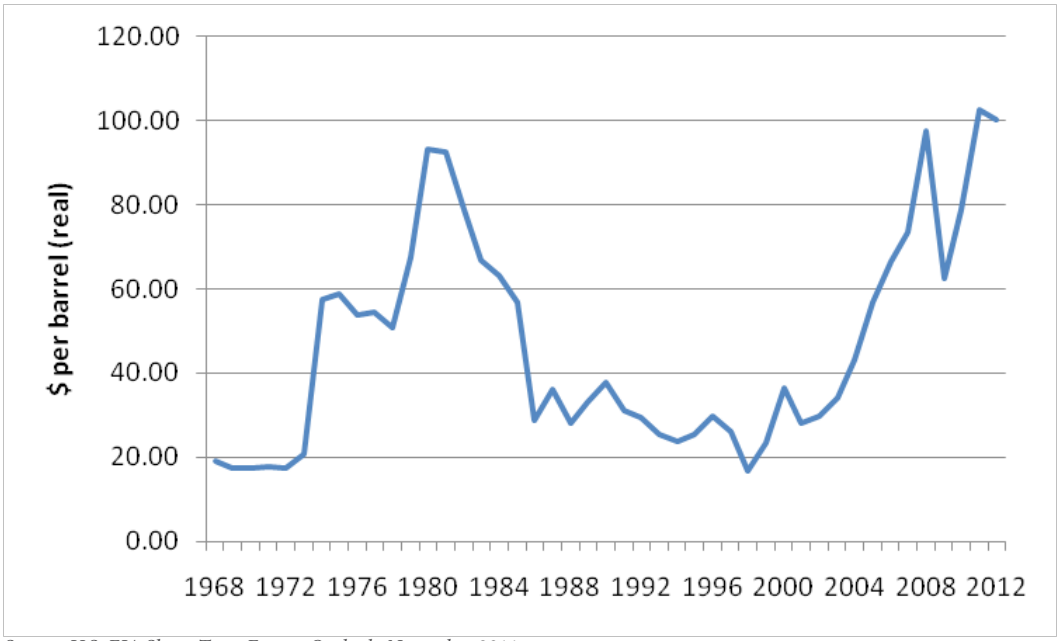
Employment in the oil and gas sector from 2006 through 2010[5] follows:

- 2006—134,500
- 2007—146,200
- 2008—160,500
- 2009—159,800
- 2010—158,900

Current elevated prices for petroleum (Figure 7-8) and petroleum products, as well as new technologies for extracting these deposits (e.g., hydraulic fracturing), have resulted

[4] U.S. Bureau of Economic Analysis
[5] U.S. Bureau of Labor and Statistics

Figure 7-8
Crude oil prices (real $, CPI adjusted 1982–1984 base)



Source: U.S. EIA Short-Term Energy Outlook, November 2011

in previously unprofitable ventures becoming attractive prospects. In Oklahoma, this has meant more activity in the Anadarko Basin as well as more oil coming in from the Bakken Shale deposits in Montana, North Dakota, and Saskatchewan.

According to experts, approximately 200,000 barrels of oil per day could be obtained from the Anadarko Basin. However, transporation capacity is limited as no pipelines and only one rail line serve the basin. Additionally, a segment of this track is rated as *excepted track* and can only support trains limited to five partially loaded freight cars moving at less than 10 mph. This greatly constrains the current flow of oil out of the basin.

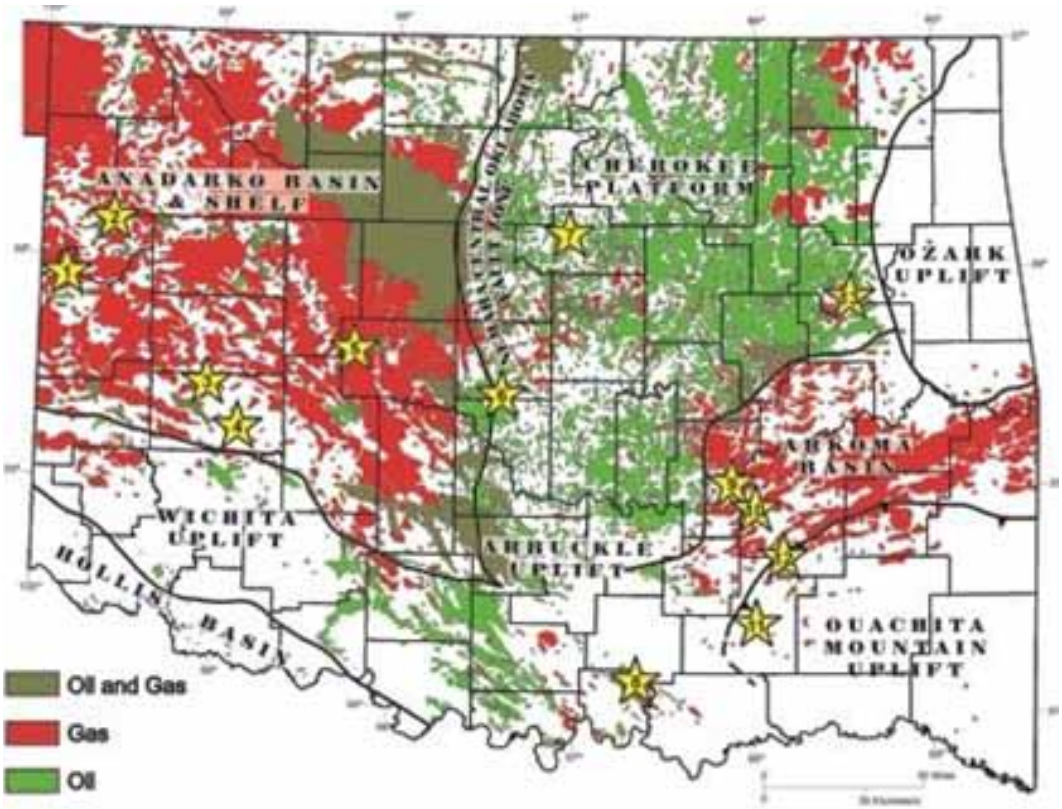
A TIGER III grant was recently awarded for improvements to this line operated by *Farmrail* permitting heavier trains operating at higher speeds, thus increasing capacity. Upgrading the *Farmrail* line will be completed in 6 to 9 months. The short time required to upgrade the ilne is partly why the improvement is preferred to building a pipeline.

Operation of this line has a direct benefit to the state. The line is owned by the state and leased to *Farmrail*. Ten percent of *Farmrail's* revenue from this line is turned over to the state as lease payments. This is an important revenue source to ODOT as lease revenues from other state-owned lines diminish as they revert to railroad ownership under the lease/purchase agreements. *Farmrail* also operates through Sayre, where there are already five companies that are or will shortly be using rail to transport oil and two companies receiving hydraulic fracturing sand.

An increasingly important opportunity for railroads in the energy sector is transporting oil from the Bakken Shale deposits. Stroud, Oklahoma has become a delivery point for oil transported from the Bakken Shale deposit in North Dakota to Stroud, where it is transferred to a pipeline. Rail has become important to the movement of this oil because of limited pipeline capacity at the extraction locations. The oil is first moved by BNSF in unit tank trains and then delivered to the Stillwater Central, a short line providing the

connection to Stroud. From Stroud, the oil is piped to Cushing, which does not have rail service. WATCO, owner of *Stillwater Central*, and Kinder Morgan have a joint venture to construct and operate a new transfer terminal to expand the existing rail-pipeline transfer capacity.

Currently, outbound pipeline capacity at Cushing is significantly constrained resulting in a buildup of inventories in storage depressing oil prices. In response to this, some oil producers are now sending oil from the Bakken Shale region by rail straight to the Gulf of Mexico, where prices are higher. One plan to make Cushing oil more competitive, is to reverse the flow on one of the five pipelines, the Seaway pipeline that feeds Cushing from the Gulf of Mexico. Once it is reversed, the pipeline is expected to be able to ship an initial 150,000 barrels of oil per day from Cushing to the Houston area.



Oklahoma Geological Survey, Shale-Shaker March-April 2009

Figure 7-9
Oil and gas deposits across Oklahoma

Green energy

Green energy sectors, while small, are increasing in importance The Edmund-based Oklahoma Municipal Power Authority's wind turbines, at the Oklahoma Wind Energy Center northeast of Woodward, provide power for the Authority's electric grid; the Bergey Wind Power Company in Norman is the world's leading supplier of wind turbines. Virtually all of Oklahoma west of I-35 has the potential to support substantial wind generating capacity, with the greatest opportunity just east of the panhandle. The current operations contributed to Oklahoma's ranking of eighth among the states in wind-generating

potential. Some modern wind turbines are 236 feet tall with rotor blades that are roughly 82 feet long. Future windmills are expected to reach 328 feet and have blades measuring 164 feet long. Transportation of wind turbine parts, such as towers and blades, will require the movement of over-weight and over-sized loads, affecting both capacity and saety of the Oklahoma highway system. ODOT has initiated programs to increase bridge clearances and improve its over-weight and over-height permitting process. Regardless, the freight railroads can provide an alternative to moving these large loads over the highways.

Minerals and mining (excluding oil and natural gas)

Oklahoma's mining economy (excluding oil and natural gas) has been in decline but remains important to selected parts of the state. In total, mined minerals contributed approximately $268 million[6] (real chained 2005 $) to Oklahoma's GSP in 2009 and approximately 2,000 direct mining jobs.

Mined minerals include gypsum, granite, limestone, aggregates, crushed stone, cement sand and gravel, clay, glass sand, salt feldspar, iodine, lime, pumice, tripoli (used as an abrasive), and coal. The most shipped commodities in this category are (1) coal and (2) the granular construction materials (aggregate, crushed stone, sand, and gravel).

Aggregates, crushed stone, sand, and gravel

Construction materials (e.g., aggregates, crushed stone, sand, and gravel) and cement are important products extracted in southern parts of the state, such as Ardmore and Durant. Although a bulk commodity conducive to shipping by rail, the short distances shipped result in rail having a lower-than-expected participation in this market. Approximately 10 percent of gravel, 9 percent of non-metallic mineral, and 6 percent of sand shipments originating in Oklahoma move by rail. These are principally the longer-distance shipments into Texas.

Fertilizers and chemicals

Natural gas is the major source of energy used to produce nitrogen fertilizer. Therefore, domestic fertilizer production tends to be concentrated in regions rich in natural gas—the Mississippi Delta, the Texas panhandle, and Oklahoma. Major fertilizer production facilities in Oklahoma are located in Woodward, Verdigris, and Enid. Fertilizer and chemical production is an important part of the Oklahoma economy, contributing $581 million (real chained 2005 $) to real GSP in 2009. The fertilizer and chemical production contribution to Oklahoma real GSP in chained 2005 dollars from 2006 through 2009[7] follows:

- 2006—$446,000,000
- 2007—$633,000,000
- 2008—$679,000,000
- 2009—$581,000,000

Oklahoma's fertilizer output is, by and large, destined for other Midwest states. Kansas, Nebraska, and Colorado are all significant recipients of Oklahoma-produced fertilizer.

[6] Based on Bureau of Economic Analysis statistics; U.S. Geological Survey estimates the value to be in excess of $800 million.

[7] U.S. Bureau of Economic Analysis

Agriculture

Oklahoma is one of the nation's largest producers of livestock and wheat; it generated $5.8 billion of agricultural products in 2007.

Over the past decade, the state's agricultural sector has become increasingly diversified. While it has historically been dominated by wheat and cattle production, the pork and poultry industries have increased rapidly in recent years, making Oklahoma the nation's second and third largest producers of the respective commodities.

The 2007 National Agriculture Statistics Survey found there were approximately 86,500 farms in Oklahoma, a slight increase over 1997 when 84,000 farms were in operation. Similarly, farm acreage over this time has remained relatively unchanged. Despite the relative stability of the size of Oklahoma agriculture, the industry as a whole has been changing in terms of structure. It has been shifting away from small independent farming to large corporate-based farming. In addition to the directly owned and operated agribusiness enterprises, many small farms contract with large agribusiness firms and can, therefore, be viewed as virtual extensions of these enterprises.

Grain is the dominant agricultural rail export and import of Oklahoma. To understand the role that rail plays in grain movement, it is important to understand the grain supply chain.

Grain supply chain

The grain supply chain is made up of three distinct links—elevators, milling, and baking. Grain elevators serve two purposes. First, they act as a central location or mechanism for accumulating and combining the wheat production of multiple famers; second, they provide storage since wheat is a seasonal commodity. Over time there have been dramatic changes to U. S. grain transportation, much of which has been driven by changes in the rail industry—abandonment of rail lines serving the agriculture hinterlands, adoption of multiple railcar grain rates encouraging large shipment sizes, energy considerations, and other technological advancements. The result has put pressure on elevators to attain greater and greater levels of efficiency.[8] For example, BNSF began offering incentives to customers who were able to ship in trainload quantities and for loading and releasing the empty cars of dedicated grain trains, or shuttles, quickly. This has led some grain elevators in turn to invest in additional grain handling capacity to meet shuttle rate performance requirements set forth by BNSF. This places non-shuttle elevators at a disadvantage and,

[8] Barber, Jason, Titus, and Matthew, "Structure of the U.S. Wheat Supply Chain," UGPTI Staff Paper No. 131, December 1995.

increasingly, such elevators have gone out of business as they are no longer able to compete.[9] Figure 7-10 is a map of shuttle train loading facilities and routes in Oklahoma.

The next link in the wheat supply chain is milling, which is the process of grinding and sifting wheat into flour for baked goods, and mill feeds, which is sold as animal feed. Because of changes in rail transportation, new mills have generally been built near population centers, whereas historically mills where located near wheat growing areas. Two technological innovations drove this shift. The first innovation was the introduction of multiple car, or unit train, technology that provided transportation cost incentive to ship larger quantities at a given time. Bakers do not typically require large amounts of flour nor do they wish to hold large amounts in inventory. The result is that large quantities of wheat are shipped to mills located near areas with high demand for flour. The second innovation was the enhanced hopper car that reduced the costs of bulk wheat shipments. Similar to grain elevators, the number of U.S. mills has decreased over the years. Mill ownership has shifted from single-plant firms that were family owned and managed to large multi-plant corporations that often have agribusiness interests other than milling.

The next part of the supply chain is baking. However, rail has little to no role once the wheat reaches this stage for two reasons: first, as previously discussed, mills are now located close to the demand for flour, and second, the outputs of this stage are often perishable and ill suited to rail travel.

Figure 7-10
Oklahoma grain shuttles by rail line

Source: Blaszak, Michael, "Your Next Meal Starts Here, Grains Special," *Trains Magazine*, April 2009.

Rail traffic

Agricultural traffic is a significant contributor to freight rail revenues. According to annual reports by the seven major North American railroads, even though agricultural products only comprised 9 percent of all revenue tons, they accounted for 13 percent of total revenues, and the curve is trending upward.

Farm products and food/kindred products are among the top five commodities shipped to, from, and within Oklahoma and are projected to remain in the top five through 2020. Grain is the largest category of farm products by weight shipped from Oklahoma (4.8 million tons); 90 percent of Oklahoma's grain exports are carried by rail. While grain was exported to all domestic regions, the primary destinations include Texas, Colorado,

[9] Blaszak, Michael, "Your Next Meal Starts Here, Grains Special," *Trains Magazine*, April 2009.

Kansas, and Nebraska. Currently, the majority of Oklahoma's agriculture products are commodity-like products, such as grain, meaning that little of it is perishable. Thus, these products can be shipped via rail without risking spoilage or the high costs of shipping frozen items.

If Oklahoma moves into value-added food processing, less rail transport will be used and there will be more reliance on trucks. Value-added food processing produces goods of higher value than raw agricultural products. For some time, most of the value-added products produced from Oklahoma farms have been processed outside the state. A switch to higher value and perishable foods will require a shift toward the more expensive but time-reliable trucks. Increasingly, efficient supply chain systems, including efficient truck distribution systems and even potentially air transport of highly perishable or high-cost specialty food items, could come more to the fore.

Military

Department of Defense installations

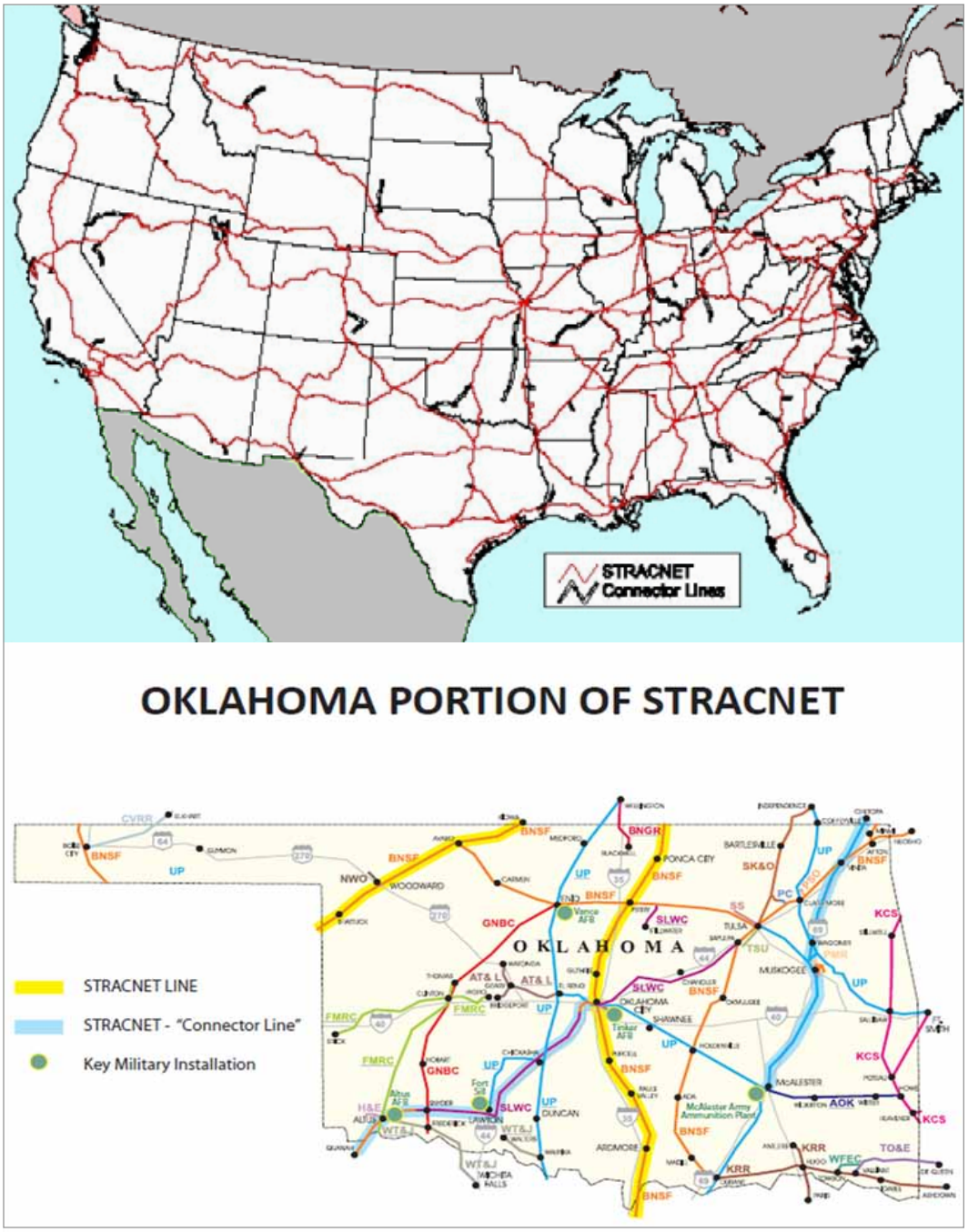
Five major USDOD installations are located in Oklahoma, as shown in Figure 7-11. Each installation has a rail connection, but only Fort Sill in Lawton and the McAlester Army Ammunition Depot in McAlester regularly use rail transportation. The other three installations, all air force bases, have discontinued use of rail, but are positioned to re-activate rail service if MTMC decides service is warranted.

- **McAlester Army Ammunition Depot**—This facility in McAlester relies on freight rail service to ensure its mission critical performance objectives are met. The facility is served by UP and is directly connected to the railroad's mainline. This facility has a second rail gate located on its north border, but is currently not operational. McAlester officials would this section of railroad placed back into service to provide a backup connection to the rail network.
- **Fort Sill**—Located in Lawton, Fort Sill has a direct connection to both UP and the Stillwater Central Railroad. It actively uses freight rail service, and they recently installed a wye track[10] on the base that has greatly enhanced rail operating flexibility.
- **Tinker Air Force Base**—Tinker AFB in Oklahoma City is located at the end of a state-owned rail line that is a candidate for commuter rail service. Tinker AFB also recently leased the nearby former General Motors Plant. The facility has an extensive rail network with a connection to the BNSF north-south mainline track through central Oklahoma.
- **Vance Air Force Base**—Vance AFB in Enid has discontinued rail service to the installation, but it is adjacent to multiple active railroads, including BNSF, UP, and the Grainbelt Railroad.
- **Altus Air Force Base**—Altus AFB in Altus has discontinued its rail service to the facility.

Because of the strategic importance of rail service to the military, especially in the event of a significant mobilization, ODOT supports retaining the rail infrastructure even if currently inactive. Rail routes in Oklahoma are part of STRACNET, a function of the

[10] Wye tracks are configurations that permit a train to be turned around and travel in the opposite direction.

Figure 7-11
Strategic Rail Corridor Network



Railroads for National Defense. Both Fort Sill and the McAlester Army Ammunition Depot are connected to STRACNET, while Vance Air Force Base, Altus Air Force Base, and Tinker Air Force Base all have the capability to reconnect to STRACNET should the need arise.

Under its Railroads and Highways for National Defense Program, USDOD, with the support of USDOT, ensures the nation's rail and highway infrastructure can support defense emergencies. STRACNET consists of 38,800 miles of rail lines important to national

defense and provides service to 193 defense installations whose mission requires rail service.

The military places heavy and direct reliance on railroads to integrate bases and connect installations predominantly to ocean ports of embarkation. Mainlines, connecting lines, and high/wide clearance lines must all combine to support movement of heavy and oversized equipment. To ensure that military needs are considered in railroad company decisions that may affect national defense, the USDOD relies on the MTMC. In this capacity, MTMC identifies facilities of the railroad infrastructure important to national defense, informs the commercial and civil sectors of defense needs, and encourages the retention and upkeep of railroad assets vital to support military movements.

In addition to identifying key lines and facilities, MTMC also conducts analysis of potential railroad industry construction, mergers, bankruptcies, and abandonments to determine how any of these actions may affect USDOD mobility capabilities. Since 1976, MTMC has reviewed more than 2,100 abandonments affecting 33,000 miles of track, as well as eight bankruptcies affecting one-third of the nation's railroad network. MTMC analysis and reviews are the main source of USDOD input to the railroad industry in attempts to preclude the loss of critical facilities or track sections essential to effective movement of heavy military lift requirements.

The Railroads for National Defense Program ensures the readiness capability of the national railroad network to support defense deployment and peacetime needs. The Program works to integrate defense rail needs into civil sector planning affecting the nation's railroad system.

MTMC's Transportation Engineering Agency works with state DOTs and other stakeholders to protect railroad infrastructure. Among these stakeholders are the AAR, STB, American Railway Engineering and Maintenance of Way Association, Railway Industrial Clearance Association, FRA, and individual railroad companies.

FRA has defined a core rail system known as Principal Railroad Lines. These rail lines have the following attributes—Amtrak service, national defense essential, or annual freight volumes exceeding 20 million gross ton-miles per mile. An advantage of STRACNET over other transport modes is the ability of these lines to transport over-size (high/wide) loads.

Freight Rail Employment, Earnings, and Multiplier Effects

Oklahoma is served by 21 railroads. These companies employ approximately 1,770 Oklahomans, the vast majority of which (84 percent) work for one of the three Class I railroads in the state—BNSF (55 percent), UP (19 percent), and KCS (10 percent). In 2010, the combined payroll of all 21 companies totaled approximately $115.8 million; that year they also spent roughly $15.1 million on in-state purchases and $6 million on capital improvements within Oklahoma. This employment and spending by the railroads has not only direct impacts on the Oklahoma economy but also produces indirect and induced impacts. Induced impacts stem from the re-spending of wages earned by workers benefiting from both direct and indirect activity of the industry (e.g., those employed by the

railroads directly as well as those employed by companies who provide goods and services to the railroads). For example, an employee of the railroad receives a salary that he or she then uses to make purchases, pay bills, etc., and this further contributes to the Oklahoma economy. Thus, the direct employment/payroll, spending, and investment by the freight railroad industry in Oklahoma are conservative estimates of the contribution of freight rail industry to the state's economy.

Oklahoma Rail Commodity Flows

Oklahoma's rail network carries a wide variety of products critical to the state and the national economy. This section describes the Oklahoma rail traffic base and the rail network from the perspective of key freight rail commodities. Data presented in this section are drawn from the 2009 STB Rail Waybill Sample for the State of Oklahoma.

Overview of Oklahoma's freight rail traffic flows

In 2009, over 278 million tons and over 46 million carloads of rail freight moved through the Oklahoma rail network. Figure 7-12 depicts the concentrations of rail traffic on the various lines.

A mapping of rail flows in Oklahoma shows most rail traffic in the state moves in a north-south direction over five Class I mainlines:

- BNSF line in the far western part of the state through Boise City, part of the BNSF route between the Powder River Basin and Texas
- BNSF west-central Oklahoma line through Woodward/Alva, part of the east-west Transcon
- BNSF line through Oklahoma City, the former Santa Fe line between Kansas City and Fort Worth, which is part of the MidCon traffic lane
- UP mainline in eastern Oklahoma through Muskogee/Durant, the former Katy line Kansas City to Dallas

Figure 7-12
Rail traffic flows on Oklahoma's rail network

Source: 2009 Surface Transportation Board Rail Waybill Sample

- KCS mainline in far eastern Oklahoma through Sallisaw connecting Kansas City and the Gulf ports

Some of the east-west intermodal[11] traffic on the BNSF Transcon also uses the route through Tulsa to reach destinations in Memphis and Birmingham.

As shown in Table 7-3, a vast majority of this freight is *through* traffic that neither originated nor terminated in Oklahoma. This traffic is predominately coal, grain, and intermodal containers or trailers. Together, these commodities make up over 65 percent of the state's through rail traffic (Table 7-4).

Inbound, outbound, and local Oklahoma freight rail flows

Eighteen of Oklahoma's rail traffic, approximately 49 million tons, either originates or terminates within the state. Unlike through (also termed overhead) rail freight, which simply passes through the state, this traffic is both driven by and has a direct impact on

Table 7-3
Rail traffic in Oklahoma by traffic type

Direction	Tons (thousands)	Percent	Units (thousands)	Percent
Through	229,043	82%	4,905	91%
Inbound	31,704	11%	297	6%
Outbound	16,006	6%	165	3%
Local	1,636	1%	17	0%
Total	278,389	100%	5,384	100%

Source: 2009 Surface Transportation Board Rail Waybill Sample

Table 7-4
Oklahoma rail traffic through traffic commodity mix

STCC	Commodity	Tons (thousands)	Percent Total
11 21	Bituminous coal	92,337	40.3%
46 11	Fak shipments	29,859	13.0%
01 13	Grain	28,128	12.3%
28 18	Miscellaneous industrial organic chemicals	6,002	2.6%
01 14	Oil kernels, nuts, or seeds	5,324	2.3%
28 21	Plastic matter or synthetic fibers	5,258	2.3%
28 12	Potassium or sodium compound	5,023	2.2%
20 92	Soybean oil or by-products	5,002	2.2%
20 46	Wet corn milling or milo	3,808	1.7%
20 42	Prepared or canned feed	3,628	1.6%
	All other	44,675	19.5%
	Total Tons	229,043	100.0%

Source: 2009 Surface Transportation Board Rail Waybill Sample
STCC = Standard Transportation Commodity Code

[11] Intermodal traffic consists of shipping containers or highway trailers. The goods shipped can vary greatly but tend toward high-value goods, such as manufactured products.

Oklahoma's economy. Originating rail traffic reflects the production sectors of the economy. Terminating traffic meets the demands of the state's consumers as well as feeds the state's industries. Almost two thirds of the non-through traffic terminates in Oklahoma, making it a consumer of rail shipped products (Table 7-5). The remaining one-third of the non-through traffic originates with Oklahoma products.

Table 7-5
Oklahoma rail traffic categories—excludes overhead traffic

Direction	Tons (thousands)	Percent Total
Inbound	31,704	64%
Outbound	16,006	32%
Local	1,636	3%
Total	**49,345**	**100%**

Source: 2009 Surface Transportation BoardRail Waybill Sample

Table 7-6 shows the top ten inbound rail commodities, which account for more than 90 percent of the state's inbound rail traffic. Coal and grain constitute almost 80 percent of the state's rail terminations.

Given that the traffic statistics are for 2009, most traffic numbers are less than moving today resulting from the economic conditions following the recent recession. The petroleum volume understates current traffic as it does not include crude petroleum being shipped into Oklahoma from the Dakotas, a growing business for the railroads. Only recently has a significant volume of oil been shipped by rail into Oklahoma for transfer to pipeline.

Table 7-6
Oklahoma inbound rail traffic—commodity mix

STCC	Commodity	Tons (thousands)	Percent Total
11 21	Bituminous coal	22,194	70.0%
01 13	Grain	2,545	8.0%
24 11	Primary forest materials	736	2.3%
20 92	Soybean oil or by-products	641	2.0%
33 12	Primary iron or steel products	621	2.0%
14 41	Gravel or sand	607	1.9%
28 21	Plastic matter or synthetic fibers	460	1.5%
13 11	Crude petroleum	426	1.3%
24 21	Lumber or dimension stock	284	0.9%
28 12	Potassium or sodium compound	281	0.9%
	All other	2,910	9.2%
	Total Tons	31,704	100.0%

Source: 2009 Surface Transportation Board Rail Waybill Sample
STCC = Standard Transportation Commodity Code

Rail shipments originating in Oklahoma are more diversified than terminations. Table 7-7 shows the top ten originating rail commodities in Oklahoma by a 4-digit Standard Transportation Commodity Code (STCC). Although the leading ten commodities account for 90 percent of outbound rail tonnage, as with inbound traffic, greater diversification among the principal ten rail-transported products exists with stone, grain, and fertilizers being the leading commodities. Stone shipments alone constitute 45 percent of all originations.

STCC	Commodity	Tons (thousands)	Percent Total
14 21	Broken stone or riprap	7,148	44.7%
01 13	Grain	2,334	14.6%
28 71	Fertilizers	1,401	8.8%
26 31	Fiber, paper, or pulpboard	791	4.9%
14 41	Gravel or sand	758	4.7%
29 11	Petroleum refining products	658	4.1%
28 19	Miscellaneous industrial inorganic chemicals	510	3.2%
14 91	Miscellaneous nonmetallic minerals, nec	277	1.7%
29 91	Miscellaneous coal or petroleum products	260	1.6%
40 21	Metal scrap or tailings	225	1.4%
	All other	1,643	10.3%
	Total Tons	**16,006**	**100.0%**

Source: 2009 Surface Transportation Board Rail Waybill Sample
STCC = Standard Transportation Commodity Code

Table 7-7
Oklahoma outbound rail traffic—commodity mix

Combined with grain and fertilizer, these three commodities make up almost 70 percent of all rail tons originating in Oklahoma. Table 7-8 shows major *local* rail commodities in Oklahoma (i.e. rail shipments both originating and terminating within the state). Local Oklahoma rail traffic is primarily bulk stone, gravel, and cement.

Oklahoma's rail commodity networks

Oklahoma's rail traffic is primarily composed of five major commodities—coal, grain, stone, petroleum, and fertilizers. Eighty percent of the state's originating or terminating rail traffic is in one of these five commodity categories.

Coal

Coal is produced in Oklahoma but not in large quantities. In 2010, 1.4 million tons of bituminous coal was mined in seven counties of eastern Oklahoma. Consequently, most coal traffic moving in the state is from out-of-state mines. Much is overhead traffic passing through the state to other destinations; some terminates in the state. Figure 7-13 shows the flow of this traffic over the Oklahoma rail network. Flows are concentrated along the eastern Oklahoma UP mainline to coal-burning utility plants near Muskogee. Not surprisingly, the majority of coal traffic originates in the producing regions of Colorado and the Wyoming Powder River Basin (Figure 7-14).

Stone

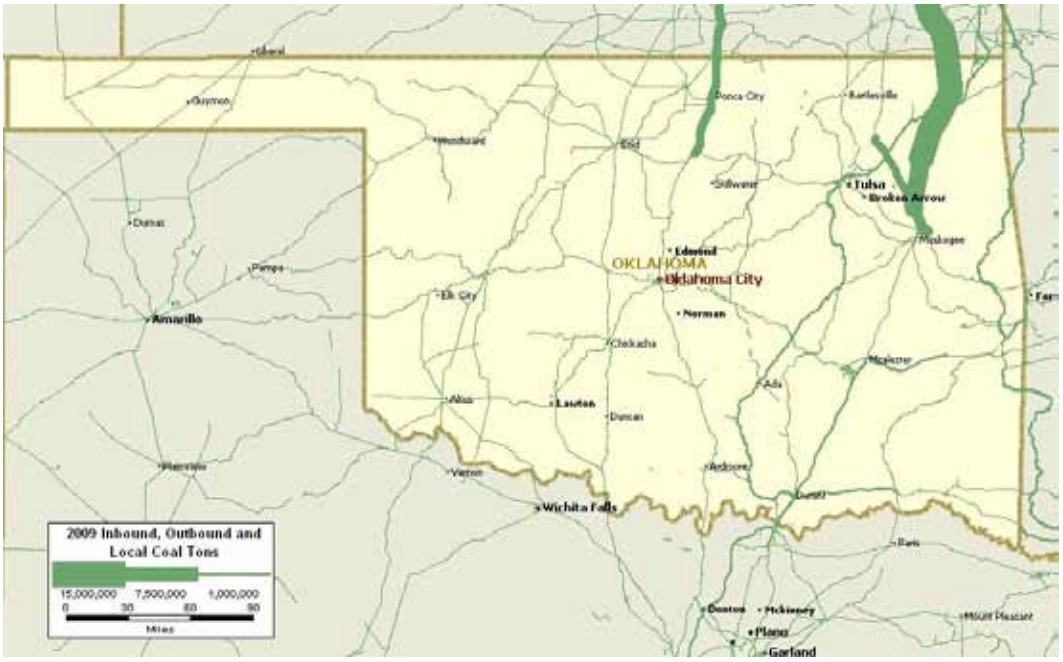
Stone, gravel, and sand (STCC codes 14 21 and 14 41) are the major outbound and local rail commodities in Oklahoma, constituting half of all state rail originations. Figure 7-15 shows the Oklahoma rail network for these products. The major stone flow in Oklahoma is south from Atoka on the UP mainline to Texas. The principal movement of stone is in southeast Oklahoma. Other flows include movements between Tulsa and Johnson County

Table 7-8
Oklahoma local rail traffic—commodity mix

STCC	Commodity	Tons (thousands)	Percent Total
14 21	Broken stone or riprap	979	59.9%
14 41	Gravel or sand	288	17.6%
32 41	Portland cement	130	8.0%
29 91	Miscellaneous coal or petroleum products	56	3.4%
28 71	Fertilizers	44	2.7%
29 11	Petroleum refining products	38	2.3%
01 13	Grain	25	1.5%
24 11	Primary forest materials	23	1.4%
32 95	Nonmetal minerals, processed	15	0.9%
33 12	Primary iron or steel products	8	0.5%
28 19	Miscellaneous industrial inorganic chemicals	7	0.4%
26 31	Fiber, paper, or pulpboard	5	0.3%
37 42	Railroad cars	4	0.3%
20 85	Distilled or blended liquors	4	0.2%
40 29	Miscellaneous waste or scrap	3	0.2%
28 18	Miscellaneous industrial organic chemical	3	0.2%
26 11	Pulp or pulp mill products	3	0.2%
	Total Tons	**1,636**	**100.0%**

Source: 2009 Surface Transportation Board Rail Waybill Sample
STCC = Standard Transportation Commodity Code

Figure 7-13
Coal rail traffic flows on Oklahoma's rail network



Source: 2009 Surface Transportation Board Rail Waybill Sample

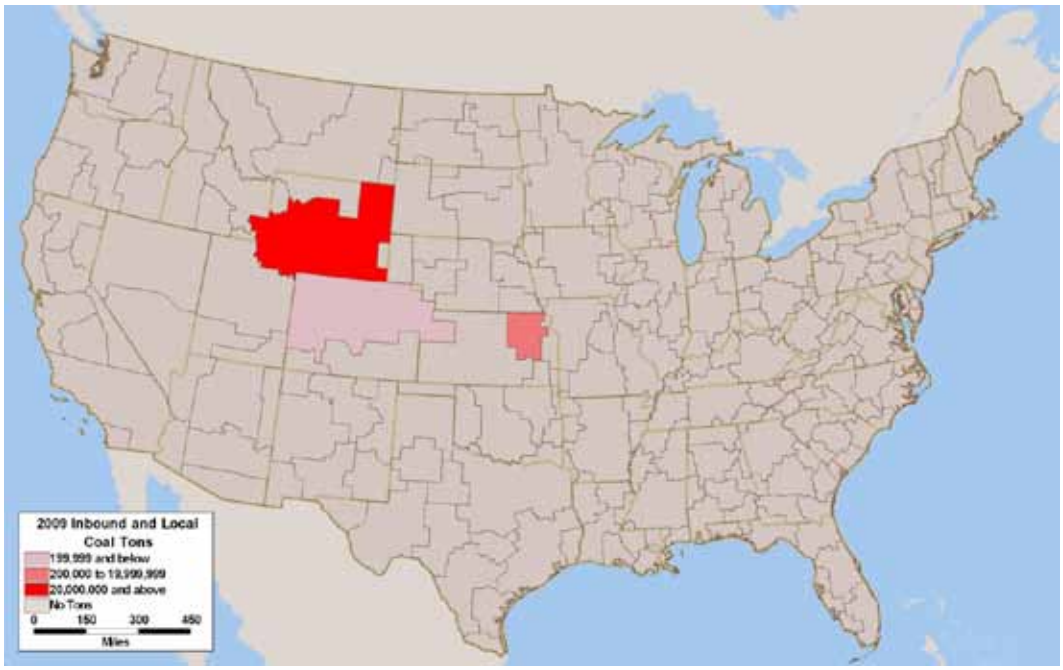


Figure 7-14
BEA origins of Oklahoma's inbound rail coal traffic

Source: 2009 Surface Transportation Board Rail Waybill Sample

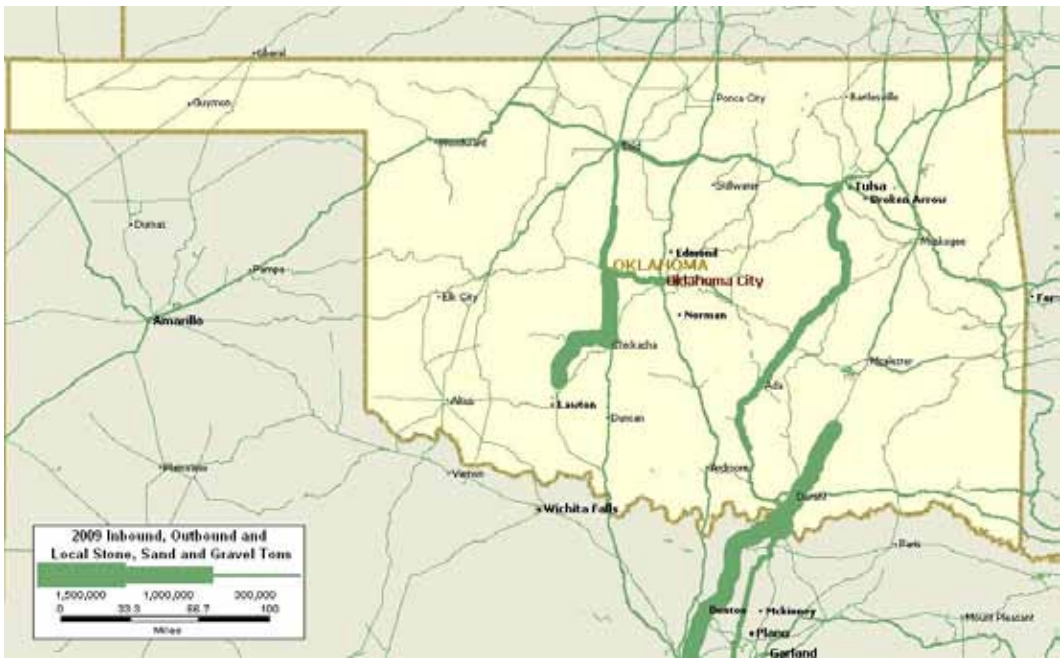
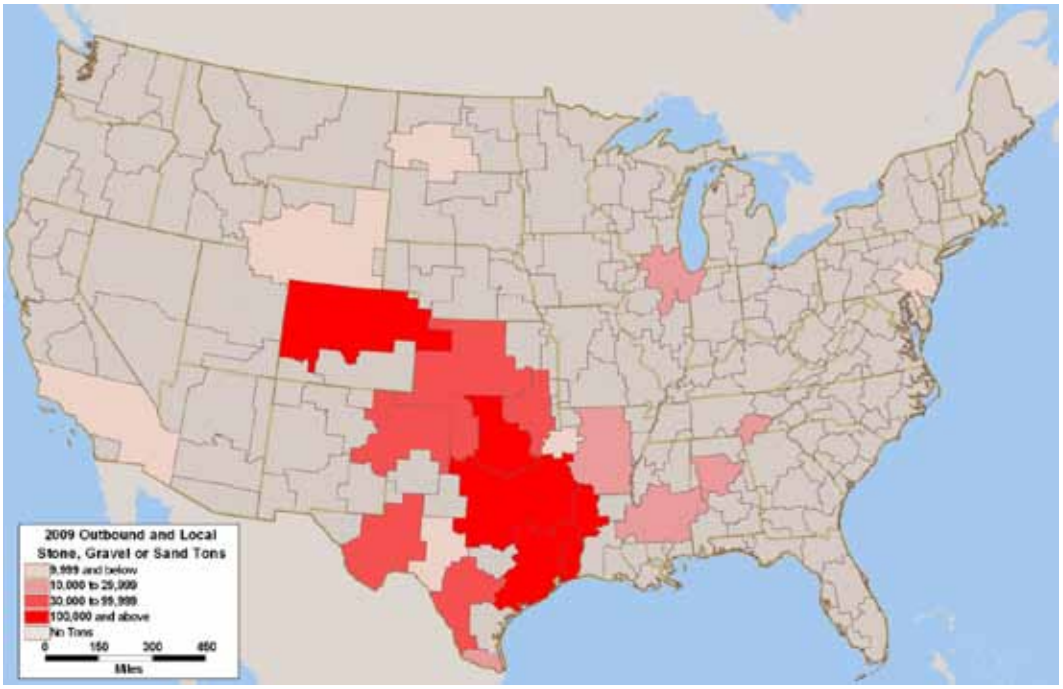


Figure 7-15
Stone rail traffic flows on Oklahoma's rail network

Source: 2009 Surface Transportation Board Rail Waybill Sample

Figure 7-16
BEA terminations of Oklahoma's outbound stone, gravel, and sand rail traffic



Source: 2009 Surface Transportation Board Rail Waybill Sample

on BNSF as well as UP movements between Tulsa/El Reno and Comanche County north of Lawton. As Figure 7-16 shows, most Oklahoma stone shipments are local or regional short-haul shipments. They terminate either within the state or in neighboring states, primarily Texas, Colorado, and Kansas. As a low-value product with many sources throughout the U.S., shipping distances are short to keep delivery costs low.

Grain

Grain rail shipments in Oklahoma move in and out of the state in equal volumes—2.5 million tons terminated in the state in 2009 while 2.3 million tons originated in Oklahoma. The characteristics of these flows differ markedly between inbound and outbound. Over 70 percent of Oklahoma's inbound grain is corn (Table 7-9), which travels primarily on the KCS mainline in eastern Oklahoma to Le Flore County or on the BNSF mainline in central Oklahoma to the Perry area (Figure 7-17). Originations of these grain movements to Oklahoma are fairly concentrated in only seven BEAs (Figure 7-18), particularly eastern Kansas and longer-haul shipments from Louisiana and Mississippi.

Table 7-9
Inbound rail grain volume in Oklahoma by type of grain

STCC	Commodity	Tons (thousands)	Percent Total
01 132	Corn	1,821	72%
01 133	Oats	27	1%
01 137	Wheat	693	27%
01 139	Grain, nec	4	0%
	Total Inbound Grain	2,545	100%

Source: 2009 Surface Transportation Board Rail Waybill Sample
STCC = Standard Transportation Commodity Code

Outbound grain from Oklahoma is almost exclusively wheat (Table 7-10). Destinations for this traffic are reasonably evenly distributed throughout west of the Mississippi River. Major outbound lanes in Oklahoma are shipments from Garfield County

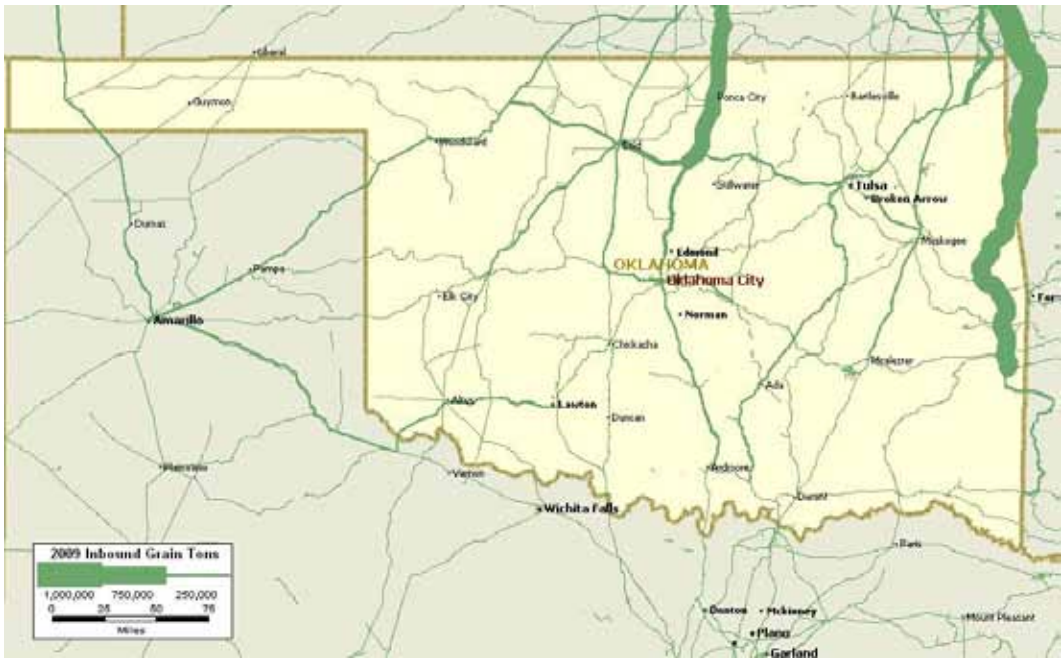


Figure 7-17
Inbound grain rail traffic flows on Oklahoma's rail network

Source: 2009 Surface Transportation Board Rail Waybill Sample

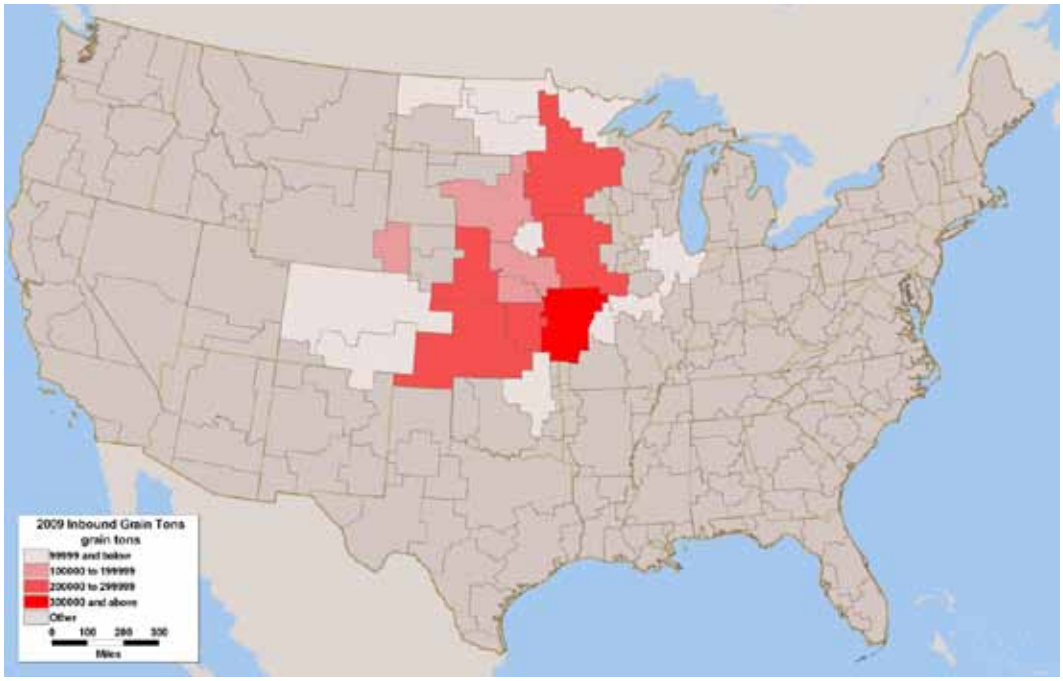


Figure 7-18
BEA origins of Oklahoma inbound rail grain traffic

Source: 2009 Surface Transportation Board Rail Waybill Sample

(Enid) on BNSF mainline in central Oklahoma south to Texas. A secondary outbound flow is movements from Jackson County (Altus) on BNSF to Texas (Figure 7-19). Destination BEAs (Figure 7-20) reflect primarily short-haul moves to neighboring states north of Oklahoma, including Kansas and Nebraska and south to northern Texas. Longer-haul destinations are in Washington, presumably for export.

Table 7-10
Outbound rail grain volume in Oklahoma by type of grain

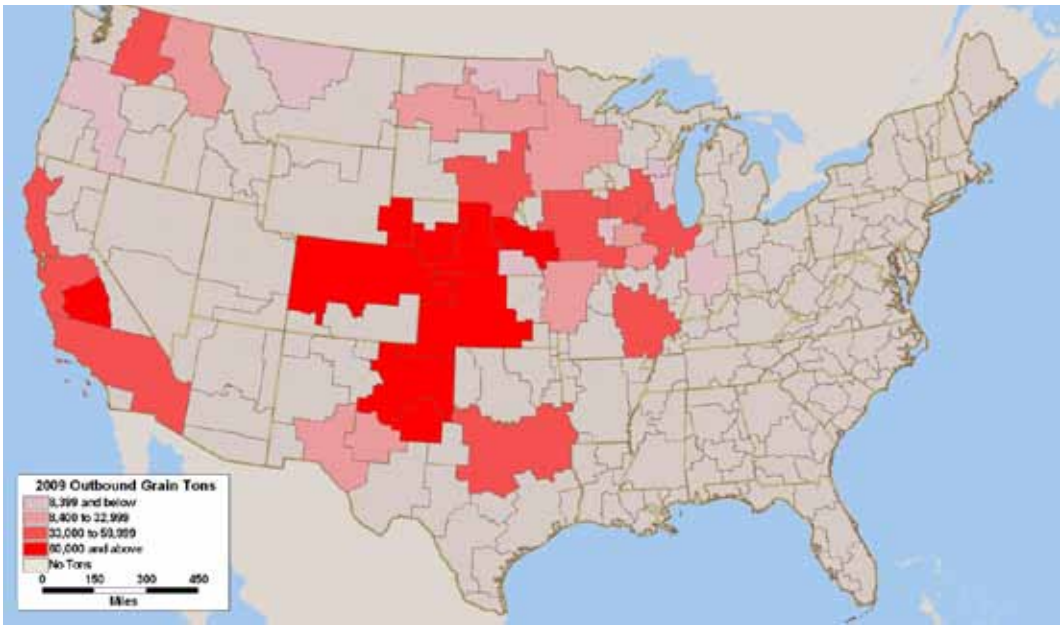
STCC	Commodity	Tons (thousands)	Percent Total
01 132	Corn	10	0%
01 136	Sorghum grains	142	6%
01 137	Wheat	2,182	93%
	Total Outbound Grain	**2,334**	**100%**

Source: 2009 Surface Transportation Board Rail Waybill Sample, STCC = Standard Transportation Commodity Code

Figure 7-19
Outbound grain rail traffic flows on Oklahoma's rail network

Source: 2009 Surface Transportation Board Rail Waybill Sample

Figure 7-20
BEA terminations of Oklahoma's outbound rail grain traffic



Source: 2009 Surface Transportation Board Rail Waybill Sample

Fertilizer

Fertilizer is Oklahoma's third largest outbound rail commodity with over 1.4 million tons shipped in 2009. Unlike the state's other commodities, fertilizer shipments flow primarily east and west through the northern part of the state between Woodward, Enid, and Tulsa and the border to Missouri (Figure 7-21). Rail destinations of fertilizer from Oklahoma exhibit a similar pattern as outbound grain (Figure 7-22), scattered throughout the mid-western and western U.S. They are primarily short-haul locations in Amarillo and nearby states north of Oklahoma—Kansas, Colorado, and Nebraska. Longer haul shipments also terminate in California and Washington.

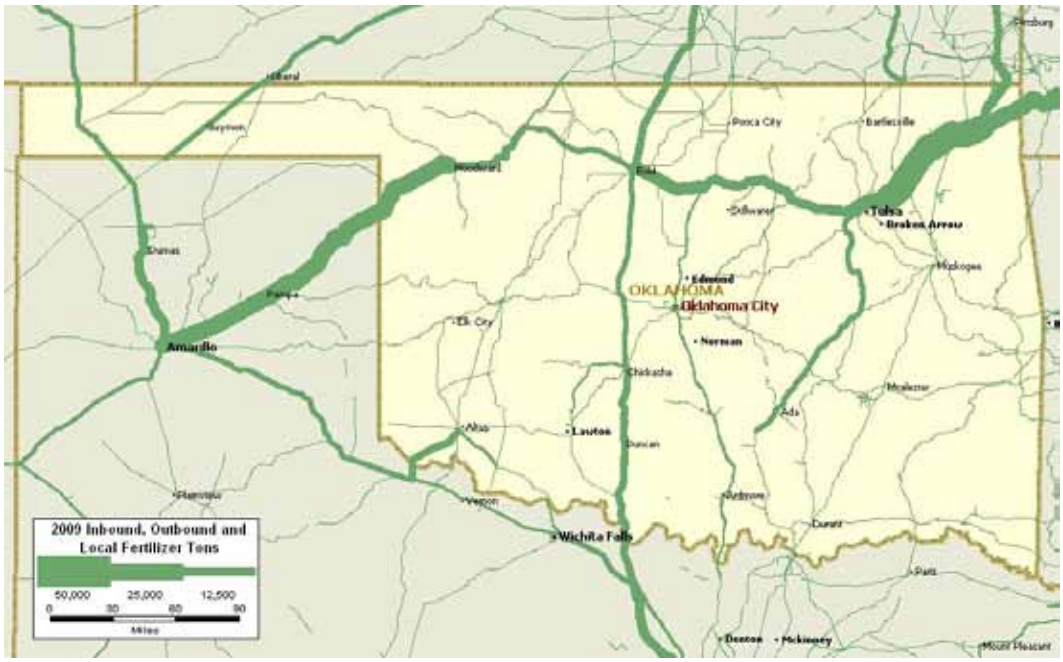


Figure 7-21
Fertilizer rail traffic flows on Oklahoma's rail network

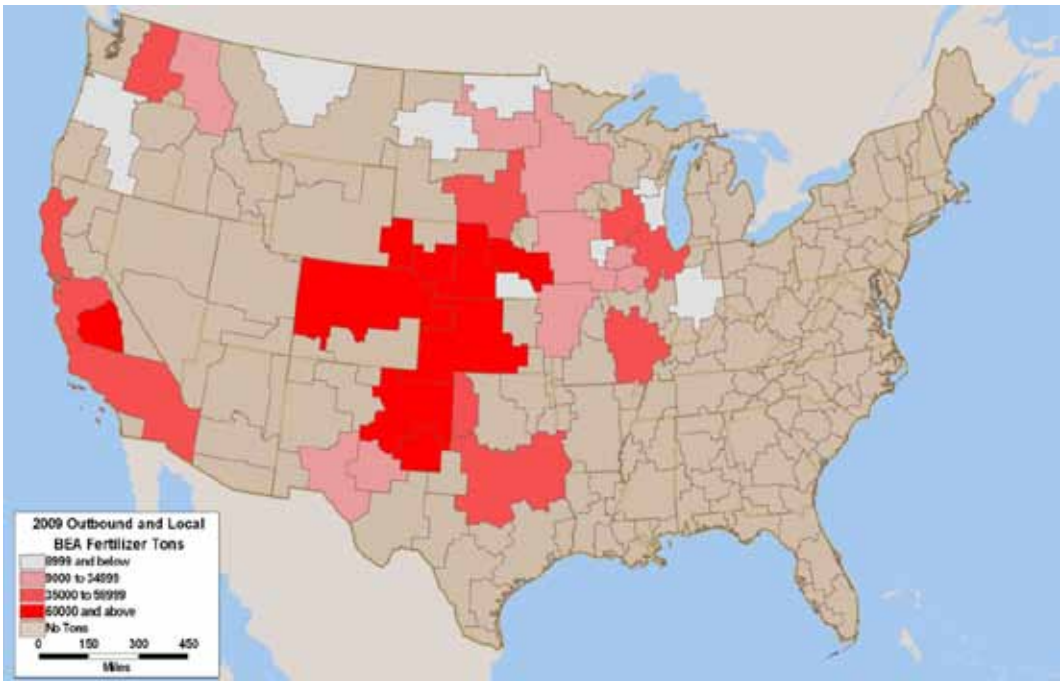
Source: 2009 Surface Transportation Board Rail Waybill Sample

Petroleum

Petroleum is one of Oklahoma's major outbound rail commodities with over 700,000 tons shipped from the state in 2009. These movements are highly scattered throughout the county with major BEA terminations being Houston, Atlanta, Cleveland, Mobile, Tampa, Omaha, and northern Nevada (Figure 7-23).

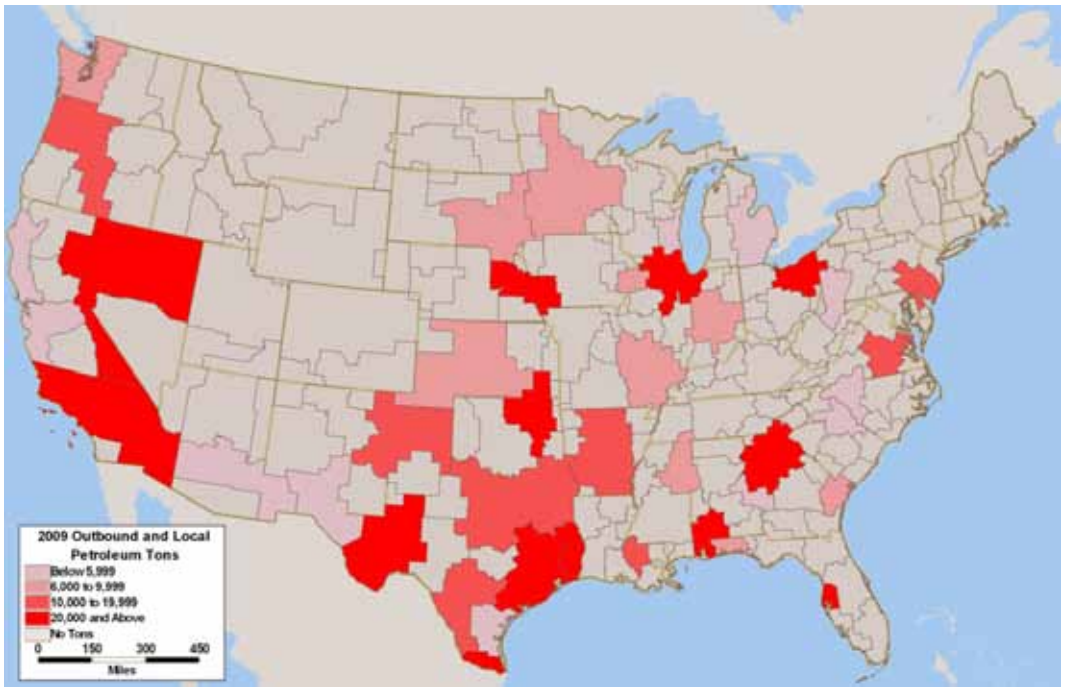
No picture of inbound oil shipments is presented in this report since the surge in oil shipments terminating in the state is a very recent phenomenon. The significant volume of oil to be extracted from the Bakken formation and the development of additional unloading capacity in Oklahoma will create a significant inflow of oil to the state. Although starting slow, greater volumes of Oklahoma-produced Anadarko Basin oil will increase once the rail facilities serving the area are refurbished.

Figure 7-22
BEA terminations of Oklahoma rail fertilizer traffic



Source: 2009 Surface Transportation Board Rail Waybill Sample

Figure 7-23
BEA terminations of Oklahoma's rail petroleum traffic



Source: 2009 Surface Transportation Board Rail Waybill Sample

Intermodal

Since Oklahoma does not currently have an intermodal container/trailer transfer facility, all reported intermodal traffic is pass-through. Intermodal traffic is the second largest type of freight traveling through Oklahoma by rail. Much of this traffic moves on the BNSF Transcon line through Woodward and over the Avard subdivision to Tulsa and beyond to Memphis and Birmingham. (Figure 7-24). Additional intermodal traffic traverses the Oklahoma panhandle on the UP Golden State route.

Figure 7-24
Intermodal traffic flows on Oklahoma's rail network

Source: 2009 Surface Transportation Board Rail Waybill Sample

Summary

Most rail traffic in Oklahoma (over 80 percent) is through or overhead traffic that neither originates nor terminates in the state. This traffic is predominately coal, intermodal, and grain. Rail shipments that begin or end in Oklahoma are primarily coal, grain, and stone aggregates. These are traditional, heavy-loading, bulk rail commodities that primarily move locally or regionally between neighboring states. Grain in particular is balanced between outbound (wheat) and inbound (corn).

8. Overview of Oklahoma Rail Legislation

Oklahoma statutes that include provisions for current railroad-related activities date back to some of the earliest laws on record in Oklahoma, including the law recognizing foreign corporations operating in Oklahoma before statehood. The majority of the initial legislation pertaining to railroads in Oklahoma relates to the definition of a railroad corporation, the powers granted those corporations, rules regarding the acquisition and use of lands in Oklahoma, and operating practices or requirements to help safeguard Oklahoma residents and property.

Oklahoma Rail Legislation History

Title 66 of the Oklahoma Statutes governs railroads and their operations in Oklahoma. A history of its important provisions is summarized in this section. Table 8-1 outlines early Oklahoma laws addressing significant railroad issues.

Primary issues addressed in the initial legislation included establishing railroads as entities with perpetual succession and the members of the board listed as the primary contacts for any legal matters or affairs. These laws also outlined the powers granted to railroad corporations, including the right to extend routes into Oklahoma lands, acquire property for the construction of railroad infrastructure through eminent domain, to lease or sell infrastructure or property, and the responsibilities of the railroad to ensure safe operation within the state. The primary operating requirements of the initial legislation focused on the installation and maintenance of adequate fencing necessary to safeguard livestock from train operations. Early legislation also outlined the amount of right-of-way by limiting the allowable maximum width adjacent to the centerline of railroad alignment that the railway could obtain for the installation of rail infrastructure, stations, depot grounds, and other rail facilities reasonably necessary to accomplish the corporation's objectives.

The next notable category of Oklahoma legislation related to railroad operations are laws initiated during the late 1930s focusing on tax collection from railroad corporations, including the tax liability associated with freight cars (Table 8-2). These laws require railroad corporations to pay 4 percent of the amount constituting the gross revenue for freight car operations in the state for each freight car so used, rented, or leased. These laws include the requirements for each railroad corporation to collect freight car taxes on privately owned rail cars operated over their infrastructure within Oklahoma. Those tax collection requirements include provisions for the payment, collection, and record keeping associated with privately owned rail car collections and the payment period in which the railroads are required to make the final payment to the state annually.

Table 8-1
Oklahoma laws governing railroads—early legislation

Law	Date	Revision	Description	Provisions
os-66-1	1910	none	Articles and certifications	Requires railroad to provide articles of incorporation
os-66-7	1910	1997	Powers of Oklahoma railroad corporations	Powers of incorporated railroad operators
os-66-51	1910	none	Power to enter lands for construction	Provides access and eminent domain
os-66-63	1910	none	Railroad rights regarding use of municipal right of way	Rules for the use of public roadways by railroad companies near railroad rights-of-way
os-66-128	1910	none	Roadway crossings	Requires railroad to construct/maintain roadway crossings
os-66-143	1910	none	Rights of adjacent landowners	Empowers adjacent landowners to improve railroad fencing as necessary
os-66-144	1910	none	Failure to fence	Assigns liability for incidents resulting from railroads failure to fence
os-66-145	1910	none	Fencing requirements	Requires railroad to construct fencing
os-66-146	1910	none	Notice to fence	Requires railroad to construct fencing on frontage property within 60 days where given notice
os-66-147	1910	none	Fencing penalty	Requires railroad to construct or reimburse cost for fencing
os-66-161	1910	none	Extension of route into Oklahoma	Requires railroad to provide route to Oklahoma Corporation Commission prior to extending route into Oklahoma
os-66-164	1910	none	Domestication of foreign corporations	Recognizes railroad corporations operating in Oklahoma before statehood
os-66-184	1910	none	Leasing or selling	Empowers railroad to lease or sell infrastructure or property

Table 8-2
Oklahoma laws governing railroads—1937–1963 Legislation

Law	Date	Revision	Description	Provisions	Requirement	Schedule	Key Elements
os-66-125a	1937	none	Railroad highway crossing safety	Requires public authority to coordinate construction and maintenance of safety devices	Construction and maintenance of highway-rail crossing signals	effective 5/25/1937	Initiation of railroad safety program in Oklahoma
os-68-2201	1939	1965	Definitions	Definitions for tax collections	Defines gross revenue, railroad company, and freight car	Annually assessed	Assessed for railroad private property in lieu of ad valorem tax
os-68-2204	1939	1994	Disposition of taxes collected	Taxes collected via Section 2201 to be credited to the RMRF	Established RMRF	Annually assessed	Provision of matching funds for railroad safety improvement
os-68-2206	1939	1994	Tax liability	Requires railroad to withhold 4 percent of gross revenue for corporate and privately owned rail freight car operation in Oklahoma	Annual tax collected by railroad for freight car operation assessed on 12/31	Tax collected to be reported by 4/1	Funding source for RMRF
os-68-2207	1939	1994	Determination of tax	Requires railroad to prepare annual tax statements and remit tax	Funds to RMRF after 30 days of no protest	Assessed by 12/31 Reported by 4/1	Provides 30-day protest period
os-68-1404	1963	1999	Exemptions	Establishes tax exemptions for railroad personal property	Railroad exemption from *ad valorem* Tax	Coal cars exempt 1/1/1991	Exemption for coal transport

RMRF = Railroad Maintenance Revolving Fund

Oklahoma Highway Commission (now ODOT) was authorized to construct or install, or to order the company owning a railroad crossing a highway to install warning devices. The requirements also call for on-going maintenance of the devices. The devices are installed where deemed appropriate.

These requirements resulted in the development of Highway/Rail Grade Crossing Safety Programs coordinated today. The funding for Highway/Rail Grade Crossing Safety Improvement has predominantly been provided by the Federal Highway Administration (FHWA) through various safety funding provisions in a number of highway funding bills over the past three decades. Regardless of various highway funding bill amendments to the appropriation requirements for safety funds. ODOT has continued to require a minimum 10-percent match for grade crossing signal improvements, with the match for active warning device installations placed on state highways normally paid from the RMRF.

The next category of laws was enacted in the 1970s, predominantly for the construction of roadway/highway improvements on railroad right-of-way (Table 8-3). This also established ODOT as the department responsible for the coordination of railroad improvements throughout the state.

Other notable provisions included in these laws were the initial legislation that would ultimately be revised to become the *Railroad Revitalization Act*. One law specifically defined the limits of ODOT's jurisdiction as it relates to railroad operations in the state.

The period between 1978 and 1988 included legislation that would ultimately empower ODOT to acquire, construct, reconstruct, repair, replace, operate and maintain railroad rights-of-way and provide a funding source for rail related improvements (Table 8-4). The *Railroad Revitalization Act* and legislation enacted to establish the RMRF are those leading to development of the state-owned property programs currently administered through the Rail Programs Division of ODOT.

Some of the most influential legislation enacted in this period established the prioritization of entities to which existing rail infrastructure in danger of being abandoned could be sold. That legislation provided a minimum of a 1-year waiting period before adjacent land owners were eligible for the purchase of any adjoining rail property for reversion back to farm land. The prioritization schedule provided railroads and government entities the right of first refusal for the purchase and utilization of existing railroad infrastructure. Additional refinements were also established for the collection of the freight car tax equivalent to 4 percent of gross revenues for freight car operation in lieu of *ad valorem* taxes on railroad personal property.

The most recent Oklahoma laws enacted deal predominantly with funding or passenger rail service improvements (Table 8-5). The initial funding for the *Oklahoma Tourism and Passenger Rail Act* came from provisions included in the *Taxpayer Relief Act of 1997* that focused on implementing Amtrak service for states without passenger rail service. Most of the 1990s legislation was focused on the implementation and continued service of the *Heartland Flyer*, with the exception of the 1999 revision of the *Railroad Revitalization Act,* which firmly established the procedures for the Rail Programs Division State-owned Rail Programs allowing ODOT to acquire, operate, and maintain railroad infrastructure located in Oklahoma.

Table 8-3
Oklahoma laws governing railroads—1968–1976 Legislation

Law	Date	Revision	Description	Provisions	Requirements	Schedule	Key Elements
os-69-1722	1968	1998	Rules for condemnation of railroad property by Highway Department	Rules for condemnation of railroad property associated with overpass construction	Must provide plans to railroad for review	Railroad has 30 days to review	Railroad over/under-pass construction
os-66-304	1971	1978, 80, 81, 97, 98, 99	Powers and duties	Empowerments and provisions for the *Railroad Revitalization Act*	ODOT freight rail operation and management requirements	6/1/1981	Authorizes ODOT to acquire, operate, and maintain railroad right-of-way
os-66-306	1971	1998	Essential government functions	Declares powers of *Railroad Revitalization Act* essential	Laws 1998, c. 376, §3	eff. 11/1/1998	recites os-51-155
os-66-308	1971	1998	Contract rules requiring lowest bid	Requires compliance with *Competitive Bidding Act of 1974*	Railroad projects utilize lowest competitive bid	effective 4/10/1978	
os-69-4008	1976	1993	Establishes duties of ODOT	Abolition of Department of Highway, Highway Safety Coordination Committee, and Railroad Maintenance Authority	ODOT established	7/1/1993	Responsibility for rail issues assigned to ODOT
os-69-4013	1976	none	Limitation of Jurisdiction	Defines the limit of ODOT jurisdictional authority	Defines Oklahoma Corporation Commission jurisdiction	n/a	Denotes regional, port, airport, and local entity authority

ODOT = Oklahoma Department of Transportation, RMRF = Railroad Maintenance Revolving Fund

Table 8-4
Oklahoma laws governing railroads—1978–1988 Legislation

Law	Date	Revision	Description	Provisions	Requirements	Schedule	Key Elements
os-66-302.1	1978	1998	Citation	Official name for *Railroad Revitalization Act*	Laws 1978, c. 164, § 1, emerg.	eff. 4/10/1978	In conjunction with 68-2204
os-66-303	1978	1998	Definitions	Definitions for *Railroad Revitalization Act*	Designates ODOT for railroad coordination	Defines owner and income	Defines Intermodal transportation
os-66-309	1978	1981	Establishes RMRF fund	Provisions for RMRF	os-68-2201	6/1/1981	Funds for RMRF
os-69-4016	1980	none	Prohibition of contributions	Prohibits contributions, gifts, etc., to certain railroads or other entities	Prohibits subsidies for private entities	n/a	Prohibits subsidizing non-government entities
os-66-304.1	1980	none	State Supreme Court ruling	Determines the constitutionality of the *Railroad Revitalization Act*	Laws 1981, c. 214, § 2, emerg.	effective 6/1/1981	Oklahoma Supreme Court ruling
os-68-2352	1971	1976, 78, 80, 81, 83, 85, 86, 87, 88, 89, 90, 91, 96, 99, 2002, 03, 05, 07, 08	1981 Amendment of General Revenue Fund	*Adoption of S.B. 59, 1981 amended General Revenue Fund to include appropriations for the purchase of railroad right-of-way*	Appropriated State Highway Construction and Maintenance Funds toward the purchase of CRIP right-of-way	Signed 6/26/1981 ended 7/1/1982	Unused appropriations to revert back to the State Highway Maintenance Fund on 7/1/1982
os-66-65	1981	1991	Rules for purchasing abandoned railroad right-of-way	*Provides prioritization of purchase rights for railroad property*	Priority—railroad, adjacent business, ODOT, federal, local	Provides 1 year for priority purchase	Adjacent land owner must wait 1 year
os-68-2805	1988	1992	Provisions for tax	*Establishes tax to be collected in lieu of ad valorem tax*	os-68-2202	1/1/1992	Freight car tax
os-68-2859	1988	1997	Duties, power, and authority	*Duties, power, and authority of State Board of Equalization*	Assess non ad valorem railroad tax	1/1/1997	Empowerment to assess taxes exempt from ad valorem taxation

ODOT = Oklahoma Department of Transportation, RMRF = Railroad Maintenance Revolving Fund

Table 8-5
Oklahoma laws governing railroads—1991–1999 Legislation

Law	Date	Revision	Description	Provisions	Requirements	Schedule	Key Elements
os-68-504	1991	1993, 94, 96	Apportionment	Engrossed HB 1078 and Engrossed Senate Amendments appropriating 4 percent of State Transportation Fund to contract railroad passenger service	Funding for Heartland Flyer Operations 1991–1996 repealed by OTPRRF legislation	Repealed 1996	Provided $850,000 annually for Heartland Flyer service
os-66-321	1996	2005	Citation	Official name for OTPR Act	Added by laws 1996, c. 255, §1	7/1/1996	Passenger rail funding OTPR Act
os-66-322	1996	2005	Purpose	Purpose of the OTPR Act	Establish passenger rail, enhance tourism	7/1/1996	Empowerment for support of passenger rail
os-66-323	1996	2005	Definitions	Definitions for OTPR Act	Designates ODOT	1/1/1996	Defines passenger rail service
os-66-324	1996	none	Powers and duties	Empowerment of the OTPR Act	Powers and duties of ODOT	1/1/1996	Passenger rail service improvements
os-66-325	1996	2001	Established OTPRRF	Provisions for OTPRRF	Funding for passenger rail service	1/1/1996–1/1/2001	Ref—*Intercity Passenger Rail Trust Fund Act of 1995*
os-66-304	1971	1978, 80, 81, 97, 98, 99	Powers and duties	Empowerments and provisions for *Railroad Revitalization Act*	ODOT freight rail operation and management requirements	7/1/1999	Authorize ODOT to acquire, operate and maintain railroad right-of-way
os-66-304.1	1980	none	State Supreme Court ruling	Determines the constitutionality of the *Railroad Revitalization Act*	Laws 1981, c. 214, §2, emerg.	effective 6/1/1981	Oklahoma Supreme Court ruling
os-66-326	1999	none	Citation	Official name for *Interstate Midwest Regional Passenger Rail Compact*	Added by Laws 1999, c. 70, §1, emerg.	effective 4/7/1999	Enters Oklahoma into Regional Passenger Rail Compact

ODOT = Oklahoma Department of Transportation, OTPR Act = Oklahoma Tourism and Passenger Rail Act, OTPRRF = Oklahoma Tourism and Passenger Rail Revolving Fund, RMRF = Railroad Maintenance Revolving Fund

Table 8-6
Oklahoma laws governing railroads—recent legislation (continued on next page)

Law	Date	Revision	Description	Provisions	Requirements	Schedule	Key Elements
os-66-326	1999	none	Citation	Official name for *Interstate Midwest Regional Passenger Rail Compact*	Added by Laws 1999, c. 70, §1, emerg	effective 4/7/1999	Enters Oklahoma into Regional Passenger Rail Compact
os-66-328	1999	none	Powers and duties	Duties of the Transportation Commission for passenger rail improvements	Make Passenger Rail Improvements a reality for the region	4/7/1999	Liaison with Amtrak, Federal Railroad Administration, HSGTA, and other regions
os-66-309.1	2002	none	*Railroad Rehabilitation Act*	Short title for the *Railroad Rehabilitation Act*	Added by Laws 2002, c. 297, §3, emerg	effective 5/22/2002	
os-66-309.2	2002	none	Definitions	Definitions for *Railroad Rehabilitation Act*	Added by Laws 2002, c. 297, §3, emerg	effective 5/22/2002	Defines *Qualified Railroad Entity and Rehabilitation*
os-66-309.3	2002	none	Powers and duties	Provisions and terms for railroad rehabilitation loan program	Annual amount to be <50 percent of RMRF balance	Loan by 11/1/2002, ODOT 120 days to implement	10-year duration, maximum of $5-million aggregate total
os-47-1104	1985	2007	Amendment of *Vehicle License and Registration Act*	Adoption of HB 1176, 2005 amending General Revenue Fund to fund from vehicle title fees	Appropriated $850,000 million/ year for Heartland Flyer operation	Signed 6/23/2006 efffective 7/1/2007	Appropriations for rail passenger service OTPRRF
os-68-2352	1971	1976, 78, 80, 81, 83, 85, 86, 87, 88, 89, 90, 91, 96, 99, 2002, 03, 05, 07, 08	Amendment of General Revenue Fund appropriations	HB 1078, 2010 amends General Revenue Fund to include new designated appropriations for rail passenger service	Currently appropriates $2 million/year for Oklahoma's portion of Heartland Flyer operating costs	Signed 6/9/2005 effective 7/1/2008	Appropriations for rail passenger service *Rebuilding Oklahoma Access and Driver Safety Fund* that repealed previous funding from os-68-504, 1991

Table 8-6
Oklahoma laws governing railroads—recent legislation (continued from previous page)

Law	Date	Revision	Description	Provisions	Requirements	Schedule	Key Elements
os-68-2357.103	2005	None	*Railroad Modernization Act*	Short title for the *Railroad Modernization Act of 2005*	Added by Laws 2005, c. 413, §7, pertaining to taxes levied by os-68-2355	effective 11/1/2006 ends 7/1/2012	Modified tax credit for railroad reconstruction or replacement (11/1/2006 to 7/1/2010)
os-68-2357.104	2005	2010	*Railroad Modernization Act*	Limits for tax credits associated with the *Railroad Modernization Act of 2005*	No credit for improvements after 7/1/2010; ends 7/1/2012	effective 11/1/2006 ends 7/1/2012	Tax credits limited to Class II and Class III operators
os-69-1521	2005	2010	Establishes the *Rebuilding Oklahoma Access and Driver Safety Fund*	Provisions for the *Rebuilding Oklahoma Access and Driver Safety Fund* (from HB 1078, 2010)	Appropriates $2 million per year for Heartland Flyer operation	Fund budgeted 6/30/2006	References general fund appropriation os-68-2352

OTPRRF = Oklahoma Tourism and Passenger Rail Revolving Fund

Other notable provisions include passage of SB 383, in 1999. Oklahoma's entrance into the Interstate Midwest Regional Passenger Rail Compact. This organization promotes regional passenger rail development in mid-western states and identifies the duties of the Oklahoma Transportation Commission with regard to passenger rail improvements.

The most recent Oklahoma rail laws enacted continue to focus on funding rail service. Long-term funding for the *Heartland Flyer* passenger rail service was identified in the Rebuilding Oklahoma Access and Driver Safety Fund. Freight rail operators within the state were provided the opportunity to borrow funding through the Railroad Rehabilitation Loan Program which would allow repayable loans to be distributed from the RMRF and to obtain tax credits toward railroad rehabilitation or replacement costs through the *Railroad Modernization Act*.

Public-Private Partnership Law

One of the state's primary hurdles to additional railroad investment is the prohibition of direct private investment in public projects. Prohibited by state law, the exclusion of private funding precludes the state from participating in an increasingly popular form of funding, public-private partnerships (P3). A P3 seeks to link a mix of public and private funding to the benefits that accrue to each sector. Rail investments benefit both the private rail carrier and the public through improved mobility, reduced energy consumption, and reduced emissions or by stimulating economic development. Currently, Oklahoma is studying and investigating the best way to implement this form of project development.

9. Oklahoma Department of Transportation Rail Programs

Rail Programs Division

The Rail Programs Division of ODOT was established in 1989 to oversee the state's 3,599 miles of rail, 428 miles of which are owned by the state (Figure 9-1). It is responsible for acquiring and administering federal and state funds used to support operation of the *Heartland Flyer* passenger service, highway construction projects affecting railroad property, and railroad crossing safety improvements as well as maintenance of the state-owned rail lines. The division comprises five sections—State-owned Rail Line Management, Safety, Rail Passenger, Construction, and Federal Programs.

State-owned Rail Line Management Section

The State-owned Rail Line Management Section oversees the state-owned rail properties and their selected operators. The section has direct responsibility for the rights-of-way, operator contract compliance, property inspections, and all easement/license/lease reviews and for maintaining the lease agreements between the state and the operators. It also completes yearly inspections for proper maintenance and administers state funds for the upkeep of these properties.

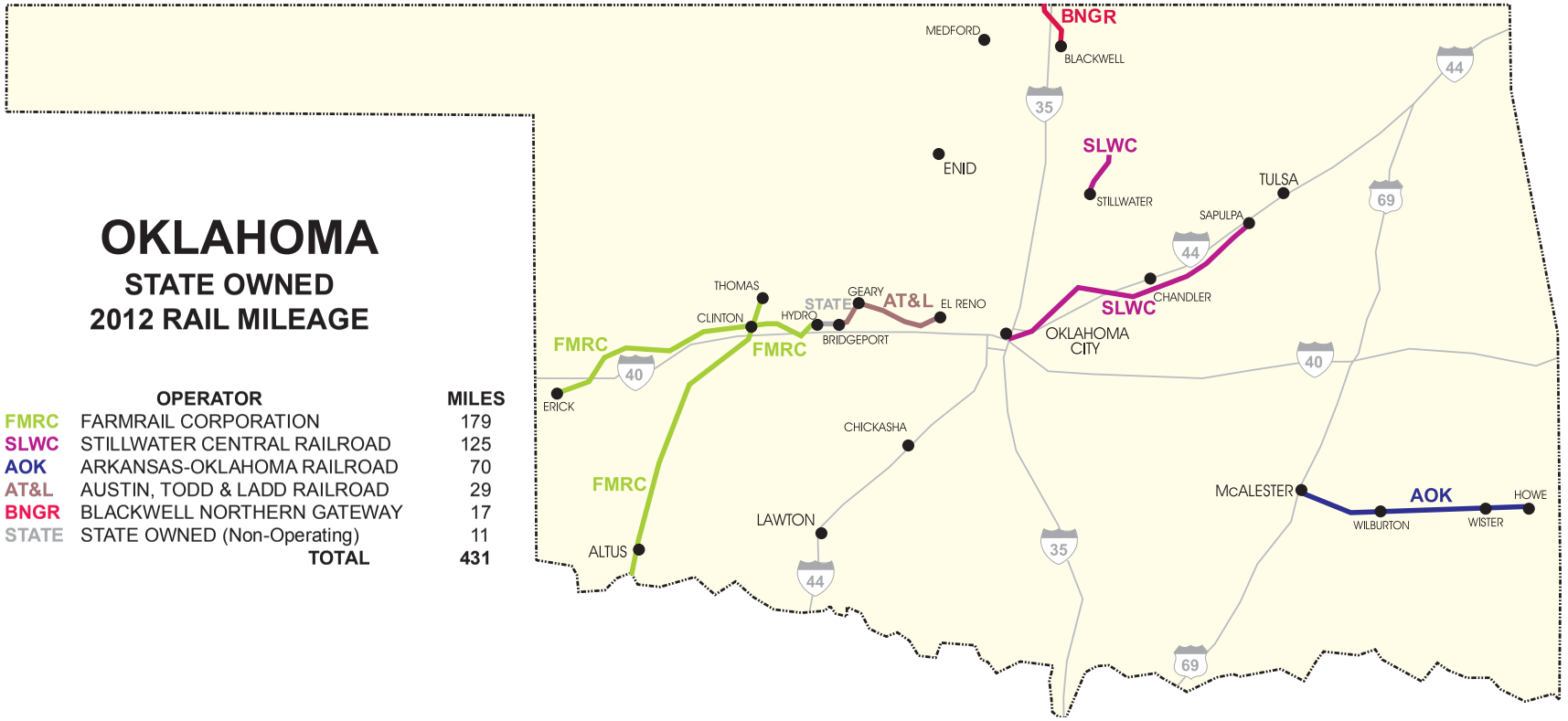
In 1978, the Oklahoma State Legislature passed the *Railroad Revitalization Act*. This act specified the powers and duties of ODOT to address state rail issues. ODOT was authorized and empowered to acquire, construct, repair, operate, and maintain railroad rights-of-way and trackage on feasible and economically sound railroad routes.

Following the termination of operations in 1979 by CRIP, liquidation of the system began. CRIP had many unprofitable branch lines serving farmers throughout the Midwest and Great Plains. This liquidation threatened the agriculture business seriously. Under the *Railroad Revitalization Act,* the state was able to acquire several of the CRIP lines that were important to the agriculture business. In turn, almost all these lines were leased to other operators, mostly short lines, to ensure the flow of agriculture goods was maintained. Under railroad deregulation in 1980, more rail lines became available as the process to abandon unprofitable lines was simplified. ODOT acquired over 800 miles of soon-to-be abandoned lines.

Unburdened by some of the cost structures of the large railroads, short line operators could operate these low-traffic-density routes at a profit. This arrangement made rail transportation a continuing option for many small businesses.

Some of the lines were operated under lease-purchase arrangements. Notable, was the lease arrangement of the CRIP's former north-south mainline through El Reno. The lease

Figure 9-1
State-owned 2012 rail mileage



purchase on this line matured in 2011 and, after 30 years of payments, UP took title to the property. This rail line serves as an ideal example of the original intent of the *Railroad Revitalization Act*—to preserve critical rail infrastructure and ultimately restore rail service to areas of the state that can make use of it to ensure that reliable, efficient, and safe rail transportation will continue without requiring subsidization by the public sector.

ODOT successfully leases 98 percent of the lines it owns to Class Ill operators. Today, 431 miles of Oklahoma-owned rail line remain under lease. The proceeds from the leases are an important source of revenue to ODOT for maintenance of these properties. This revenue forms the backbone of the *8-Year Rail Construction and Maintenance Work Plan* funding, which is operated through the State-owned Rail Line Management Section.

Safety Section

The Safety Section works with all Oklahoma railroads to achieve compliance with the stop/yield sign requirements of the FRA and the FHWA Manual of Uniform Traffic Control Devices (MUTCD).

Oklahoma has 3,852 railroad-highway grade crossings with one-third equipped with active warning devices with either pedestal-mounted flashers, gates, cantilevered signals, or any combination of the three. The remaining two-thirds of these crossings are controlled by passive devices, such as warning signs.

States receive annual federal funding for the improvement of grade railroad crossings with active warning devices. The FRA has devised a system called the *Priority Index Ranking* to determine which crossings are the leading candidates for funding. The Rail Programs Division Safety Section manages the crossing improvement priorities in Oklahoma. It also manages the FRA Crossing Corridor Program, which provides funding for upgrades to remaining crossings in corridors where selected grade crossings are closed.

The most recent highway-rail crossing inventory data collected for the State of Oklahoma in 2009 indicates that Oklahoma currently has 4,318 crossings that are open to the public, including 533 (12 percent) that are grade-separated locations, 1404 (33 percent) with some type of active warning devices, and 2,381 (55 percent) with passive warning devices.

In FY 2012, there are currently 9 safety projects ongoing at a cost of $2.5 million, with another 10 projects pending, valued at $3.2 million. Approximately 50 diagnostic team inspections are being scheduled for FY 2013 with the possibility of upgrading 25 to 30 crossings with signals and gates.

Rail Passenger Section

The Rail Passenger Section oversees the passenger rail operations in the state, namely the *Heartland Flyer*. It works with Amtrak to ensure quality service. It also administers the funding provided to Amtrak for provision of the service.

Construction Section

The Construction Section coordinates state rail construction activity. It is responsible for reviewing the scope of a railroad's involvement, developing required agreements with the

railroads to permit contractor access to railroad property, and ensuring that insurance requirements are met. It oversees projects through to completion and final inspection.

Federal Programs Section

The Federal Programs Section identifies and secures funding available for rail improvements. It ensures that ODOT is fully compliant and integrated with all federal rail funding initiatives. It prepares all funding applications and develops the business cases supporting the applications. The section also keeps ODOT staff informed of national rail policy and priorities to position Oklahoma as a benefactor of the policies.

ODOT Highway-Rail Crossing Inventory and Project Management Tools

Oklahoma continues to experience reductions in crossing incidents with the crossing fatalities that averaged 18 per year in the 1980s being reduced to an average of 11 per year over the past decade. Injuries at railroad crossings have also dropped significantly from an average of 83 injuries per year in the 1980s to 32 injuries per year over the past decade.

The reduction in collisions and fatalities at highway-rail crossings can most likely be attributed to a reduction in the overall number of crossings throughout the state as well as the installation of gates and flashing lights at a significant number of crossings. From a national prospective, the FRA's Office of Safety Analysis indicates that the U.S. has approximately 139,862 public grade crossings. Of those active public crossings, less than half (approximately 50,132) have gates, 23,215 have flashing lights, and 1,248 have highway traffic signals, wigwags, and bells.

The FHWA requires each state to develop and implement a highway safety improvement program that consists of three components—planning, implementation, and evaluation. The process for improving safety and operations at highway-railroad grade crossings consists of the same three components and may be considered part of a state's highway safety improvement program. Federal policy requires the planning component to consist of a process for

- Collecting and maintaining a record of collision, traffic, and highway data that includes information for highway-rail grade crossings and the characteristics of both highway and train traffic.
- Analyzing available data to identify highway locations, sections, and elements determined to be hazardous on the basis of collision history or collision potential.
- Conducting engineering studies of hazardous locations, sections, and elements to develop highway safety improvement projects.
- Establishing priorities for implementing highway safety improvement projects. The implementation component consists of a process for programming and implementing safety improvements. The evaluation component consists of a process for determining the effect that safety improvements have in reducing the number and severity of collisions and potential collisions.

A 1996 USDOT Grade Crossing Safety Task Force study identified a lack of quality data on grade crossings as an impediment to developing and managing necessary crossing

safety improvement programs. Railroad, state, and local officials recommended the development and maintenance of improved databases, including increased availability to state and local agencies as well as the private sector.

Beginning with a statewide inventory of public crossings in 1993, the ODOT Rail Programs Division has taken a national leadership role in collecting crossing data and utilizing the data to support safety project decisions. ODOT is maintaining a leadership role for developing data with its latest statewide railroad crossing inventory and corresponding project management system.

OK.RAIL System

OK.RAIL promotes efficiency by allowing staff to perform many functions from their offices that previously required a site visit.

The ODOT Rail Programs Division's Rail Assessment, Inventory, and Location inventory management system (OK.RAIL) represents the culmination of a massive collaborative effort to update information and improve the project management tools used to address engineering and safety issues at railroad crossings. ODOT hired Jacobs Engineering, Inc., to develop a comprehensive inventory of all railroad crossings in the state, along with a groundbreaking suite of GIS-enabled applications that greatly increase ODOT's effectiveness in administering the appropriation of federal funds for railroad crossing safety improvements. The OK.RAIL web-enabled inventory management system includes a map-based field data collection application (OK.FieldRAIL) and a centralized SQL Server database.

ODOT maintains records for over 6,000 public and private railroad crossings across the state. An update of existing public crossing information was conducted using field crews equipped with state-of-the-art data collection technology, including ruggedized touch screen laptops, wireless digital cameras, and Bluetooth global positioning system (GPS)[1] units. Using the OK.FieldRAIL database installed on the field laptops, crews used GPS and built-in maps to navigate to crossings, where they collected inventory data as well as GPS location data, digital photographs, and measurements of any sight distance obstructions identified at passive crossing locations. The crossing data, including digital photographs, automatically synchronized to the central database on a nightly basis when the field laptops were connected to the internet.

Data collected through the field inventory is viewed and managed within OK.RAIL, a GIS-based data management system that provides the ODOT staff with rich, up-to-date data on all crossings in the state. It also includes mapping, searching, and reporting

[1] GPS is a system that indicates position of the receiver on the earth's surface by triangulating reference signals from satellites orbiting in space.

capabilities that have drastically increased the Rail Programs Division's efficiency in coordinating safety project activities. OK.RAIL features include

- Inventory data viewing, editing, and quality assurance/quality control functionality
- Powerful searching and reporting
- Printing and exporting (including export to FRA format)
- Digital photo uploading and viewing
- Fully integrated GIS map
- External links to commercial mapping systems (such as Google maps and Virtual Earth)
- Comprehensive project tracking and document control
- Prioritization of safety expenditures at crossings considered the most critical based on crossing controls, traffic volumes, and safety data that includes historical crash data

The OK.RAIL Safety Module draws from state and federal crash records to provide a history of collisions at each crossing and utilizes this information in conjunction with traffic and inventory data to calculate crossing priority rankings utilized for safety improvements. ODOT utilizes these rankings to select crossings to hold diagnostic team inspections that include participation from the railroads, FHWA, and local entities with jurisdictional authority for the roadway. After the project locations have been identified, the Projects Module helps track the progress of each individual project from inception to completion. The result of this process is that federal funding for grade crossing improvements is spent more effectively at crossings with characteristics deemed most critical, thereby increasing crossing safety throughout Oklahoma.

OK.RAIL measure of effectiveness

The effectiveness of the OK.RAIL system continues to be measured based on

- Further reductions of crashes and fatalities in Oklahoma
- Provision of vastly improved resources for supporting the decisions of the ODOT Rail Programs Division staff as well as their local and federal counterparts
- Further collaboration between stakeholders involved in railroad crossing safety projects

OK.RAIL formalizes and automates the recommended federal algorithm for evaluating crossings and prioritizing improvements based on a prediction of anticipated accident frequency for each location. Additionally, the database enhances ODOT's ability to track safety improvement projects as well as the appropriation of safety funds allocated to those improvements, thereby helping to ensure the continued efficient use of federal safety funds. The analytical methods used to rank the crossings in order of priority for improvement/upgrade are based on FRA's Accident Prediction Model. The resulting rankings are used to identify crossing locations to be included in the safety program each year. These programs are coordinated on an annual basis in conjunction with FHWA, local entities, and the railroads to implement safety improvements at high-priority crossings. These improvements include the elimination of crossings, upgrade of existing active warning devices, upgrade of safety devices to meet minimum requirements (e.g., crossbucks, advanced warning signs, pavement markings), and installation of active warning devices at priority locations with only passive warning devices.

OK.RAIL has significantly increased the resources readily available to the Rail Programs Division for reviewing and updating crossing inventory information as well as track ongoing or completed safety improvements. In addition to providing a rich data set of information on each crossing that includes crossing controls, collision history, traffic volumes, and digital photographs, the database allows ODOT staff quick and easy access to all aspects of the data. The database includes interactive GIS maps of crossings that allow the crossings to be symbolized based on a variety of criteria. These powerful searching and reporting capabilities allow Rail Programs Division staff to analyze and better understand the status of railroad crossings. Once a crossing is identified for potential improvements, ODOT works with stakeholders to diagnose needed upgrades, secure funding, and coordinate project logistics. OK.RAIL supports these efforts by identifying the prioritized list of crossings to be improved, providing a rich data set of existing conditions, and allowing safety projects to be closely tracked throughout the project life cycle.

OK.RAIL innovative methods

Data collection

OK.RAIL utilizes innovative techniques for a number of activities and has significantly modernized the tools and procedures utilized for collecting, managing, analyzing, and reporting rail crossing data. Prior to the implementation of field data collection, the database is preloaded with the crossing locations and controls inventory from FRA as well as previous field data collected by ODOT. The crossing locations and crossing status are utilized to develop field data collection activities and scheduling. These procedures include sectioning the state into regions and assigning crossings to specific field crews in order to minimize travel and increase data collection efficiency.

During field data collection, the field data collection crew utilizes an interactive map that tracks the crew's location via GPS to assist in navigation to the next crossing on the assigned list. Upon arrival at a crossing, the data collection tool automatically identifies the location of the crossing via the GPS unit. The data collection crew fills out electronic forms for the crossing inventory information and utilizes a digital camera to obtain photographs of the crossing from multiple perspectives, as well as a photo of the crossing identification number posted at the crossing. These digital photographs are transmitted wirelessly back to the data collection tool and tagged with the crossing number and crew-selected captions prior to being uploaded into the database for each crossing. Automated quality control checks are used to validate the new data and alert the crews of potential data problems prior to its leaving the crossing. These innovative data collection techniques significantly increase data quality and data collection efficiency by identifying potential data problems while the crew is at the crossing during the inventory.

Data synchronization

Another innovation of the OK.RAIL system is the use of daily data synchronization between individual field crews and a central database. OK.FieldRAIL uses a portable copy of the central database, allowing field crews to collect information in the field without an internet connection. When the field laptops are connected to the internet, they synchronize with the central database, uploading field data collected since the last synchronization

was performed (including all digital photos) and downloading new data and photo thumbnails collected by all other data collection crews during the same time period. Through the synchronization process, the field data can be reviewed by project managers within hours of the data being collected in the field, and missing or incorrect data can be discovered and resolved before crews move on to another region of the state. Regular synchronization also helps ensure that no overlapping data collection efforts occur and allow ODOT to review as well as utilize the data soon after collection. The progress of each crew can also be tracked daily through the built-in GIS mapping system, helping managers to identify inefficient methods.

Search and mapping

Innovations in the OK.RAIL management system include powerful search and mapping capabilities that have transformed the Rail Programs Division safety program by providing the ability to much more efficiently investigate, understand, and report pertinent information for railroad crossings throughout the state. Printable crossing reports allow Rail Programs Division staff to review crossing information prior to a field visit or stakeholder meeting. The Project Tracking Module compiles project status information and any associated documentation in one easy-to-access system. These capabilities provide Division staff with a summary of the overall status of the safety program as well as the ability to obtain individual project data or documentation related to each individual location. Finally, the Safety Module provides Division staff unprecedented access to safety information that includes (1) a searchable database of all recorded collisions at each individual crossing and (2) a prioritization ranking management tool that provides prioritization calculations, records decisions regarding crossing diagnostics, identifies locations eligible for safety funding, and assists in the development of new project activities to be included in the safety program.

Efficient use of resources

The OK.RAIL system has allowed the Rail Programs Division to coordinate safety-related improvements more efficiently by providing automated tools for the coordination of numerous time-consuming tasks. Expensive visits to crossings for review of existing information have been reduced through the availability of high-resolution photographs and comprehensive inventory data as well as reliable location data. GPS locations combined with maps and aerial photography provide a comprehensive view of the geometry of each crossing as well as any nearby roadway infrastructure that might impact operations at the crossing. OK.RAIL also provides an automated output of crossing data in the FRA standard format, providing for the more efficient and accurate upload of updated crossing information into the FRA database.

School Bus Inventory Data

Potentially hazardous situations or location characteristics that could impair a school bus operator's ability to process an adequate amount of information for safe operation along the route has been provided below. These potential driving hazards were selected because the mere existence of these conditions could result in serious consequences. While other potentially hazardous situations or location characteristics could develop at any time (i.e.,

a tree falling across a roadway, water over a roadway, icy conditions, the malfunction of a traffic control signal or highway-rail active warning device), this list represents an attempt to define fixed conditions that have been deemed a driving hazard. The list is also limited to hazardous situations/locations that are anticipated to be encountered during the normal operation of a school bus and not during loading and unloading operations. For each hazard potentially encountered along a school bus route, a list of factors or situations contributing to the cause of a hazard has been provided. Note that this list is not all-inclusive. State and local school districts may encounter factors or situations that may not have previously been experienced or are not considered a common enough occurrence to be included in the list but should, nonetheless, be deemed potentially hazardous. Following is information collected as part of the school bus inventory:

Highway-rail grade crossings

- Number of tracks/number of lanes
- Visual obstructions (vertical/horizontal) impairing the operator's interpretation of the type of intersection and travel speed of trains/motor vehicles
- ADT/trains per day
- Presence/absence of highway-rail active warning devices
- Unique characteristics of the crossing, including type of train operations (mainline, switching), type of warning devices (cantilevered, gated), adjacent roadway intersection(s)
- Presence/absence of traffic signals/signs, highway-rail passive/active warning devices, advanced warning devices/signs, preemption or interconnection between traffic signals and railroad active warning devices
- Length of the queuing area(s) before and after the tracks
- Anticipated traffic conditions at various times during the day (peak hour queuing)
- Roadway design/geometrics/operating conditions near the grade crossing (roadway operating speeds, skew, proximity of adjacent roadway intersections, surface conditions)

Hazardous intersections and roadways

- High-frequency crash locations as defined by state transportation and law-enforcement officials
- Non-controlled intersections
- Curves, intersections, or grades with limited sight distance(s)
- Areas with no shoulders (impediment of stopping/collision avoidance)
- Visibility of traffic control signals (vertical/horizontal sight distance)
- Coordination of traffic control signals with other traffic control signals or preemption/interconnection with highway-rail active warning devices

Bridges, tunnels/underpasses, and overpasses

- Weight capacity
- Height clearances
- Lane widths

Oklahoma Highway-Rail Crossing Crash Data

The automobile collisions from across Oklahoma are reported by the Oklahoma Highway Patrol, city police, county sheriffs, university police, or game wardens. They are forwarded to the Oklahoma Department of Public Safety (DPS), where they are either directly stored electronically or hand-coded, scanned, and stored electronically into a master database. These electronic collision data are transferred weekly to the master collision file at ODOT. The Collision Analysis and Safety Section conducts a review on each collision adding the correct location codes to match the ODOT highway, city street, or county road location files. Collisions involving highway-rail grade crossings are cross referenced to the data in the highway-rail crossing inventory for the respective AAR-DOT Crossing Number[2] to help ensure that the appropriate codes match the crossing inventory data. In the event discrepancies are identified, any data in question are reviewed by Rail Programs Division personnel to populate any missing data fields or resolve any conflicting data elements.

The transfer of data from DPS to ODOT and to the University of Oklahoma for final entry into the master collision file normally occurs on Friday of the same week or Monday of the following week when is it submitted by DPS. After all the collision data have been coded for each week, the location codes are transferred back into the ODOT master collision files. A copy of any collisions loaded or corrected each week is electronically transmitted to a computer server maintained on the Oklahoma University campus, where the revised data elements are merged into the master collision file database. These data are accessible through a web-based program (Safe-T) where the user is allowed to select from a variety of reporting criteria to generate reports containing desired information. Safe-T provides access to the collision data for the Oklahoma Highway Patrol, city police, city planners, and other entities having a need for collision information, including engineers and safety personnel at ODOT.

ODOT Graphical Resource Intranet Portal Database

The Graphical Resource Intranet Portal (GRIP) database is a web application that allows users to query, overlay, map, and report on many of ODOT's business data layers. Highway-rail crossing data were one of the first GPS location databases to be collected and inventoried statewide. Consequently, these data were identified as a business layer and utilized in the initial population and further development of the ODOT GRIP Database providing recently updated baseline data that could assist in the development of data utilization and reporting methods for similar roadway and bridge data. Railroad crossing, county bridge, and hazard elimination projects eligible for federal funding currently have specific inventory requirements tied directly to the data requirements deemed necessary for the allocation of safety funding under current federal legislative guidelines. The data available from GRIP is accessed utilizing workflows developed to display location, theme, attribute, historical, mileage, inspection, and mapping data for specific business layers identified to be useful for ODOT program and project management activities. Following are basic workflows for building maps or reports:

[2] A national grade crossing numbering system to assist in the collection and maintenance of information regarding crossings. The system is jointly organized by the FRA and the Association of American Railroads.

- Opening a business layer includes specific categories of interest that have been identified as areas of primary interest for ODOT construction and management activities (i.e., pavement management, bridges, needs analysis, accidents, inventory, at-grade railroad crossing, speed zones, and HPMS).
- Displaying a Division Level Theme allows for the identification of specific available data sorted by Division (i.e., at-grade control type, concrete crossing surfaces, advanced warning devices, pavement markings)
- Displaying Map Features allow the attributes selected for a specific map theme to be highlighted on the map (i.e., grade separated highway-rail crossing locations, highway-rail at-grade crossings with flashing lights)
- Displaying Attributes based on Query allows the available data to be queried by physical and location attributes (i.e., crossing surface types, division, county)
- Displaying Attributes by Map Click allows the user to click on a map feature to display the attributes for the feature after the maps are built and themes applied.
- Displaying Photographs allows photographs of specific locations to be viewed by clicking links in the attributes tab (i.e., approach a, approach b, track left, track right, crossing fields)
- Displaying Imagery allows background imagery to be projected on to the maps being built, however the type of background imagery is limited by availability in the specific area being mapped.
- Displaying Imagery from Legend allows images included in the legend for certain types of maps to be displayed on the mapping.
- Displaying Mileage Report allows corresponding mileage reports to be generated for the maps built during the analysis or query.
- Displaying Highway Mileage Report allows corresponding highway mileage reports to be generated for the maps built during the analysis or query.
- Displaying Bridge Inspection Report allows bridge inspection reports to be generated for the maps built during the analysis or query.
- Displaying Interstate Structural History allows attributes from historical data associated with Interstate construction and maintenance to be displayed on the maps built during the analysis or query.

The primary users of the GRIP database are ODOT field division personnel responsible for new construction projects, the maintenance of minimum requirement safety or signing installation, or the maintenance of existing highway infrastructure throughout the state's rural and urban areas. Other users include Central Office Division, city, county, MPO personnel, and personnel from any government entity interested in utilizing GRIP data for project management, needs analysis, safety, or enforcement. Users from agencies or other government entities must request and be granted access from ODOT. Data for the GRIP database is updated automatically through automated routines that regularly update the associated data repository from multiple legacy data sources throughout ODOT. GRIP provides tools that consistently monitor and analyze roadways, bridges and crashes as well as overall highway performance improving the overall safety of Oklahoma's transportation network.

State-owned Rail Infrastructure Inventory

The Rail Programs Division recently contracted with Jacobs Engineering Inc. to collect infrastructure data on state-owned rail property. The data collection includes a continuous video of each segment coupled with GPS mapping to produce segment maps that list specific data elements collected to enable State-owned Property Section personnel to assess the condition of existing state-owned rail infrastructure. This data is utilized to plan and schedule necessary maintenance and capital improvements. Video data collected facing both forward and backward from a Hi-Rail[3] vehicle is reviewed to assess the condition of rail, ballast, and ties throughout each segment, and segment limits are identified where a succession of poor infrastructure components currently exist. The segment limits are tied to the milepost markers for each segment providing location information as well as the data necessary to quantify the materials and associated costs for any proposed improvements.

The data has been transferred into both mapping and GIS-data-based applications that assist identifying and categorizing location data for any bridges, culverts, wayside signals, left turnout sidings, right turnout sidings, and wayside signing (i.e., whistle boards) along each route. The production maps are scaled using a ratio of 1 inch to 1,600 feet and provide a spatial distribution of the data elements along each segment, complete with illustrative icons assigned to each specific data element or type of data, positioned on the maps using GPS location data and cross-referenced existing milepost data. An interactive application has been developed that allows Rail Programs Division personnel to view both videos while the location of the inventory data is referenced on the computer screen as well.

The video data can be utilized as a tool to assess the condition of the rail, ballast, and ties; however, the primary source for this type of distress information can more readily be obtained from segment maps that can be generated for individual segments identified by milepost limits. Each distress data element was captured as a single point GPS feature that indicates the type of distress with an associated illustrative icon referenced in the legend for the map. The corresponding video data will also serve as a tool to identify vegetative obstructions, clean-up areas, drainage issues, and encroachment by adjacent landowners. The video tool will also allow ODOT to conduct point-and-click assessments of the general area, including critical operating issues in the event an emergency arises or a concerned landowner has an inquiry that can be referenced to route and milepost data. This location data helps facilitate planning and budgeting functions coordinated by State-owned Property Section personnel without extensive field data collection. The development of this tool minimizes the labor effort necessary to produce the cost estimates and schedules necessary to administer funding for proposed rail infrastructure improvements.

Another feature of the mapping is the identification of the limits of the railroad right-of-way throughout each segment, including tangent sections, curved sections, rail yards, and any other components of the adjacent infrastructure. This data was digitized from many dozens of historic maps dating back to the early 1900s to facilitate the identification of any additional property acquisition that may be necessary to complete any proposed

[3] A highway vehicle fitted with retractable rail wheels permitting operation on both the highway and the rails.

improvements and provide a detailed record of the limits and location of rail property owned by the state. The right-of-way limits have been transposed into mapping functions that allow right-of-way maps for each segment to be illustrated on current project plans, maps, or other graphic documentation. This mapping has been scaled relative to the scale of the historic right-of-way maps, and each sheet produced captures the original data from each scanned drawing. Title sheets produced using these tools reference each sheet back to the original scanned sheet that will be stored on ODOT's server.

ODOT Rail Programs Division Reports

ODOT Rail Programs Division also produces and manages generation of reports addressing key rail issues in the state. Following is a list of recent documents:

- *Atlas of Oklahoma Railroads and Their History,* 1970
- *KDOT-ODOT Regional Service Development Plan,* October 2011
- *Summary of Previous Oklahoma Passenger Rail Studies,* December 2006
- *Measuring the Benefits of Intercity Passenger Rail: A Study of the Heartland Flyer Corridor,* April 2010
- *The Heartland Flyer Amtrak Passenger Train Service: The TXOK Connection,* March 2006
- *Rail Programs Division Management Guide and Procedural Manual,* 2011
- *Annual State Rail System Map* (updated every other year, includes all known rail lines for the entire state and indicates operator)
- *1992 Oklahoma State Rail Plan*
- *Annual Oklahoma State of Rail Report for the Governor: 2002–2005*
- *Kansas Rail Feasibility Study,* March 2000
- *Cost Estimate Report for Midwest City to Downtown Oklahoma City Commuter Rail Project,* June 2009
- *Heartland Flyer Economic Benefit Report,* April 2005
- *Oklahoma High-Speed Rail Initiative, Oklahoma City To Tulsa HSR Corridor Cost Study,* February 2002
- *High-Speed Passenger Rail Feasibility Study,* March 2001
- *TEMS Trackman 2.3 for Newton to Oklahoma City (Red Rock Subdivision),* December 1998
- *TEMS Trackman 2.3 for Kansas City to Tulsa,* December 1998
- *Oklahoma Amtrak Study,* December 1998
- *Amtrak Oklahoma Rail Passenger Study,* April 1996
- *Amtrak Proposal to Connect Missouri to Oklahoma,* November 1994
- *8-Year State-owned Rail Construction and Maintenance Work Plan, FY 2006 to 2013*
- *8-Year State-owned Rail Construction and Maintenance Work Plan, FY 2008 to 2015*
- *Oklahoma Railroad Rehab Cost Study: Oklahoma East-West Freight Rail Connection, McAlester to Shawnee*
- *State-owned Short line Railroads 5-Year Funding Needs,* 2004
- *Oklahoma Railroad Rehabilitation Cost Study: Bridgeport to Weatherford,* April 2002

- *Oklahoma Railroad Rehabilitation Cost Study: Spaceport Project Dill City To Burns Flat,* September 2003
- ODOT State-owned Rail Lease Agreements (Multiple)
- ODOT Railroad Purchase Agreements (Multiple)

10. Multimodal Freight Transportation in Oklahoma

Multimodal transport involves two or more modes of transportation for the movement of freight from origin to destination. This section focuses on the connectivity between transportation modes by identifying and describing Oklahoma's multimodal connections and, specifically, connections with rail infrastructure and access. For the purpose of this plan, Oklahoma's multimodal connections are categorized into four types of facilities:

- Intermodal container/trailer transfer terminals
- Transload facilities
- Industrial parks/logistics centers
- Port facilities

Oklahoma is served by three Class I railroads providing rail access to locations throughout the state and the U.S. The rail network also connects with other forms of freight transportation allowing for integrated freight services that make best use of each mode. MKARNS, along with the Tulsa Port of Catoosa and Port of Muskogee, give shippers the alternative of using barges as a cost-effective mode of transportation. Oklahoma's highway infrastructure and local road networks provide truck access throughout the state. While water and motor carriers compete with rail transportation, they are increasingly working with the railroads to provide shippers with more efficient movement of goods.

Rail Intermodal Transportation

Intermodal transportation is commonly defined as the movement of goods by rail in trailers or containers on specialized flatcars. This method of freight transportation interconnects the movement of cargo by any combination of rail, truck, and waterborne carriers over that cargo's journey.

The transportation of truck trailers (trailers-on-flat-car) was the first application of intermodal technology. Trailers, however, were limited to use in domestic markets. In addition, the economics of trailers-on-flat-car transportation were not favorable enough to allow railroads to compete with motor carriers in all but a few markets.

The introduction of containers-on-flat-car technology eliminated the need to transport the wheels of a truck trailer, reducing cost by reducing weight. The use of containers also opened international markets to intermodal transportation as boxes could be readily exchanged between the railroads and ships.

The most important development, however, has been the invention of the double-stack freight car because it revolutionized the economics of container transportation. Trains increased their capacity without increasing costs. In the last three decades, the railroads invested heavily in their infrastructure to accommodate trains with stacked containers.

Intermodal container/trailer terminal feasibility in Oklahoma

In 2005, BNSF closed its intermodal terminal in Flynn (adjacent to Oklahoma City) due to a lack of demand. When BNSF closed this terminal, Oklahoma lost its only container transfer facility. At the time of its closing, the terminal processed 1,200 trailers each month but no containers. A viable terminal today handles at least 10,000 containers each month. Since then, Oklahoma rail intermodal shippers have had to move containers by truck to terminals in other states. Dallas-Fort Worth, Kansas City, and Denver each have major intermodal terminals operated by BNSF and UP. Given the relatively short distances to these three metropolitan areas, it is unlikely that one of the major railroads would establish a new intermodal terminal in Oklahoma.

Trailer and container transfer terminal locations

Several factors determine the success of intermodal terminals. They are important considerations when railroads select locations for new terminals.

Terminals must be located on the railroad intermodal network

In recent years, railroads have invested heavily in developing efficient intermodal networks. Railroads upgraded key routes throughout the country to accommodate double-stack container trains by eliminating obstacles that prohibit operating these trains. The lines were also upgraded to permit higher speed operations by straightening track curves, reducing grades, and increasing the number of tracks. The upgrades also expanded the capacity of the lines.

For the most part, short line railroads do not participate in intermodal service. The cost of intermodal terminals and the need for speed have prevented short line railroads from any meaningful participation. A truck can deliver a container to an intermodal terminal in a far shorter amount of time than would be required to (1) drive to a short line railroad intermodal terminal, (2) move the container onto a flat car, and (3) then transfer the flat car to the connecting Class I railroad.

Both Oklahoma City and Tulsa are located on the BNSF and UP intermodal networks.

Terminal volumes must be sufficient to support frequent, long trains

Because of the high fixed costs of train operations, the economics of rail transportation favor long trains. Train crews are paid the same regardless of the number of cars. In addition, a long train consumes the same track capacity as a short train. Double-stack trains transporting 240-foot-long containers have become the norm with the railroads continually experimenting with longer trains carrying twice that number of containers. Large volumes are required to fill the longer trains at schedule frequencies required by shippers.

Large volumes are also required for cost-effective terminal operations. Railroad terminals are capital-cost intensive. Large container volumes are required to offset the fixed costs of the terminals. Although each terminal is a specific situation, typically an annual volume of 100,000 to 150,000 containers is required for a terminal to be viable.

The ability to attract the volume required to support a terminal in Oklahoma is questionable. Although the Oklahoma economy has grown substantially since the last terminal was closed, the volume level required is significantly higher than the former Oklahoma City terminal.

Terminals must be optimally spaced

A third factor in the feasibility of an intermodal container terminal is its proximity to the other similar terminals and the marketplace. There are several considerations concerning spacing. First, from a market perspective, terminals should avoid having overlapping geographic market areas except in locations with a large population or significant economic activity. A new terminal in Oklahoma would encroach on the market space of terminals currently being developed in neighboring states, along with existing terminals. A second consideration is the geographic configuration of the market. With intermodal service competitive only in corridors of 800 miles or more, the truck movements to be converted to intermodal need to exceed that threshold. Similarly, terminal spacing should reflect that.

The immediate development of new intermodal container terminals is questionable for the reasons just outlined. Even were conditions to change, it is not necessarily the role of the state to invest in intermodal facilities. That is the role of a railroad or a private investor working closely with the railroad.

Transloading

Transloading is another form of freight transfer between transportation modes. Like intermodal freight, transloading freight occurs because of delivery constraints (i.e., a freight shipper or receiver can only access one mode) or there are financial benefits to switching modes during shipping. However, unlike intermodal transportation where freight is moved and transferred using containers, the freight itself is transferred between modes.

Transload operations involve products shipped either in bulk or as semi-bulk, dimensional cargo. Bulk shipments fall into two categories—dry and liquid. Dry bulk commodities are shipped in unpackaged quantities and can be stored in an open stockpile (aggregates, minerals, ore, etc.) or in covered storage, such as silos (grain). Liquids (petroleum, chemicals) are moved in rail cars, trucks, or barges with tanks or in pipelines and stored in larger tanks.

Grain elevators are a type of transload facility. Grain is delivered to the elevator by truck where it is stored and eventually transferred to covered hopper rail cars. The elevator serves the purpose of consolidating smaller shipments into freight car or train size lots and storing grain until demand appears. Oklahoma has approximately 100 rail-served elevators. Figure 10-1 shows a grain elevator, one form of a transload facility.

Figure 10-1
Bulk transload—grain elevator

Source: www.bnsf.com/customers/grain-facilities/elevators/bin9/ele2379.html

Figure 10-2
Dimensional transload—rail to storage yard to truck

Source: www.upds.com/customers/attachments/transload/transload_works.pdf

Some dimensional commodities are shipped packaged or bailed but are typically too large to be shipped in a container. They are stored in the open (lumber, steel) or in a warehouse (paper rolls, boxed freight, etc.). Figure 10-2 shows a crane loading steel from the storage yard to the flatbed truck.

Table 10-1 lists the transload, dry bulk, liquid bulk, and auto facilities in Oklahoma that have rail access. Rail-served grain elevators are shown in Figure 10-2.

Table 10-1
Oklahoma rail transload facilities

Facility	Facility Type	City	Railroad	Rail Car Spots	Storage Area	Commodities
Watco Transload	Transload	Oklahoma City	BNSF, UP, SLWC	70	Open: 2.4 million square feet	Dry bulk, liquid bulk, dimensional
		Stroud	SLWC	n/a	n/a	Petroleum—railcar to pipeline
D&M Distribution	Transload	Oklahoma City	BNSF	13	Warehouse: 185,000 square feet	Dimensional
Oklahoma City Reload	Transload	Oklahoma City	BNSF, SLWC	10	Open: 404,000 square feet	Dimensional
Blendstar	Liquid bulk	Del City	SLWC	10	Tanks: 150,000 gallons	Ethanol, biodiesel
		Tulsa	n/a	5	n/a	Ethanol
National Tank Services	Liquid bulk	Oklahoma City	n/a	23	n/a	Chemicals, plastics, petroleum
Plastic Express	Liquid bulk	Tulsa	UP	18	n/a	Plastics
		Stroud	SLWC	n/a	n/a	Plastics
Oklahoma Vehicle Facility	Auto	Oklahoma City	BNSF	41	3,202 vehicle bays	Autos

Source: BNSF and UP;
BNSF = BNSF Railway Company, UP = Union Pacific Railrood, SLWC = Stillwater Central Railroad

Table 10-2
Oklahoma rail-served grain elevators (continued on next page)

Facility	City	Railroad	Rail Car Spots	Capacity (bushels)	Commodities
ADM Company	Enid (Elevator A)	BNSF, UP	70	7,700,000	Milo, soybeans, wheat
	Enid (Elevator B)	BNSF, UP, FMRC	36	11,100,000	Wheat, soybeans
ADM Company/Farmland (Elevators Y&Z)	Enid	UP	50	163,000	Milo, soybeans, wheat
Apache Farmers Co-op	Apache	UP	13	1,400,000	Grains
Attebury Grain	Temple	WTJR	25	450,000	Milo, wheat
	Enid	BNSF	30	3,078,000	Wheat, sorghum
Bartlett Grain Southwest	Boise City	BNSF	10	745,000	Wheat, corn, sorghum
Beachner Grain Inc.	Afton	BNSF	5	732,000	Wheat, sorghum, soybeans
Big V Feeds	McAlester	AOK	n/a	n/a	Grains

Table 10-2
Oklahoma rail-served grain elevators (continued from previous page)

Facility	City	Railroad	Rail Car Spots	Capacity (bushels)	Commodities
Blackwell Co-operative Elevator Association	Braman	BNGR	11	1,000,000	Wheat, sorghum, corn, soybean
	Kildare	BNSF	10	815,000	Wheat, soybeans, corn, sorghum
	Blackwell (Elevator 2)	BNSF	5	185,000	Wheat, sorghum, corn, soybean
Boise City Farmers Co-op	Boise City	BNSF	4	709,000	Wheat, sorghum
BTR Terminal	Muskogee	UP	30	200,000	Grains
Calumet Industries—Sold	Calumet	AT&L	10	555,000	Grains
	Geary	AT&L	8	2,230,000	Grains
	Geary	AT&L	15	240,000	Grains
Cargill	Hooker	UP	10	2,000,000	Corn, milo, soybeans, wheat
	Oklahoma City	n/a	n/a	n/a	Grains
Cassidy Grain Co.	Frederick	BNSF, UP, GNBC, WTJR	30	1,175,000	Wheat, sorghum, corn
	Manitou	GNBC	10	464,000	Wheat
	Hollister	n/a	26	500,000	Wheat
CHS Inc dba Plains Partners	Kingfisher	UP (shuttle)	15	1,100,000	Grains
Collingwood Grain	Altus	WTJR	75	2,185,000	Grains
ADM Company	Guymon	n/a	28	2,550,000	Corn, milo, soybeans, wheat
	Optima	n/a	100	n/a	Grains
	Tyrone	UP	25	1,270,000	Corn, milo, wheat
Consolidated Grain Barge	Muskogee	n/a	100	200,000	Grains
Wheeler Brothers	Enid	BNSF	36	2,000,000	Grains
Co-op Services	Grandfield	WT&J	25	756,000	Wheat
	Lawton	BNSF	10	420,000	Wheat, sorghum, corn
Custer City Farmers Co-op Exchange	Custer City	FMRC, GNBC	26	1,300,000	Wheat
Dacoma Farmers Co-op	Dacoma	BNSF	26	1,100,000	Wheat
Duke Farmers Union Co-op Elevator	Duke	UP	10	417,000	Milo, soybeans, wheat
El Reno Terminal Grain	El Reno	UP	8	850,000	Grains
Elkhart Co-op Equity Exchange	Keyes	CVR	18	991,000	Wheat, sorghum, corn

Table 10-2
Oklahoma rail-served grain elevators (continued from previous page)

Facility	City	Railroad	Rail Car Spots	Capacity (bushels)	Commodities
Farmers Cooperative Association	Anadarko	UP	10	26,000	Grains
	Clinton	GNBC	26	1,250,000	Wheat, sorghum
	Avard	BNSF	12	200,000	Wheat
	Eldorado	BNSF	123	2,139,000	Wheat, sorghum
	Perry	BNSF	6	500,000	Wheat, soybeans, corn, sorghum, barley
Farmers Cooperative Association of Alva	Capron	BNSF	8	489,000	Wheat
	Alva (Elevator B)	BNSF	4	1,000,000	Wheat
	Alva (Elevator A)	BNSF	54	1,900,000	Wheat
Farmers Cooperative Exchange	Weatherford	FMRC	26	2,300,000	Wheat, Sorghum, Soybeans, Corn, Oats
	Bessie	GNBC	26	714,000	Wheat
Farmers Cooperative Association	Snyder	BNSF, GNBC, FMRC	27	1,179,000	Wheat, sorghum
Farmers Cooperative Mill & Elevator, Assoc.	Hobart	BNSF	18	75,000	Wheat
Farmers Elevator Company	Goodwell	UP	8	1,374,000	corn, milo, other, soybeans, wheat
	Ames	GNBC	13	613,000	wheat, rye
	Drummond	GNBC	9	597,000	wheat, soybean
Farmers Exchange	Helena	BNSF	15	690,000	Wheat
	McWillie	BNSF	10	500,000	Wheat
Grain Co. (Elevators Y&Z)	Enid	BNSF, UP, Farmrail (shuttle)	110	28,280,000	Wheat, sorghum, corn
Hansen Mueller	Broken Arrow	UP	3	153,000	Corn, other, wheat
Humphreys Coop Elevator	Altus	BNSF, WT&J	28	443,500	Wheat, sorghum
	Blair	FMRC	17	45,000	Wheat
	Olustee	BNSF	26	34,000	Wheat
Inola Feed & Supply	Inola	UP	10	105,000	Grains
Johnston Seed	Enid	UP	1	250,000	Rye, malt, wheat, corn, sunflower
Morrison Grain and Ag Services	Morrison	BNSF	7	205,000	Wheat, soybeans
North Caddo Co-op	Hinton	AT&L	20	135,000	Wheat
Gavilon	Tulsa Port Authority	BNSF, SK&O	27	4,000,000	Wheat, sorghum, soybeans, oats

Table 10-2
Oklahoma rail-served grain elevators (continued from previous page)

Facility	City	Railroad	Rail Car Spots	Capacity (bushels)	Commodities
Planters Co-operative Association	Elmer	FMRC	26	n/a	FMRC
	Altus (Standard)	FMRC, WT&J	26	571,000	Wheat, sorghum
	Cambridge	FMRC	13	351,000	Wheat
	Hobart	GNBC	11	13,200,000	Wheat, soybean
	Lone Wolf	FMRC	80	1,300,000	Wheat
	Lugert	FMRC	17	112,000	Wheat
	Roosevelt (C/ Elevator)	GNBC	18	243,000	Wheat
	Roosevelt (W/ Elevator)	GNBC	12	440,000	Wheat
Purina Mills	Oklahoma City	n/a	11	n/a	Grains
R. A. Ford & Son	Gage	BNSF	1	8,000	Corn, sorghum, oats, barley
Rocky Farmers Cooperative	Dill City	FMRC	26	131,000	Wheat, sorghum
	Rocky	GNBC	14	1,062,000	Wheat, sorghum
Sayre Grain & Farm Supply	Sayre	FMRC	9	192,000	Wheat, sorghum, corm, oats
Schroeder Grain Elm Street	El Reno	UP	7	500,000	Grains
Sentinel Farmers Co-op	Sentinel	FMRC	26	919,000	Wheat, sorghum
Sooner Co-op, Inc.	Okeene	GNBC	13	286,800	Wheat, sorghum
Temple Co-op Branch	Temple	WT&J	7	200,000	Grains
Temple Milling	Waurika	UP	10	50,000	Grains
Texhoma Wheat Grow	Texhoma	UP	25	3,500,000	Corn, milo, wheat
The Hooker Equity Exchange	Hooker	UP	14	2,700,000	Corn, milo, wheat
Tillman Producers Co-op	Frederick	UP, WT&J, GNBC	26	900,000	Wheat, sorghum, corn
	Hollister	WT&J	25	340,000	Corn, milo, wheat
Tipton Farmers Co-op	Tipton	WT&J	10	410,000	Grains
Todd Fees Grain	El Reno	UP	14	1,200,000	Grains
Tuttle Grain & Supply	Tuttle	BNSF	7	230,000	Wheat, soybean, sorghum, corn, barley
W. B. Johnston Grain Company	Enid	BNSF (shuttle)	110	13,300,000	Sunflower, corn, sorghum
	Shattuck	BNSF (shuttle)	110	2,000,000	Wheat, corn, sorghum, soybeans
Walters Co-op Elevator Association	Walters	WT&J	18	625,000	Grains

Facility	City	Railroad	Rail Car Spots	Capacity (bushels)	Commodities
Wheeler Brothers Grain Company	Enid	BNSF	36	2,100,000	Wheat, sorghum
	Cordell	GNBC	26	427,000	Wheat
	Thomas	GNBC	26	1,229,000	Wheat
	Westhom (West)	GNBC	60	1,197,000	Wheat
	Alva (East)	BNSF	26	872,000	Wheat
	Alva (West)	BNSF	26	1,324,000	Wheat
	Greenfield	n/a	50	825,000	Wheat
	Watonga	AT&L	100	1,955,000	Wheat
WP Milling	Muskogee (Feed Mill)		8	250,000	Grains

Source: www.bnsf.com/customers/grain-facilities/elevators/menu/; http://dx01.my.uprr.com/pubdir%5Cgraindir.nsf/webstate?OpenView&Count=1000

Table 10-2
Oklahoma rail-served grain elevators (continued from previous page)

Major Industrial Parks/Logistics Centers

At one time, industrial parks were small facilities serving local needs, typically populated by a few industrial companies. While these are still prevalent, there has been increasing interest in larger multimodal facilities providing a range of logistics services (Figure 10-3).

Ardmore Industrial Airpark

Originally built as a military airfield, the Ardmore Industrial Airpark (AIA) is one of four logistics centers owned by the Ardmore Development Authority (ADA) and sits on 490 acres of the ADA's 3,400 acres (Figure 10-4). AIA is situated 16 miles northeast of Ardmore in Gene Autry and is centrally located between Oklahoma City (95 miles) and Dallas (125 miles). I-35 is 7 miles away via the adjacent State Route 53. The industrial park has rail service provided by BNSF and accommodates general aviation service for both freight and persons at the attached regional airport. Current tenants include King

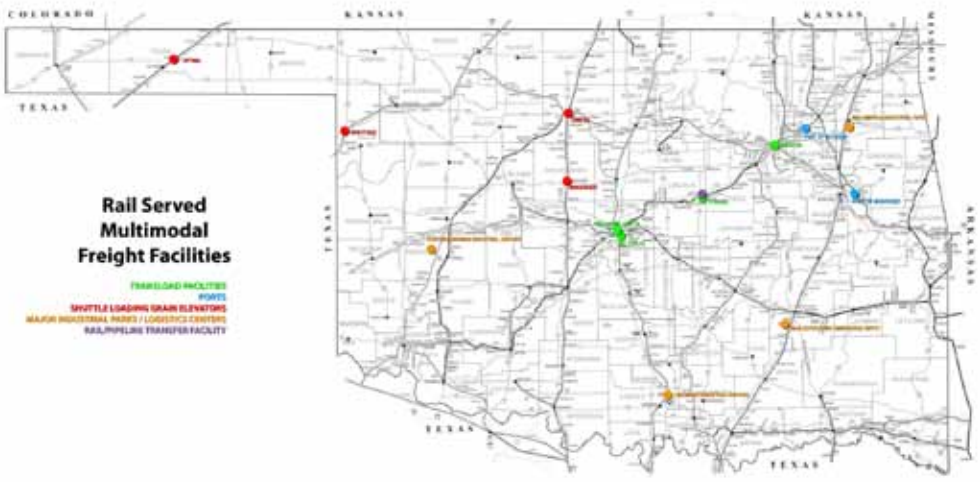


Figure 10-3
Rail-served multimodal freight facilities

Figure 10-4
Ardmore Industrial Airpark

Source: Google Earth and PB Analysis

Aerospace, Higgins Interiors, Inc., Beetle Plastics, Dollar General Distribution Center, East Jordan Iron Works, Carbonyx, Inc., and Online Packaging.

Currently, Sovereign Development Fund I, LLC, is working on a large-scale development adjacent to this facility. The $33 million proposal includes plans for transloading and the movement of unit trains for the energy and commercial business sectors.

Distance of AIA from the highway network

Interstate

- Interstate 35—7 miles

U.S. highways

- U.S. Route 177—4.5 miles
- U.S. Route 77—6 miles

State highways

- State Route 53—adjacent
- State Route 199—12 miles

Rail

Onsite spurs are served by BNSF; the nearest switching yard is in Ardmore (10 miles by rail) with direct access to the mainline, which runs to Kansas City, Fort Worth, and Houston

Water

- Port of Muskogee—192 miles
- Johnston's Port 33—197 miles
- Tulsa Port of Catoosa—215 miles
- Port of Houston—350 miles

Air

On-site, general aviation airport

Mid-America Industrial Park

The Mid-America Industrial Park (MAIP), founded in 1960, is located 38 miles east of Tulsa, has a 9,000-acre footprint, and is home to more than 75 industrial and commercial tenants (Figure 10-5). MAIP is situated less than 25 miles from Interstate 44 and minutes from major U.S. and Oklahoma State Routes. MAIP is less than one hour from three river ports with year-round service—Tulsa Port of Catoosa, Johnston's Port 33, and the Port of Muskogee. Additionally, the park owns and operates an on-site general aviation airport. UP serves MAIP, which has approximately 20 miles of track and rail sidings throughout the park and a switching yard just off-site.

Tenants include Airgas, Bennett Steel, GRDA Coal-Fired Complex, Georgia Pacific Gypsum, NORIT Americas, and DB Schenker Logistics.

Distance of MAIP from the highway network

Interstate

- Interstate 44—22 miles
- Interstate 40—60 miles
- Interstate 35—130 miles

US highways

- U.S. Route 69—2.5 miles
- U.S. Route 412—8 miles

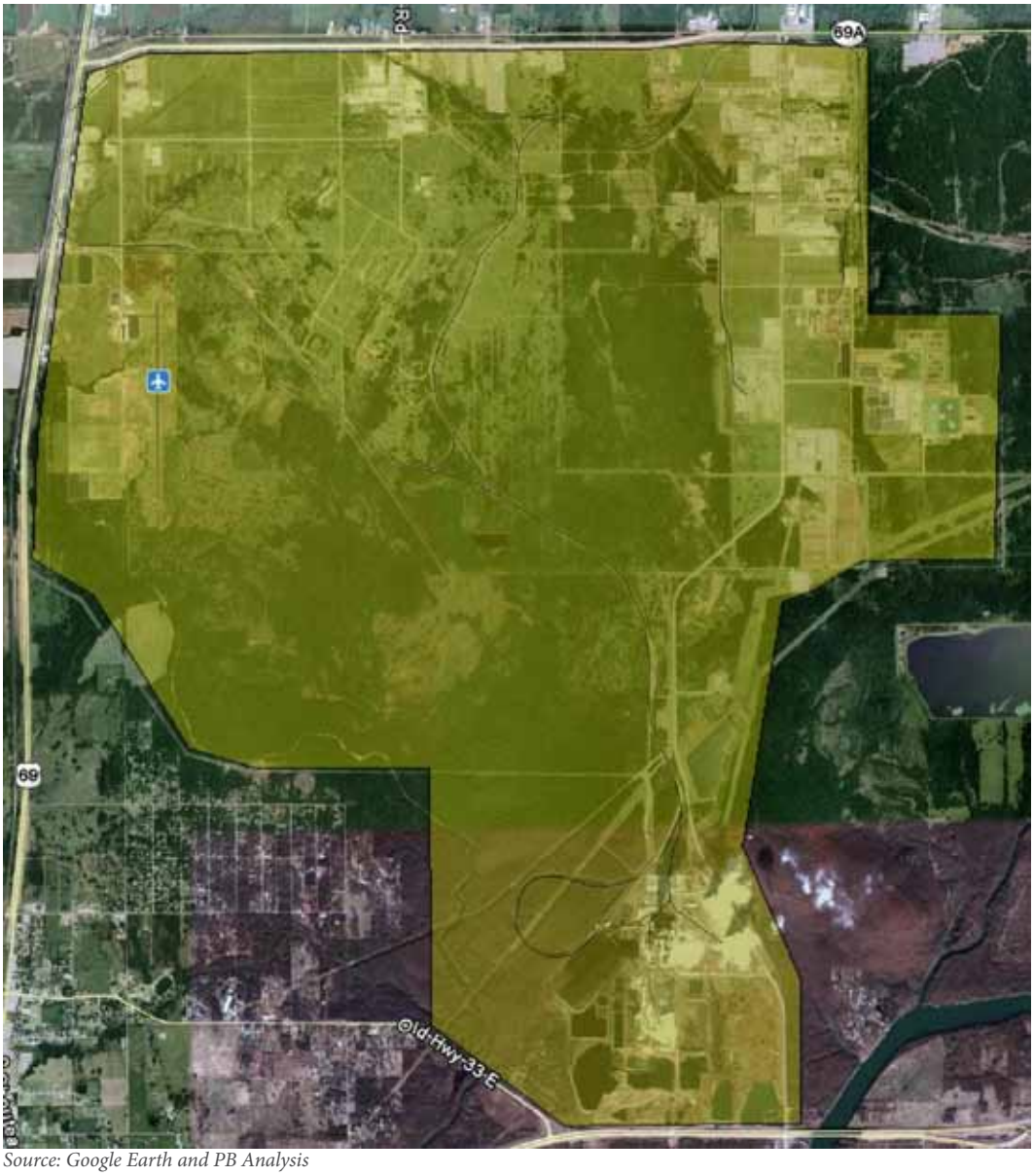
State highways

- State Route 69A—0 miles
- State Route 412 B—0.5 miles
- State Route 20—5 miles

Rail

On-site with switching yard just off-site, served by UP

Figure 10-5
Mid-America Industrial Park



Source: Google Earth and PB Analysis

Water

Less than hour from

- Johnston's Port 33—18 miles
- Tulsa Port of Catoosa—35 miles
- Port of Muskogee—40 miles

Air

On-site, general aviation airport

Clinton-Sherman Industrial Airpark (Oklahoma Spaceport)

The Clinton-Sherman Industrial Airpark, also known as the Oklahoma Spaceport is an authorized spaceport near Burns Flat, Oklahoma (Figure 10-6). It was expected to serve as a flight center for space tourism with takeoff and landing of suborbital, reusable

Figure 10-6
Clinton-Sherman Industrial Airpark

Source: Google Earth and PB Analysis

spacecraft. Its market advantage, at the time, was its ability to use airspace without federal restrictions.

Burns Flat is 100 miles West of Oklahoma City and is 7 miles from Interstate 40. It is also 160 miles from Amarillo, Texas, and 270 miles from Dallas-Fort Worth. The facility covers 2,700 acres and currently has four industrial/commercial buildings. *Farmrail* operates the on-site rail spur and connects with BNSF and UP to provide service to Oklahoma City, Tulsa, and Dallas. The State of Oklahoma has several incentives in place to attract industrial business to the spaceport facility. It must be noted that, at this time, track renovation will be necessary to put the spur connection back into usable operation. A proposal to renovate was presented to *Farmrail* by Halliburton Corporation (Halliburton adjoins the industrial park) though no formal talks are currently underway.

Past users of the facility included Armadillo Aerospace and Rocketplane Kistler, both developers and manufacturers of reusable spacecraft. However, Rocketplane Kistler ceased operation in 2010.

The facility features a runway that can accommodate aircraft as large as a fully laden B-52 but now serves as a general aviation airport. State officials seek to lure UPS or FedEx service to the airport. Though there are currently no industrial tenants on-site, a large adjoining company is interested in exploring reactivation of the spur serving the park.

Distance of Oklahoma Spaceport from the highway network

Interstate
Interstate 40—7 miles

State highways
State Route 44—0 miles

Rail
On-site spur, served by *Farmrail*

Water
- Tulsa Port of Catoosa—229 miles
- Johnston's Port 33—232 miles
- Port of Muskogee—250 miles

Air
On-site, general aviation airport former Strategic Air Command base; runway 17R-35R is 13,503 feet; stressed for heavy aircraft (B-52 at 488,000 pound maximum takeoff weight)

Citizen Potawatomie Nation Industrial Park

The Citizen Potawatomie Nation, the Arkansas Oklahoma Railroad (AOK), and UP have been working together to repair a major railroad bridge east of Shawnee that would allow AOK to provide rail service to the tribe's new industrial park. The cost of the overall project is estimated to be in the $2 million range. As part of the project, AOK has indicated it would put in 5,000 new cross ties on the mainline between Oklahoma City and Shawnee. In 2009, an unsuccessful TIGER grant application was submitted to upgrade the mainline between Oklahoma City and Shawnee, which is subject to flood damage during extreme weather events.

The tribe's 400-acre industrial park near Shawnee has been in contact with three different rail-served businesses about locating to this facility if rail service can be provided. Funding for the project has yet to be identified, and the specific amounts to be provided by each of the three parties has yet to be determined.

Port Facilities

Oklahoma navigable river system

MKARNS is Oklahoma's primary navigable waterway originating at the Tulsa Port of Catoosa and flowing southeast connecting to the Mississippi River. MKARNS is 445 miles long and has 18 locks and 10 dams that enable year-round navigation. The locks and dams are maintained by the U.S. Army Corp of Engineers and are operated 24 hours a day, 365 days a year. The U.S. Coast Guard is responsible for maintaining the channel markers and navigation aids. MKARNS is comprised of two rivers in Oklahoma—the Arkansas and Verdigris Rivers. The Verdigris River's segment begins at Tulsa Port of Catoosa (navigational head of the MKARNS) and runs south approximately 50 miles to the Port

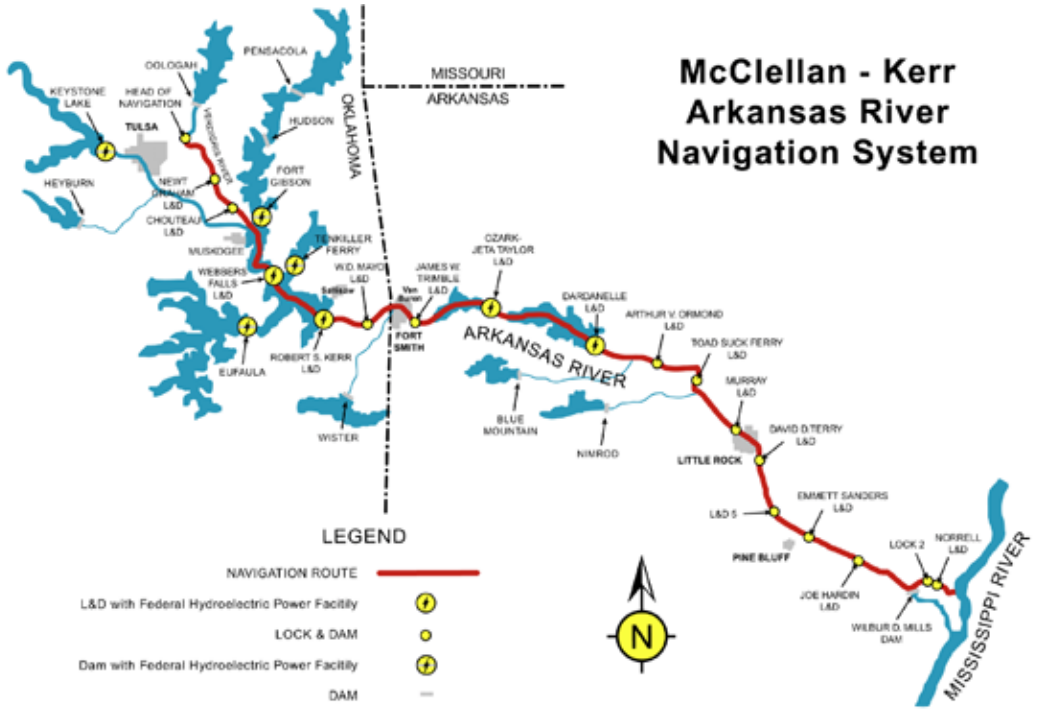


Figure 10-7
McClellan-Kerr Arkansas River Navigation System

Source: Arkansas River Navigational Study Final Feasibility Report

of Muskogee. The Arkansas River begins at the Port of Muskogee and flows into the State of Arkansas on its way to the Mississippi River. Figure 10-7 displays the entire MKARNS system and identifies each lock and dam.

MKARNS has the following navigational characteristics:

- Channel depth—9 feet
- Channel width—ranges from 250 to 300 feet
- Number of locks—18 total, with 5 in Oklahoma
  - W.D. Mayo Lock 14—Spiro
  - Robert S. Kerr Lock 15—Sallisaw
  - Webbers Falls Lock 16—Gore
  - Chouteau Lock 17—Porter
  - Newt Graham Lock 18—Inola
- Lock chamber dimensions (same for all)—110 feet wide by 600 feet long

The MKARNS can accommodate a tow comprised of eight jumbo barges (one jumbo barge measures 35 feet wide by 195 feet long) plus the towboat. Oversized tows (tows exceeding 8 jumbo barges) have to be *cut* or split into units that are able to pass through the locks. There is an initiative underway to deepen the MKARNS channel from 9 feet to 12 feet from the Mississippi River to the Tulsa Port of Catoosa. The 3-foot difference would allow a barge to increase its loading

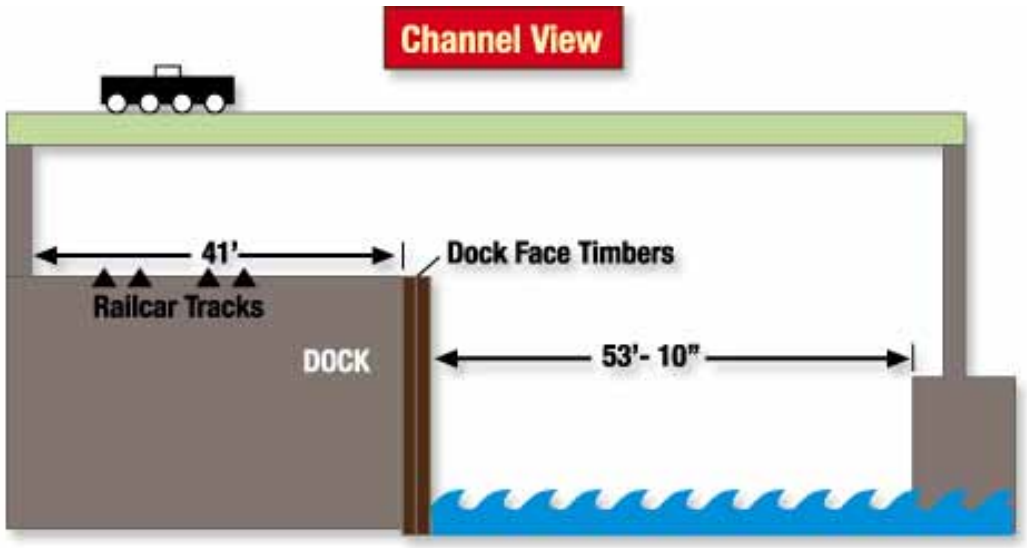
capacity by 33 percent (1,500 tons to 2,000 tons).[1]. The MKARNS channel is currently 12 feet deep along the majority of the span, except for 75 miles that would require dredging. The estimated cost of this endeavor is $180 million and funding has not yet been secured.

Public port facilities

Tulsa Port of Catoosa

The Tulsa Port of Catoosa (Figure 10-8) is an inland river port located at the head of MKARNS in northeast Oklahoma. The port is situated on approximately 2,500 acres, with 2,000 developed acres accommodating an industrial park with 63 facilities, primarily in the heavy-haul industry, that include manufacturing, distribution, and processing of goods companies. Currently, 150 acres of the 2,000 is unused, including 40 acres set aside for potential future container operation. In addition, there is the new Riverview Business Park, a 150-acre development located on State Route 166, 1.5 miles east of the Port Industrial Park.

Figure 10-8
Tulsa Port of Catoosa



Source: Tulsa Port of Catoosa website (www.tulsaport.com/aerial_large.html)

In 2010, Tulsa Port of Catoosa handled 2.26 million tons of cargo with 57 percent of that being either delivered to the port or shipped from the port by rail. Sixty percent of the companies located in the Port Industrial Park have a rail spur. In 2006, approximately 13,000 railcars were switched within the Port.

The Tulsa Port of Catoosa has five public terminal facilities; each is fully equipped and staffed to efficiently transfer inbound and outbound cargos between barges, trucks, and rail cars. The assets of these terminals, with the exception of the liquid bulk facilities, are owned by the Tulsa Port of Catoosa but are maintained and operated by independent contractors that have lease agreements with the Port Authority. The liquid bulk companies are

[1] 1,500 tons equals 60 truckloads or 15 railcars; 2,000 tons equals 80 truckloads or 20 railcars; an eight-barge tow would transport the equivalent of 640 truckloads instead of 480 truckloads.

private and own their own facilities.[2] The five public terminal areas are listed below with a general description.

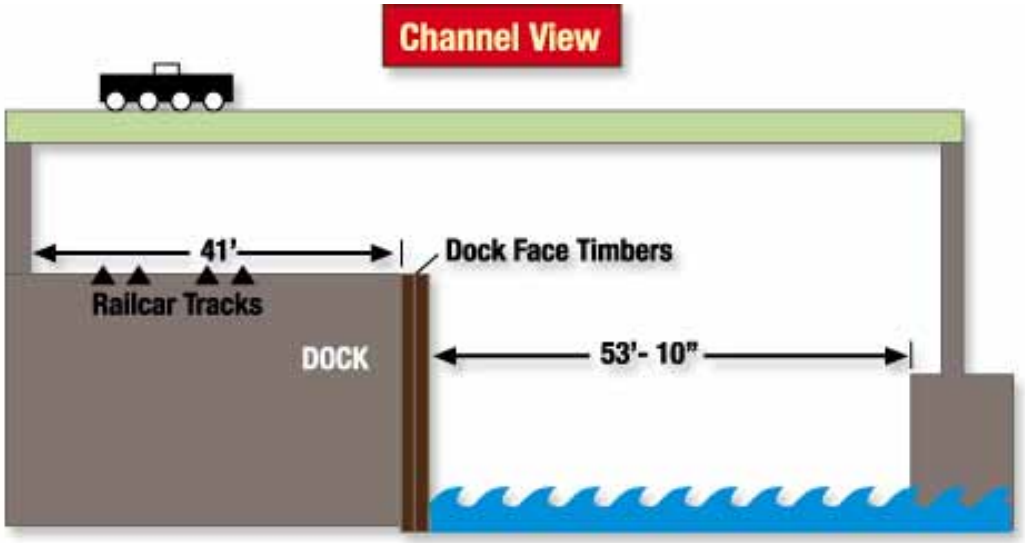
- **General dry cargo dock—**A 40-year old public dock operated by Tuloma Stevedoring, Inc. The dock is 720 feet long with a 230-foot-wide apron and has a variety of cranes and forklifts, including a new 200-ton overhead traveling bridge crane, to handle a variety of commodities, such as iron and steel, project cargo, and break bulk cargo (lumber, wood pulp, coils, etc.). Figure 10-9 and Figure 10-10 are renderings of the channel and dock views of the general cargo dry dock.

- **Roll-on roll-off (Ro-Ro) low water wharf—**A public wharf operated by Tulsa Port of Catoosa Port Authority that specializes in the transfer of over-weight, over-dimensional, or wheeled cargo. The wharf is 180 feet long with a 50-foot wide apron and has a 3.2-percent slope with a rail spur extending to the water's edge for efficient transfer of cargo. Figure 10-11 is an aerial rendering of the Ro-Ro wharf.
- **Dry bulk terminal—**A public terminal operated by Gavilon Fertilizer LLC. The terminal has two storage areas—an 80,000-ton covered storage area and a 50,000-ton open storage area. The former has two pedestal cranes and an import conveyance system for the outbound distribution of a variety of bulk commodities. Inbound and outbound load systems rate up to 400 tons per hour.
- **Grain terminals—**There are two grain terminals within the Tulsa Port of Catoosa, both operated by Gavilon Grains LLC. Facilities include outbound conveyance systems with a 25,000-bushel-per-hour capacity, inbound unloading systems with a 30,000-bushel-per-hour capacity, grain samplers, dust control systems, and an approximate 5.0-million-bushel storage capacity. Grain grading is available on-site. The major product handled by these terminals is outbound hard red winter wheat, but inbound or outbound soybeans, oats, corn, milo, and millet can also be handled. Grain barges can be loaded in as little as 2.5 hours. These facilities will remain open 24 hours per day in peak season, if necessary.
- **Liquid bulk terminals—**There are seven liquid bulk terminals at Tulsa Port of Catoosa, which are all privately owned. They handle various types of liquid bulk commodities, including chemicals, asphalt, refined petroleum products, and molasses. The following terminals are located at the Tulsa Port of Catoosa:
  - Brenntag
  - BKEP Energy Partners, LLC
  - Nustar Energy LP
  - Safety-Kleen
  - Petro Source Terminals
  - Terra Nitrogen
  - Westway

More than 2,500 people are directly employed by the 50 tenant companies at the Tulsa Port of Catoosa. These firms manufacture, distribute, and process a variety of products that range from agricultural commodities to manufactured consumer goods. The Tulsa Port of Catoosa averages more than 450 daily truck calls from nationwide trucking

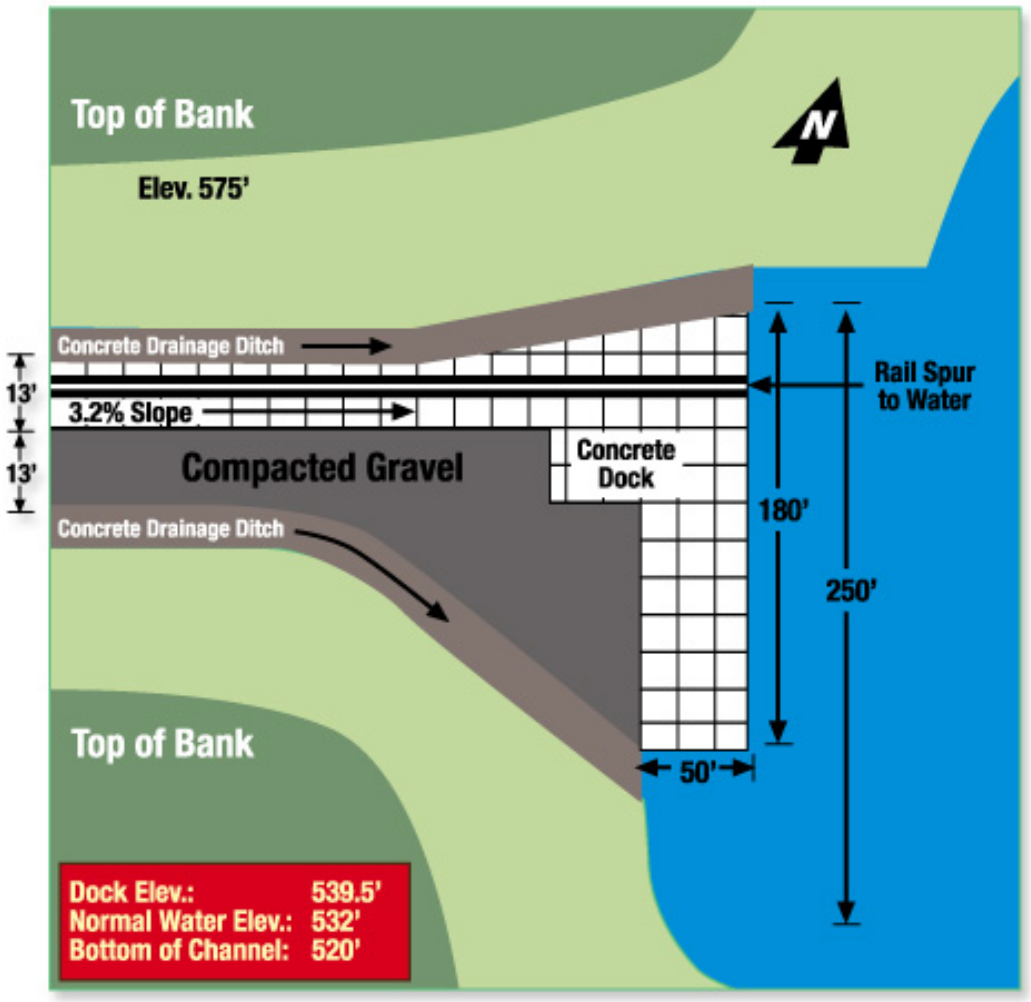
[2] www.tulsaport.com/docks_and_terminals.html

Figure 10-9
General dry cargo dock—channel view



Source: Tulsa Port of Catoosa website (www.tulsaport.com/aerial_large.html)

Figure 10-10
General dry cargo dock—dock view



Source: Tulsa Port of Catoosa

Figure 10-11
Ro-Ro low water wharf

Source: Tulsa Port of Catoosa

carriers, and the Port's geographic location near the center of the U.S. puts truck shipments only two days from either the East Coast or the West Coast. Additionally, Tulsa International Airport is approximately 7 miles west of the Port.

The Tulsa Port of Catoosa provides a number of tax- and duty-free incentives through its grant of the Foreign Trade Zone (FTZ) designation. FTZ 53 covers 61 acres of the port and has direct access to State Highway 266 (an official National Highway System Intermodal Connector) providing a connection to Interstate 44 and U.S. Route 412 five miles away.

The Tulsa Port of Catoosa has direct rail service provided by BNSF and the South Kansas & Oklahoma (SKOL) railroads. SKOL also provides a connection with UP so the Port, in effect, is served by two major railroads that are direct competitors. The port also provides switching services to facilities located on Port property.

Port of Muskogee

The Port of Muskogee is an inland river port located on the Arkansas River at River Mile 393 of the MKARNS. The Port is situated on approximately 450 acres. The Muskogee City-County Port Authority also owns industrial lands at the Port of Muskogee/John T. Griffin Industrial Park, the Port of Muskogee Riverside Industrial Park, and Southside Industrial Park, altogether comprising approximately 850 acres. The industrial parks, all served by rail, are in close proximity to the Port of Muskogee and reserved for transportation-sensitive industries whose bulk and break bulk commodities can be transported by barge.

The Port's existing maritime infrastructure consists of

- 20 mooring dolphins along the river channel frontage
- Fleeting area for 75 barges
- Harbor tow boat service
- Barge terminal and dock facilities
- Overhead and mobile cranes for transloading between barge, rail, and truck
- 94,000-square-foot dockside warehouse
- 39 acres of hardstand for outside storage

The port's waterfront terminals include

- Johnstons ports and terminals
- Quality Liquid Feeds
- BKEP Energy Partners

The Port of Muskogee Railroad operates two locomotives over 9 miles of railroad track, including a marshaling yard for interchange with UP. The Port Railroad provides its industries daily switching and car storage. In addition to the trackage over which the Port Railroad conducts its operations, the Muskogee City-County Port Authority acquired 39 miles of railroad right-of-way from the UP-predecessor Missouri Pacific Railroad. The right of way, from Muskogee to Stigler has been rail-banked for future expansion.

Industrial and economic development schemes could be expanded or introduced to entice new business growth within the Port district. Recently, the Muskogee City Council gave the Port of Muskogee economic and industrial development responsibility to develop and implement economic incentive programs. The Port also acquired the assets of the Greater Muskogee Development Corporation, thereby transferring to it all maintenance and management responsibilities of 83 acres at the Southside Industrial Park West. The Port now has a greater role in attracting new business growth.

In 2011, the total rail tonnage transported through the Port of Muskogee was 315,204 tons (pipe, steel coils and plate, asphalt, petroleum coke, fertilizer, glass cullet, and a variety of other products). Most of the rail cargo was transloaded to and from barges. Barge tonnage transported through the Port of Muskogee in 2011 was 835,836 tons.

Private river terminals on MKARNS

The Oklahoma shore of the MKARNS is an active and thriving maritime industry of more than 30 businesses that use the river system to move bulk commodities. While many of the firms are private, their land or facilities may be owned either out right or leased from a port authority. Table 10-3 lists the companies and port authorities that operate from the Oklahoma banks of the MKARNS.

Marine Trends

Two initiatives are occurring that may have an impact on inland water commerce—the expansion of the Panama Canal and the Marine Highway program.

Table 10-3
Private terminals on the MKARNS in Oklahoma

River Milepost	Company Name	City Location
337.3 L	Jeffrey Sand Company Dock	Sallisaw
342.0 R	Port Carl Albert	Keota
342.0 R	Port of Keota	Keota
344.1 L	Cherokee Nation Port	Sallisaw
362.4 L	Jeffrey Sand Company Dock	Webber Falls
363.2 R	Consolidated Grain and Barge	Webber Falls
390.2 R	Fort James Corporation	Muskogee
391.0 R	Frontier Terminal	Muskogee
393.0 R	Koch Materials Company	Port of Muskogee
393.8 R	Consolidated Grain and Barge	Port of Muskogee
393.8 R	Johnston Terminal-Muskogee	Port of Muskogee
393.8 R	Muskogee City-County Port Authority	Port of Muskogee
393.8 R	Uni-Steel, Inc.	Port of Muskogee
412.5 L	Consolidated Grain and Barge	Wagoner
426.5 L	Inola Station Slip-Public Service Co.	Inola
431.8 R	Johnston's Port 33, Inc.	Inola
431.8 R	Total Petroleum	Inola
431.8 R	Port Barge Cleaning	Inola
443.8 R	Mid-America Port	Catoosa
445.2	Advance Chemical Distribution, Inc.	Tulsa Port of Catoosa
445.2	Catoosa Fertilizer Terminal	Tulsa Port of Catoosa
445.2	Safety Kleen Systems, Inc.	Tulsa Port of Catoosa
445.2	Peavy Company	Tulsa Port of Catoosa
445.2	Port Barge Cleaning	Tulsa Port of Catoosa
445.2	Frontier Terminal and Trading Co.	Tulsa Port of Catoosa
445.2	Southern Missouri Oil Co.	Tulsa Port of Catoosa
445.2	Tuloma Stevedoring, Inc.	Tulsa Port of Catoosa
445.2	City of Tulsa-Rogers County Port Authority	Tulsa Port of Catoosa
445.2	Terra Nitrogen	Tulsa Port of Catoosa
445.2	Westway Terminal Co., Inc.	Tulsa Port of Catoosa
445.2	Royal Training Co.	Tulsa Port of Catoosa

Source: U.S. Army Corps of Engineers, www.swl.usace.army.mil/navigation/portlistings.html

Panama Canal expansion

For many years, the world's largest ships transporting containers have not been able to transit the Panama Canal because of the limiting size of its locks. Larger ships from Asia have had to unload containers destined for markets in the central or eastern U.S. at a Pacific Coast port where they are transferred to an intermodal train or hauled by truck. New wider locks, and the widening and deepening of the access channels, will both permit the larger vessels to pass through the Canal and provide a faster crossing.

For container ships, the current maximum size that can transit through the Canal will increase from those designed to carry about 5,100 20-foot equivalent unit (TEU)

containers (current Panamax size) to 12,600 TEUs or more. The resulting scale of economies is expected to reduce the average waterborne and operating costs for transporting containers from Northeast Asia to the U.S. Gulf Coast. For dry bulk shippers, the ability to send Capesize ships (up to 180,000 dead weight tons) through the Canal may provide cost-effective options for U.S. exports of bulk commodities, such as grain and coal. The Canal improvements are expected to be completed in 2014.

Marine highway program

The U.S. Maritime Administration's Marine Highway Program was designed to identify waterway corridors where water transportation presents an opportunity to offer relief to landside corridors that suffer from congestion, excessive air emissions or other environmental concerns, and other challenges. The MKARNS is designated as M-40, a Marine Highway Connector that connects to M-55 (Mississippi River), a major arterial barge-shipping corridor. This designation aims to increase the public and private sector's awareness of the use of this mode of transportation and makes the MKARNS or M-40 eligible for grant funding.

The Tulsa Port of Catoosa, located on the MKARNS, is one of the westernmost inland ports with access to the Mississippi River. MKARNS could provide significant opportunities for importers and exporters who use or who could potentially divert their cargos to a water route with rail connections. However, using MKARNS will require further study and evaluation to determine whether such an arrangement would be competitive with existing routes.

Rail Expansion Opportunities for the Ports

The ports identified a number of opportunities for better integration with the railroads that would benefit freight shippers.

Tulsa Port of Catoosa

The Tulsa Port of Catoosa is interested in leveraging both the expansion of the Panama Canal and the Marine Highway initiative along with its rail connections. It supports the development of a major transload terminal in Tulsa with potential for a container terminal in the future. As the most western port on the waterway, it would be a terminus for the Marine Highway and provide intermodal connections to various markets in the region.

Port of Muskogee

The Port of Muskogee has identified several initiatives to enhance and improve its rail service and rail storage capabilities as well as diminish operational impacts to the City of Muskogee.

- Rail access to the Port of Muskogee is limited to northbound access from UP's yard in Muskogee. Replacing the existing access with a new wye off UP's main line would provide more efficient access for manifest and unit train traffic, northbound and southbound.

- Adding an additional track under the Oklahoma Turnpike Authority's bridge would provide the capability of multiple train movements (manifest and unit train) simultaneously. The design for modifications to the bridge is currently underway.
- The Port of Muskogee is currently served by UP only. By extending the Port's track approximately 3/4 mile south to BNSF's track, UP and BNSF could serve their customers in Muskogee via the new wye, eliminating the need for 29 at-grade crossings, which now constrain vehicular traffic through the City of Muskogee.

Foreign Trade Zones

An FTZ is an area within or approximate to a U.S. port of entry and serves as a location where foreign goods are considered to be outside U.S. Customs and Border Protection jurisdiction. They are duty-free areas, offering warehousing, storage, and distribution facilities for trade, trans-shipment, and re-export operations. Goods held in the FTZ are not assessed a customs duty until they are brought out of the FTZ and enter the U.S. market.

However, certain U.S. firms receive an additional advantage when located within an FTZ. U.S. firms that use imported components for their exported goods do not pay duties on those imported items if their production process occurs within an FTZ. The tariff and tax relief benefits U.S.-based operations engaged in international trade by exempting their goods from duties.

There are two types of zones:

- **General-purpose**—Commonly found in or near a port of entry and may be a section within a port or an entire industrial park
- **Sub-zone**—Typically, a single firm's site that has a more extensive operation than what could be contained within a general-purpose facility

Oklahoma has been granted several FTZs by the U.S. Department of Commerce.

Port of Muskogee Zone (FTZ 164)

FTZ 164 consists of two sites in the Port of Muskogee with waterfront and rail access, one site in the Port of Muskogee/John T. Griffin Industrial Park with rail access, and two sites in McAlester Oklahoma operated by Komar Distribution Services. Under the new administrative procedures adopted by the FTZ Board, FTZ status can be provided to other sites within the Port of Muskogee or its industrial parks.

Tulsa Port of Catoosa Zone (FTZ 53)

The Tulsa Port of Catoosa enjoys FTZ status and is home to four industrial parks—Stillwater Industrial Park, Bartlesville Industrial Park, Mid-America Industrial Park at Pryor Creek, and Tulsa International Airport. The Port covers more than 2,000 acres and is a well-equipped, multimodal facility that provides its tenants with direct transportation

access via river, road, and rail. FTZ 53 currently has over 60 tenants utilizing its 500 acres of waterfront property and 1,500 acres of landlocked, general-industrial property.

International Business Park in Durant (FTZ 227)

FTZ 227 is situated on 320 acres in Durant and encompasses several industrial parks. Adjacent to or near major highways and Interstate 35, it is centrally located among several key transportation locations—one hour from Dallas-Fort Worth, five hours from Houston and San Antonio, and eight hours from Laredo, Texas, one of the busiest border crossings with Mexico. FTZ 227 was recently expanded to include the Ardmore Industrial Park and the Westport Industrial Park, both located in Ardmore. Throughout the industrial parks, truck dock facilities are available. Additionally, both UP and Kiamichi Railroad maintain daily rail service to a rail yard about 1/2 mile from FTZ 227, and a nearby general aviation airport offers small airfreight access to the zone.

11. Oklahoma Passenger Rail

In the course of developing the *Oklahoma Statewide Freight and Passenger Rail Plan*, many citizens shared a strong desire for Oklahoma to expand its passenger rail system. During 2012, the state will be commencing its effort to obtain the necessary environmental clearance and FRA authority to develop a passenger line from Tulsa to Oklahoma City. Simultaneously, the State of Texas will be leading an effort to obtain similar clearances and authorities for passenger operations to Oklahoma City from the south.

History

The efficient movement of people and goods is fundamental to the functioning of a modern economy. While all modern modes—highway, air, water, and rail—have adapted well for the commercial movement of goods, transportation policy in the U.S. since the mid-20th Century has favored the development of commercial air and non-commercial highway as the principle carriers of persons. As a result, the previously established system of rail passenger transport declined.

Historically, railroads were late to develop in Oklahoma. However, in the earlier days of Oklahoma railroads, passenger service was extensive. Table 11-1 and Figure 11-1 show Oklahoma passenger service taken from the 1966 edition of the *Official Guide of the Railways*.[1]

By 1970, commercially operated passenger trains had long since lost their profitability. Under regulation of the Interstate Commerce Commission (ICC), the railroad companies, which at the time provided both passenger and freight services, were largely prevented from terminating passenger service. Faced with potential financial disaster in the rail industry, caused in part by losses in passenger service, Congress acted and formed the National Railroad Passenger Corporation (Amtrak) under the *Rail Passenger Service Act of 1970* (RPSA). The act was signed into law by President Richard Nixon and Amtrak came into existence on May 1, 1971.

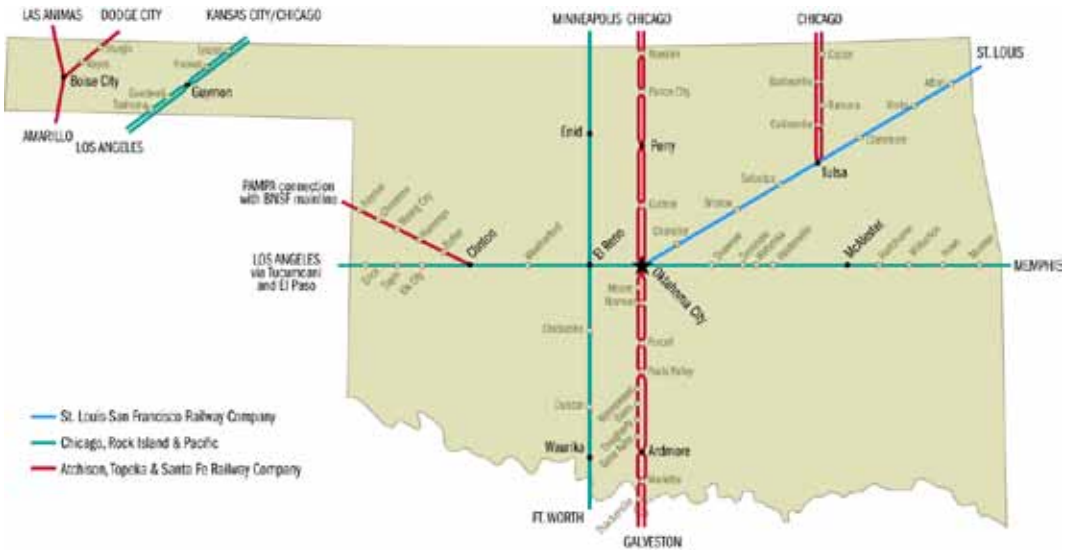
Under this act, the commercial railroads were relieved of passenger business obligations. Participating railroads received common stock in Amtrak and, in some cases, tax credits.

[1] *The Official Guide of the Railways*, National Railway Publication Co., New York, NY, July 1966.

Table 11-1
Oklahoma passenger trains (1966)

Train Name/Number	Origin-Destination	Route	Railroad
The Oklahoman	St. Louis–Oklahoma City	via Tulsa	St. Louis-San Francisco Railway Co. (Frisco)
Golden State Rocket	Chicago–Los Angeles	via Guymon	Chicago, Rock Island and Pacific Railroad Co. (CRIP)
#39 (westbound) and #40 (eastbound) Locals	Kansas City–Los Angeles	via Guymon	CRIP
#21 (westbound) and #22 (eastbound) Locals	Memphis–Los Angeles	via McAlester–Shawnee–Ok City1–El Reno–Clinton–Sayre	CRIP
Twin Star Rocket	Minneapolis–Fort Worth	via Enid-El Reno	CRIP
#19-211 and #1-47 (westbound) and #212-12 and #48-20 (eastbound)	Chicago–Tulsa	via Bartlesville	Atchison, Topeka and Santa Fe Railway Co. (Santa Fe)
Texas Chief	Chicago–Galveston	via Guthrie-Ok City-Purcell	Santa Fe
The Kansas Cityan & The Chicagoan	Chicago–Fort Worth	via Guthrie-Ok City-Purcell	Santa Fe
The Tulsan; #1 and #20 Locals	Kansas City–Tulsa	via Bartlesville	Santa Fe
#37 and #38 Mixed Locals	Las Animas CO–Amarillo TX	via Boise City	Santa Fe
#173 and # 174 Mixed Locals	Dodge City KS–Boise City OK	connection at Dodge City with Super Chief	Santa Fe
#61 (eastbound) and #62 (westbound)	Pampa TX–Clinton OK	connection at Pampa with San Francisco Chief	Santa Fe

Figure 11-1
Passenger rail routes (1966)



The railroads gave up their passenger equipment (in some cases cash) and the right of track access. For passenger train operations, Amtrak paid the railroads the incremental cost for the use of their tracks.

When Amtrak was formed, participation by the commercial railroads was optional. If a railroad chose not to join, it was obligated to operate its established passenger routes until 1975, after which the normal service withdrawal procedures could be initiated with the ICC.

Only three railroads chose not to participate in Amtrak. One of these was the CRIP that operated in Oklahoma. Its non-participation did not affect its passenger operations in Oklahoma because it had already been terminated. CRIP was in receivership and totally ceased operations in 1979.

The Santa Fe did participate in the initiation of Amtrak. The Texas Chief, a prominent Santa Fe Chicago-to-Texas train, was initially operated but was soon renamed the Lone Star.[2] After some re-routing in Texas, the Lone Star did not perform up to expectations and, along with several other cancellations in 1979, the train was removed from service. The result was that Oklahoma lost all passenger rail service.

Overview of Current Rail Passenger Operations

Today, one passenger operation is active in Oklahoma. The *Heartland Flyer* is a state-sponsored Amtrak-operated train operating between Oklahoma City and Fort Worth, Texas. Texas and Oklahoma share support of this service. The train departs Oklahoma City at 8:25 a.m., arriving at Fort Worth mid-day. The train returns to Oklahoma City in the evening. The *Heartland* Flyer operates daily.

Under Section 403(b)[3] of the RPSA, states and other governmental agencies are permitted to partner with Amtrak to operate passenger trains of local interest. Under these provisions, Amtrak operates the service but is reimbursed a reasonable share of the service's loss by the sponsor. *Reasonable share* was defined as two-thirds of the operating deficit in the original act. In Amtrak reform legislation of 1997, the two-thirds provision was revised to a negotiated amount. Current Amtrak policy is to charge 100 percent of deficits to the sponsor. PRIIA further refined the local sponsorship provisions by requiring Amtrak to establish a "standardized methodology for establishing and allocating the operating and capital costs" for the locally sponsored services.

Oklahoma established the *Heartland Flyer*, operating between Oklahoma City and Fort Worth, under the provisions of the RPSA and its subsequent revisions. Operation commenced on June 14, 1999. The State of Texas became a co-sponsor of the train in 2006.

The *Heartland Flyer* does provide for a reasonable connection to both eastbound and westbound sections of the current Texas Eagle at Fort Worth. The Chicago to San Antonio Texas Eagle operates along a route different from the discontinued Lone Star. From

[2] The Santa Fe owned the 'Chief' brand and withdrew its permission for Amtrak to use the brand in 1975.

[3] Section 403(b) states: "*Any State, regional or local agency may request of the Corporation (i.e., Amtrak) rail passenger service beyond that included in the basic system. The Corporation shall institute such service if the State, regional or local agency agrees to reimburse the Corporation for a reasonable portion of any losses associated with such services.*"

Chicago, the trains are routed through St. Louis and Little Rock, to Dallas and Fort Worth, terminating in San Antonio four days per week. The other three days per week, the Texas Eagle continues to Los Angeles following a several hour layover in San Antonio.

The *Heartland Flyer*

The *Heartland Flyer* is a favorite among passengers. The route between Santa Fe Depot in Oklahoma City and the Fort Worth Intermodal Transit Center is 206 miles in length. Intermediate stops on the route are Norman, Purcell, Pauls Valley, and Ardmore in Oklahoma, and Gainesville in Texas. The southbound *Heartland Flyer* is designated as Amtrak train #821 with the northbound being #822.

Table 11-2 shows the public timetable, which has had only minor changes since inception of the service.

Table 11-2
Heartland Flyer timetable
(effective November 7, 2011)

821	Train Number				822
Daily	Days of Operation				Daily
Read Down	Miles		Stations		Read Up
8:25 AM	0	Dp	Oklahoma City, OK	Ar	9:39 PM
8:49 AM	20	Dp	Norman, OK	Dp	9:04 PM
9:06 AM	35	Dp	Purcell, OK	Dp	8:47 PM
9:31 AM	57	Dp	Pauls Valley, OK	Dp	8:21 PM
10:23 AM	102	Dp	Ardmore, OK	Dp	7:28 PM
11:05 AM	141	Dp	Gainesville, Texas	Dp	6:47 PM
12:39 PM	206	Ar	Fort Worth, Texas	Dp	5:25 PM

Dp = depart, Ar = arrive

Amtrak timetables are usually constructed to include actual running time and time at the stations (dwell time), with added time as a contingency for unexpected delays that may occur en route. Different from normal Amtrak timetable practice where this recovery time is added in the last segment of a run, the *Heartland Flyer* schedule distributes the recovery time between each station pair. When running on-time, the *Heartland Flyer* will tend to arrive at each station a little early but will adhere to the published departure time.

The *Heartland Flyer* schedule favors day trips taking Oklahomans to Texas. Except for a short trip confined to afternoon business or personal pursuits in Fort Worth, a trip to Texas would require one night stay at a minimum but would afford a full day in the Dallas-Fort Worth area. A trip to Oklahoma on the train would require two nights stay to allow any time in the state for daytime business or personal activities.

Because of the BNSF network configuration, the *Heartland Flyer* route includes Fort Worth instead of Dallas, although Dallas is much larger than Fort Worth. Tarrant County (which contains Fort Worth) has a 2010 population of 1.8 million, less than one-third the total Dallas-Fort Worth-Arlington metro area population of 6.5 million. Although historically the Santa Fe main line always passed through Fort Worth, during the 1950s

and 1960s the Santa Fe would split the Texas Chief at Gainesville, Texas, with some cars proceeding direct to Dallas. This branch line to Dallas has since been removed.

Existing stations and station services

Oklahoma City, Oklahoma

The Santa Fe Depot is located on the eastern edge of downtown Oklahoma City, within easy walking distance of the Bricktown entertainment district and the basketball/hockey arena. The station is open from 7:30 to 8:45 a.m. and again from 9:00 to 11:00 p.m. There is no ticket counter, but in 2011 an automated ticketing machine was installed and is available when the station is open. Tickets may be purchased in advance over the internet or over the telephone at 1-800-USA-RAIL, at the automated ticket kiosk, or on the train. The *Heartland Flyer* is a reservation-only train and space must be reserved in advance. Onboard tickets will usually cost more than those purchased in advance. No checked baggage is handled at Oklahoma City.

The Santa Fe Depot is privately-owned by a third party. Access to the station is through a lease agreement between the owner and the State of Oklahoma. There is retail space available adjoining the station. A new retail establishment commenced operations at the station in 2011.

Location	Santa Fe Depot is located at 100 S. E.K. Gaylord Boulevard.
Parking	There are 47 parking spaces at the station available at a fee of $6 per day. Nearby overflow parking is available for $3 per day.
Major highways	North South I-35, U.S. 77 East West I-40, U.S. 62 Northeast-Southwest I-44
Intercity rail	The *Heartland Flyer* operates one round trip daily between Oklahoma City and Fort Worth. The train departs in the morning, returning in the evening.
Intercity bus	Greyhound and Jefferson Lines offer intercity buses along north-south routes along I-35 and east-west along I-40. A diagonal route from Wichita Falls Texas to Tulsa and beyond operates along I-44. The intercity bus station is located approximately 2000 feet west of the depot.
Aviation	Will Rogers World Airport is served by five major airlines with direct service to 20 destinations, many of which are hub airports with connection throughout the world. The airport is located approximately 6 miles southwest of the Central Business District
Public transit	Central Oklahoma Transit and Parking Authority operates bus and paratransit services in Oklahoma City. Direct connections at the Oklahoma Santa Fe Depot are scarce. METRO local bus routes #1 and #24 pass near the station and both serve the Oklahoma City Transit Center, which will afford transfers to most parts of the city. Routes operate Monday through Friday with some routes offering Saturday service. Most routes commence abound 6 a.m. and terminal service by 7:30 p.m.
Rental car	Yes, with station pickup available during normal business hours.
Taxi	Yes, numerous taxi providers 24/7.

Norman, Oklahoma

The Norman station has an enclosed waiting area but no other amenities or services. No checked baggage is handled. The station is owned by the City of Norman and has shared space with the Community Art Center.

Location	200 S. Jones Street
Parking	Free parking is available across the tracks from the station. There are also provisions for bicycle parking.
Major highways	North-South I-35, U.S. 77 East-West 0-9
Intercity rail	Yes, the *Heartland Flyer* operates one round trip daily between Oklahoma City and Fort Worth. The train departs southbound in the morning, returning in the evening.
Intercity bus	Greyhound operates at Norman with a station at 506 N. Porter. The bus route operates along the I-35 corridor with transfers available to other destinations at Oklahoma City.
Aviation	University of Oklahoma Max Westheimer Airport is a general aviation facility without scheduled service. Norman is in the service area of Oklahoma City's Will Rogers World Airport for scheduled services.
Public transit	CART (Cleveland Area Rapid Transit) passes 1 block to the east of the Norman station. The N21 bus on St. Peters Avenue proceeds to the South Loop transfer station on the Oklahoma University campus for connections to all quadrants of the city. The buses run 7 a.m. to 8 p.m. Monday through Friday with reduced Saturday service.
Rental car	Yes, with station pickup available during normal business hours.
Taxi	Yes, numerous taxi providers 24/7.

Purcell, Oklahoma

The Purcell station has an enclosed waiting area but no other amenities or services. No checked baggage is handled. The station is owned by the City of Purcell.

Location	E. Main Street and N. Santa Fe Avenue
Parking	Twenty-seven spaces of free parking are available at the station property.
Major highways	North-South I-35, U.S. 77 East-West 0-39
Intercity rail	Yes, the *Heartland Flyer* operates one round trip daily between Oklahoma City and Fort Worth. The train departs southbound in the morning, returning in the evening.
Intercity bus	None
Aviation	Chandler Field is a general aviation facility without scheduled service.
Public transit	Delta Public Transit operates a demand/response rural transit system serving Purcell.
Rental car	Yes, with the agencies located in Norman. Station pickup available during normal business hours.
Taxi	Yes, several Norman taxi providers will serve Purcell for surcharge.

Pauls Valley, Oklahoma

The Pauls Valley station has an enclosed waiting area but no other amenities or services. No checked baggage is handled. The station is owned by the City of Pauls Valley. It is a new facility built in 2002 and is adjacent to the former Santa Fe station.

Location	S. Santa Fe Street at E. Paul Street
Parking	Fifty-seven spaces of free parking are available at the station.
Major highways	North-South I-35, U.S. 77 East-West 0-19
Intercity rail	Yes, the *Heartland Flyer* operates one round trip daily between Oklahoma City and Fort Worth. The train departs southbound in the morning, returning in the evening.
Intercity bus	Greyhound operates intercity buses along the I-35 north-south route. The station is located at 215 W. Paul Street, co-located with Delta Public Transit.
Aviation	Pauls Valley Municipal Airport is a general aviation facility with scheduled service.
Public transit	Delta Public Transit operates a demand/response rural transit system serving Pauls Valley.
Rental car	Yes, with station pickup available during normal business hours.
Taxi	Yes, taxis from Norman or Ardmore will serve Pauls Valley for surcharge.

Ardmore, Oklahoma

The Ardmore station has an enclosed waiting area but no other amenities or services. No checked baggage is handled. The station is located in the former Santa Fe station and shares space with the Community Police and the Main Street Coalition.

Location	251 E. Main Street
Parking	There are 48 spaces of free parking at the station.
Major highways	North-South I-35, U.S. 77 East-West U.S. 70
Intercity rail	Yes, the *Heartland Flyer* operates one round trip daily between Oklahoma City and Fort Worth. The train departs southbound in the morning, returning in the evening.
Intercity bus	Greyhound operates buses on the north-south route along I-35. The bus station is located at 2501 W. Broadway, near the interstate. This is approximately 2 miles west of the train station.
Aviation	Ardmore Downtown Executive Airport is a general aviation facility without scheduled service.
Public transit	Southern Oklahoma Rural Transportation System operates a demand/response transit operation that serves Ardmore and Carter County.
Rental car	Yes, with station pickup during normal business hours.
Taxi	Yes, Aa Cab Company 24/7.

Gainesville, Texas

The Gainesville station has an enclosed waiting area but no other amenities or services. No checked baggage is handled. The station is the former Santa Fe station and houses the Santa Fe Museum.

Location	605 E. California Street
Parking	There are 15 spaces of free parking at the station.
Major highways	North-South I-35 (co-located with U.S. 77) East-West U.S. 82
Intercity rail	Yes, the *Heartland Flyer* operates one round trip daily between Oklahoma City and Fort Worth. The train departs southbound in the morning, returning in the evening.
Intercity bus	Greyhound operates buses on the north-south route along I-35. The bus station is located at 1934 N. I-35. This is approximately 2 miles northwest of the train station.
Aviation	Gainesville Municipal Airport is a general aviation facility without scheduled service.
Public transit	The Texoma Area Paratransit Service operates both demand/response transit services in the Gainesville region. Fixed route bus service is in planning stages.
Rental car	Yes, with station pickup during normal business hours.
Taxi	Yes, Safeway Transportation 24/7.

Fort Worth, Texas

The Fort Worth Amtrak station is the city-owned Fort Worth Intermodal Transit Center (ITC). The ITC joins several public transportation options together in the Fort Worth Central Business District. Connections are available to the Amtrak Texas Eagle, *Heartland*

Location	1001 Jones Street
Parking	There is no parking directly associated with the station but on-street metered parking is available as well as commercial parking adjacent to the station site.
Major highways	North-South I-35W, U.S. 81 and U.S. 77 co-located with I-35W, U.S. 287 East-West I-20, U.S. 80
Intercity rail	The *Heartland Flyer* schedule is timed to make a convenient transfer to the Texas Eagle. The Texas Eagle is a daily operation between Chicago and San Antonio. The eastbound (toward Chicago) and the westbound (toward San Antonio) trains meet at Fort Worth, affording transfers in either direction. On Monday, Wednesdays and Fridays, the westbound Texas Eagle continues to Los Angeles after a 7-hour layover in San Antonio. The eastbound Texas Eagle returning from Los Angles arrives at Fort Worth on Tuesday, Friday, and Sunday.
Intercity bus	Greyhound Lines, Kerrville Bus Company, and Americanos USA motor coach operators serve the ITC. Buses to points east or north almost universally require a transfer at Dallas. Direct buses are available to several points west, mostly via the I-20 or U.S. 287 corridors. Train and bus schedules are not coordinated.
Aviation	Dallas-Fort Worth (DFW) Airport is a major hub facility serving 191 domestic and international destinations by 19 air carriers.

Public transit	The Trinity Railway Express (TRE) is a commuter train that operates between Dallas and Fort Worth. A shuttle connection to the Dallas/Fort Worth Airport is also afforded from the CentrePort station. The TRE operates its full schedule on weekdays and an abbreviated schedule on Saturdays. No Sunday service is offered. TRE offers convenient connection to the DART light rail system at Dallas Union Station. There are 17 departures and 22 arrivals at the ITC weekdays. The first train departs at 5:02 a.m. and the last arrives at 10:14 p.m. There is reduced Saturday service but no service on Sunday. The "T" operates 18 local and 5 express bus routes directly from the ITC. The routes extend to all quadrants of the "T" service area. Most buses operate from around 5:30 a.m. until 10:00 p.m. Monday through Friday. There is reduced Saturday service but no Sunday service. Two blocks to the west of the ITC on Commerce Street, Molly the Trolley operates a loop route throughout the Fort Worth downtown from 10 a.m. to 10 p.m. daily. On Saturday, a shuttle directly from the ITC to the Fort Worth stockyard district operates from 9 a.m. to 10:30 p.m.
Rental car	Yes, with station pickup during normal business hours.
Taxi	Yes, numerous taxi providers 24/7.

Flyer, the Trinity Railway Express commuter train, commercial intercity buses, local transit bus routes, and rental cars.

The station is located immediately adjacent to the east edge of downtown Fort Worth. The station is open from 8:00 a.m. until 6:00 p.m. with the ticket window and checked baggage counter operating from 10:00 a.m. until 5:30 p.m. The ticket kiosk is available from 8:30 a.m. until 10:00 p.m. The station features an enclosed waiting area with payphones and an ATM. Fort Worth handles checked baggage for the Texas Eagle. The *Heartland Flyer* does not have checked baggage. Passengers transferring from the Eagle to the *Heartland Flyer* with checked bags must claim those bags before boarding.

Planned new stations

Two new stations are under consideration for the *Heartland Flyer*. One is in Oklahoma and the other in Texas. No definitive schedule has been made for these additions.

Davis, Oklahoma

Location	The historic station is located at the tracks on W. Main Street. The City Museum operates in the building.
Parking	There is limited free parking at the historic station.
Major highways	North-South I-35, U.S. 77 East-West O-7
Intercity rail	None
Intercity bus	None
Aviation	Crazy Horse Municipal airport is a general aviation facility without scheduled service.
Public transit	Davis is in the demand-response service area of Southern Oklahoma Rural Transit.
Rental car	Yes, with pickup available during normal business hours.
Taxi	Yes, taxis from Norman or Ardmore will serve Davis for surcharge.

Krum/Denton, Texas

Krum is located 9 miles west of Denton, Texas.

Location	No historic station site is apparent in Krum. Vacant land is plentiful near the tracks.
Parking	N/A
Major highways	North-South FM 156, I-35 is 3 miles east of town. East-West FM 1173, U.S. 380 is 1.5 miles south of town.
Intercity rail	None
Intercity bus	Greyhound serves Denton on its north-south I-35 route with its station located along I-35 near the intersection with FM 1173, approximately 3 miles from Krum.
Aviation	Denton Municipal Airport is a general aviation facility without scheduled service.
Public transit	Denton County Transit Authority operates fixed route public transportation in Denton County but does not serve Krum. The Denton A-train is a new interurban rail system that connects Denton to the DART system at Carrollton, for continuing service to Dallas.
Rental car	Yes, with station pickup during normal business hours.
Taxi	Yes, Denton County Taxi serve Krum 24/7.

Rail connections

Amtrak Fort Worth connections

The *Heartland Flyer* schedule is timed to make a convenient transfer to the Texas Eagle (Table 11-3). The Eagle is a daily operation between Chicago and San Antonio. The eastbound (toward Chicago) and the westbound (toward San Antonio) trains meet at Fort Worth, affording transfers in either direction. On Monday, Wednesday, and Friday, the westbound Texas Eagle continues to Los Angeles after a 7-hour layover in San Antonio. The eastbound Texas Eagle returning from Los Angles arrives at Fort Worth on Tuesday, Friday, and Sunday.

The continuation to Los Angeles is facilitated by connecting cars from the Texas Eagle to the New Orleans–Los Angeles Sunset Limited. The Sunset Limited only operates three days per week whereas the Texas Eagle is a daily train. On the return, cars are removed from the Limited and attached to the Eagle for the trip to Chicago via Fort Worth.

Table 11-3
Amtrak connections at Fort Worth

From	To	Arrive	Depart	Layover
Heartland Flyer	Eastbound *Texas Eagle*	12:39 PM	2:20 PM	1 hr 41 m
Heartland Flyer	Westbound *Texas Eagle*	12:39 PM	2:10 PM	1 hr 31 m
Eastbound *Texas Eagle*	*Heartland Flyer*	1:58 PM	5:25 PM	3 hr 27 m
Westbound *Texas Eagle*	*Heartland Flyer*	1:25 PM	5:25 PM	4 hr 0 m

From	To	Arrive	Depart	Layover
Heartland Flyer	TRE (Monday—Saturday)	12:39 PM	1:51 PM	1 hr 12 m
	The 1:51 p.m. TRE arrives at CentrePoint at 2:15 p.m. Allow 40 minutes for the shuttle to arrive at DFW terminals. The shuttle runs every 15 minutes but is synchronized to TRE arrivals or departures. This TRE arrives Dallas Union Station at 2:47 p.m.			
TRE (Monday—Friday)	*Heartland Flyer*	5:14 PM	5:25 PM	0 hr 11 m
	This TRE departs Dallas Union Station at 4:20 p.m. The next earlier train departs Dallas at 3:50 p.m. From DFW airport, passengers should be available for shuttle pickup no later than 4:10 p.m. This connection is very tight and carries risk of a missed connection if TRE experiences even minor delay. A 3:50 p.m. Dallas departure, arriving Fort Worth at 4:44 p.m. reduces delay risk.			
TRE (Saturday)	*Heartland Flyer*	4:44 PM	5:25 PM	0 hr 41 m
	This TRE departs Dallas Union Station at 3:49 p.m. From DFW airport, passengers should be available for shuttle pickup no later than 3:40 p.m.			

Table 11-4
Trinity Railway Express connections at Fort Worth

Connections can also be made from the Texas Eagle to the Sunset Limited operating east of San Antonio to Houston and New Orleans. This connection accommodates transfers to and from the *Heartland Flyer*.

The southbound Texas Eagle arrives at San Antonio at 9:55 p.m. with the eastbound Sunset Limited departing at 11:55 p.m. on Mondays, Thursday and Saturday evenings.

The westbound Sunset Limited arrives at San Antonio at 3:00 a.m. Tuesday, Thursday and Saturday, with the northbound Texas Eagle departing at 7:00 a.m.

Connections from the *Heartland Flyer* to the Texas Eagle are quite convenient when considering the length of the trip usually involved on Amtrak long-distance trains. Returning to Oklahoma does require a longer wait but not totally out of reason (i.e., Los Angeles, El Paso). For a shorter trip to Austin or San Antonio, these wait times might be considered too long. For trips on the Eagle to or from points west of San Antonio, there is a lengthy layover in San Antonio also.

Trinity Railway Express Fort Worth connections

The Trinity Railway Express (TRE) is a commuter train that operates between Dallas and Fort Worth (Table 11-4). A shuttle connection to the Dallas-Fort Worth Airport (DFW) is also available at the CentrePoint station. The TRE operates its full schedule on weekdays and an abbreviated schedule on Saturdays. No Sunday service is offered. TRE offers convenient connection to the DART light rail system at Dallas Union Station.

Ridership

Overall, *Heartland Flyer* ridership has shown steady growth since the start of the service. A downturn in 2009 is consistent with a downturn in all forms of travel due to the

Table 11-5
Heartland Flyer ridership and revenues

Year (Federal FY)	Ridership	Revenue	
		Tickets	Food Service
1999 (3 ½ mo)	26,832	$532,985	$37,098
2000	65,529	$1,213,228	$171,409
2001	57,799	$1,069,520	$118,150
2002	52,584	$903,402	$111,020
2003	46,592	$756,268	$124,540
2004	54,403	$900,980	$111,033
2005	66,968	$1,187,567	$135,098
2006	64,078	$1,174,234	$128,905
2007	68,245	$1,260,566	$155,518
2008	80,892	$1,682,089	$198,744
2009	72,564	$1,592,434	$152,312
2010	81,749	$1,806,780	$165,837
2011	84,039	$1,911,994	$189,756

recessionary economy. Ridership data is based upon the federal fiscal year, which starts on October 1 (Table 11-5).

June, July, and August are the highest ridership months with a spike in ridership also in March due to spring breaks (130 percent to 140 percent of average). The lowest ridership months are January and February (50 percent to 60 percent of average). Over the week, highest ridership occurs on Friday, Saturday, and Sunday (140 percent to 160 percent of average). Tuesday and Wednesday are the lowest days (80 percent of average). The southbound train has heavier ridership on Friday and Saturday and the northbound on Sunday, indicating that weekend breaks are being taken south of Oklahoma City. See Table 11-6 for average ridership by station and Table 11-7 for ridership between station pairs. Data showed a general downward trend in ridership for Purcell, Pauls Valley, and Gainesville, while other stations tended to follow the general growth trend in total ridership.

Table 11-6
Ridership by station

Station	Average Annual Boarding/Alighting (2007–2009)
Oklahoma City	48,914
Norman	12,333
Purcell	2,320
Pauls Valley	5,897
Ardmore	9,114
Gainesville	8,982
Fort Worth	60,653

Table 11-7
Passenger distribution by station pairs

Station Pair	Percent of Ridership
Oklahoma City–Fort Worth	55.6 %
Norman–Fort Worth	12.7 %
Ardmore–Fort Worth	5.3 %
Oklahoma City–Gainesville	4.5 %
Pauls Valley–Fort Worth	3.5 %
All other pairs (16 pairs)	18.4 %

Customer satisfaction and innovations

Because of the stewardship by ODOT to the operations of the *Heartland Flyer*, the service has

received numerous awards and consistently scores high on customer satisfaction surveys conducted by Amtrak.

In 2010, the *Heartland Flyer* was awarded Amtrak's highest honor—the President's Award for Safety and Service. This follows the *Heartland Flyer's* 2008 naming as the "Champion of the Rails."

Also in 2010, Time magazine named the test of biodiesel fuel in the *Heartland Flyer* as one of the top 50 inventions of 2010. The test was inaugurated in April 2010 and continued until April 2011. The fuel being tested, known as B-20, consisted of 20 percent biodiesel derived from cattle industry byproducts, mixed with petroleum-based diesel fuel. Results were favorable.

Since 2006, the *Heartland Flyer* has been co-sponsored by Oklahoma and Texas. This is the only state-sponsored service with more than one state taking the responsibility.

The *Heartland Flyer* consistently ranks high in customer satisfaction. The Amtrak CSI (Customer Satisfaction Index) is developed yearly for all routes in the Amtrak system. Data is collected via a mailed customer survey asking for passenger ratings on 38 separate aspects of service.

On-time performance

The ability to meet the published schedule is perhaps the most important customer requirement. Amtrak's measure of schedule reliability is based on the length of the train's trip from origin to endpoint. In the case of the *Heartland Flyer*, the train is considered late if it arrives at its terminal more than 10 minutes behind schedule.

Since 2009, the *Heartland Flyer*'s schedule performance has been very good with more than 80 percent of trains arriving within the 10-minute on-time window. However, between mid-2005 and early 2009, on-time performance suffered and a slump in CSI scores can be seen (Table 11-8). The score is based on a 0-to-100 scale with scores of 80 or greater being in the very satisfied category.

In Amtrak's tracking of schedule performance, delays are attributed to Amtrak, to the Host Railroad (BNSF), or to Other. Examination of delays in 2009 shows about 80 percent of delays are attributable to the Host Railroad, with the Amtrak or other categories responsible for approximately 10 percent each. On-time performance improved significantly in 2009, likely due to the host railroad, BNSF, making passenger train on-time performance a priority.

Delays encountered in 2010 are shown in Table 11-9. Some delays are necessary for safety reasons. Amtrak, in general, has

Table 11-8
Customer satisfaction index scores

Year	*Heartland Flyer*	All state-sponsored or short-distance Amtrak trains
2004	91	83
2005	90	83
2006	88	83
2007	86	84
2008	92	86
2009	94	88
2010	95	not available

Table 11-9
Heartland Flyer total delays by cause (2010)

Delay Type	Minutes	Percent of Total
Slow orders due to defects	11,815	53.3 %
Freight train interference	3,346	15.1 %
Routing delays	1,458	6.6 %
Communication and signal work	1,260	5.7 %
Weather	877	4.0 %
Passenger related	737	3.3 %
Wait on time	598	2.7 %
Maintenance of way	482	2.2 %
Trespassing/grade crossing	439	2.0 %
Crew related	406	1.8 %
Various other	751	3.4 %
Total	**22,169**	**100 %**

had problems with adhering to timetable schedules. The predominate source of the delays are the Host Railroads.

The majority of Host Railroad delays were for slow orders. Slow orders are temporary speed restrictions placed on a track for maintenance or other conditions. Freight train interference can be due to dispatching misjudgment or traffic blocked due to congestion at Tower 55 in Fort Worth. Tower 55 is the at-grade crossing of the BNSF and UP railroads immediately south of the Fort Worth ITC. This location is infamous for delays due to the high traffic volume and the time needed to clear the signals and permit the next train to proceed across the crossing diamond. The State of Texas has recently received a grant from FRA to initiate improvements to expedite traffic through the Tower 55 crossing.

In 2009, Amtrak's Inspector General published results of a study on the revenue implications of on-time performance.[4] A positive correlation was found. Sensitivity of the *Heartland Flyer* was low, showing an expected negative impact on revenue of $7.11 for every minute of delay. In the short-distance or state-sponsored category, the average cost of delay was $31.00 per minute.

Funding

After 18 years, since the cancellation of the Lone Star, the *Taxpayer Relief Act of 1997* afforded payments by Amtrak to states that did not have passenger rail service. The payment of $23 million to Oklahoma provided the basis to establish the new service connecting Oklahoma City and Fort Worth starting on June 14, 1999.

Through 2006, Oklahoma was the sole sponsor of the *Heartland Flyer,* although it served both Gainesville and Fort Worth, Texas. Starting in 2007, the State of Texas, through action of the Texas Transportation Commission, allocated $1.8 million to support the service. Since then, Texas has taken a 50-percent stake in the sponsorship expense. For 2010, the State of Oklahoma provided $1,950,000 for the operation.

Train equipment

Amtrak, under its operating agreement with the State of Oklahoma, provides and maintains the rolling stock used by the *Heartland Flyer*. The train typically consists of one General Electric P42DC Genesis Series 1 locomotive, two double-deck coach cars, and a

[4] Amtrak Office of Inspector General, *Financial Impact of Equipment Delays*, Evaluation Report E-09-02, March 25, 2009.

double-deck combination café/coach car. This configuration has a total seating capacity of 210. The cars are generally of the Amtrak car series known as the Superliners.

A non-powered control unit (NPCU) locomotive is also attached. This locomotive is an older model that has had its diesel engine and other propulsion equipment removed but its control equipment remains active. The space formerly occupied by the propulsion equipment is modified and could be utilized to carry baggage. The baggage space is not typically utilized by the *Heartland Flyer*. These NPCU units are also referred to as a *cab-bage car* (cab plus baggage). The P42DC locomotive is placed at the north end of the train and the NPCU car is attached at the south end. The train is capable of operating in either direction without turning the train around to reverse its direction.

In summer months, a second P42DC may be substituted for the NPCU to provide backup power in case of a locomotive failure. A complete locomotive failure would disable the train's air conditioning and food storage refrigeration. Also during the peak summer months and during spring break, an additional car is added for increased capacity. The extra car is usually a café/coach car but without the food service facilities being in operation. Recently, Amtrak has substituted the second P42DC for the NPCU for greater periods of time.

The P42DC is capable of a top speed of 110 mph with its 4,250 horsepower engine, but the trackage and signaling between Oklahoma City and Fort Worth limits operations to 79 mph maximum.

The Superliner cars were first ordered by Amtrak in the late 1970s. The first order was constructed by Pullman Standard. A second order of Superliner cars was made in the early 1990s and constructed by Bombardier. These double-deck cars were modeled after the Santa Fe Hi-Liner cars used by the Atchison, Topeka and Santa Fe Railway on their El Capitan Chicago–Los Angeles service. Before 2008, former Santa Fe Hi-Level coaches were common in the *Heartland Flyer* consist, but have now been retired. Each coach car has a seating capacity of 74 persons—62 on the upper deck and 12 on the lower deck. The lower deck is compliant with the *Americans with Disabilities Act.*

Light running repairs on the train equipment can be performed by the Amtrak shop in Fort Worth. Cleaning is performed at both Fort Worth and Oklahoma City. Under special circumstances, maintenance can be performed overnight while the train is parked in Oklahoma City. Every 90 days, the passenger cars are taken to Amtrak's Beech Grove Shop near Chicago for periodic maintenance and inspection. During the maintenance absence, the car is replaced by the protect[5] café/coach that is used in the summer months and as a spare for these circumstances.

Ticketing

Except for Fort Worth and Oklahoma City, none of the stations on the *Heartland Flyer* route has agents or Quik-Trak automated ticketing kiosks. Tickets are sold on-board by the train staff. It is reported that much of the staff's time en route is consumed by ticketing duties.

[5] *Protect* is the railroad term denoting spare equipment available to complete a train consist.

Ticketing is also available over the Amtrak internet website or by telephone at 1-800-USA-RAIL. If the ticket is purchased a sufficient time before the journey, Amtrak will mail the tickets to the passenger. If time is not sufficient to mail tickets, the purchaser can print a voucher that can be exchanged onboard or at the Fort Worth ticket counter for the ticket. Alternatively, the purchaser can receive a code number by telephone as proof of reservation and can be presented on-board along with payment for the ticket.

Amtrak is initiating other improvements in e-ticketing that will connect conductors to the national reservation system and permit passengers to display virtual tickets on their smart phones. Availability of these improvements on the *Heartland Flyer* has not yet been announced.

Advance purchase tickets can also be printed at an Amtrak Quik-Trak automated ticket kiosk. These kiosks are available both at Oklahoma City and Fort Worth.

Amtrak practices revenue management, or as known in the air travel industry, yield management. Ticket prices are adjusted in accordance with the demand for a certain train on a certain day. Tickets purchased onboard without an advance reservation are charged at the highest price.

Host railroad—BNSF

The *Heartland Flyer* operates on tracks owned and controlled by BNSF, headquartered in Fort Worth, Texas. BNSF is the successor to the Atchison, Topeka and Santa Fe railroad, the long-time operator of this line. Santa Fe's subsidiary, the Gulf, Colorado and Santa Fe Railroad, created the line connecting the Santa Fe's east-west mainline at Newton, Kansas, to the seaport at Galveston, Texas. The connection was completed in 1887.

As one of the original subscribers to Amtrak under the RPSA, Amtrak was given the right to operate over Atchison, Topeka and Santa Fe (now BNSF) tracks in exchange for payment of the incremental costs imposed by the passenger operation. Because calculation of incremental costs is not a science, considerable negotiation is required to settle on the level of payment. The agreement for the *Heartland Flyer* contains a provision for incentive payments for consistent on-time performance and penalties for BNSF-related delays. Since 2009, the *Heartland Flyer*'s on-time performance has improved dramatically, corresponding to the BNSF initiative to improve passenger train performance on its system. Amtrak monthly performance reports consistently show BNSF on-time performance as the best among the six host railroads for Amtrak service.

The BNSF line between Fort Worth and Oklahoma City is part of a high-density freight lane known as the Mid-Continent corridor(Mid-Con). BNSF has designated this route for concentrated capital improvements and it is the preferred route for much of its north-south traffic. Mid-Con traffic is dominated by merchandise, manufactured goods, and grain moving between the Midwest and Pacific Northwest to Texas and Gulf of Mexico ports. The line also connects to BNSF's crossing to Mexico at Eagle Pass, Texas. Additionally, coal moving from the Powder River Basin in Wyoming to Texas uses this route. In all,

approximately 23 to 24[6] trains per day utilize the line. The Mid-Con is used in a quasi-double track arrangement with another parallel BNSF line located in eastern Oklahoma.

Maximum passenger train speed in Oklahoma is 79 mph. In Texas, the speed limit is 55 mph. Texas recently received a federal ARRA grant of $4 million to make improvements to grade-crossing signal timing in order to permit higher speeds over the line. These savings could result in a 17-minute reduction in run time.

Speeds above 79 mph require the very costly addition of in-cab signal indicators under current regulations. Cab signals consist of both trackside and onboard equipment, and every control locomotive operating over the route would need to be equipped, regardless of the speed operated. All lines that carry passenger trains or specified hazardous materials are required to be equipped with positive train control (PTC) by 2015. PTC provides for automatic control of a train to avoid a crash. The current centralized train control used on the line provides the instruction necessary for a train crew to avoid crashes but is reliant on crew attention to see and to obey signal indications.

The line is also subject to heat slow orders. Between 95°F and 109°F, trains are restricted to 60 MPH; at 110°F or higher, the speed limit is 40 MPH. These restrictions are due to the heightened possibility of *heat kinks* or *sun kinks* forming in the track. These kinks form from high compressive stress in the rails due to heat expansion. They present a serious derailment risk.

Amtrak and operating agreement

For each federal fiscal year, the operation of the *Heartland Flyer* is governed by an operating agreement between Amtrak and the States of Oklahoma and Texas. The agreements outline the services to be provided, the responsibility for the provision of certain facilities and equipment, and the payments to be made by the parties. The state-sponsored, Amtrak-operated service description includes the stations serviced and the schedule.

Amtrak is obligated to provide daily round-trip service over a route serving the designated stations. Amtrak is not required to provide addition frequencies or service on other routes; however, nothing in the agreement restricts Amtrak from providing additional frequencies or service on additional routes at its own discretion and expense.

Amtrak is required to make its best effort to provide a service of high-quality. The states and Amtrak are obligated to cooperate in efforts to improve the service. Decisions regarding the on-board menu and pricing, on-board amenities, fares, on-board operating policies, and reservation requirements must be made jointly by the parties. General tariff provisions of Amtrak apply to the *Heartland Flyer*.

The states are obligated to provide station facilities, all of which must be compliant with the *Americans with Disabilities Act*. All costs for station acquisition and upkeep are the responsibility of the states. If a station is unavailable, the respective state is liable to Amtrak for any losses incurred due to the unavailability, including the provision of alternative transportation.

[6] BNSF 2010 Traffic Data

The States of Oklahoma and Texas pay Amtrak a fixed amount for the service plus 50 percent of the fuel cost and BNSF track usage fees. The fuel charges are calculated based on parameters agreed to by the parties and are a best effort to simulate the actual fuel usage and costs. The states are billed monthly for one-twelfth of the fixed amount and the fuel and BNSF charges for the month. For the federal FY 2012, the Oklahoma fixed amount is $1,089,667. A cap on the fixed amount, fuel, and BNSF charges is established at $2,325,000. The flow of funds is analyzed after two-thirds of the contract period has passed and, if the cap is projected to be inadequate, the State agrees to provide additional funding or cooperate with Amtrak in finding cost reductions. The State of Texas has a similar reimbursement agreement accounting for 50 percent of the fuel and BNSF charges but with a different fixed amount.

The agreement has provisions for the states to provide the passenger equipment (except locomotives) in the stead of Amtrak and provides for the approval and acceptance of the equipment and adjustments in the financial obligations.

The parties agreed to each defend, indemnify, and hold the other harmless for losses or injuries to properties or parties associated or attached to them. Amtrak has full responsibility for its equipment and employees and incidents resulting from the operation of the service, except when employees or contractors of a state are involved.

2009 Texas Transportation Institute on-board survey

In April and July of 2009, the Texas Transportation Institute of Texas A&M University conducted on-board surveys to determine several characteristics of *Heartland Flyer* passengers.[7] Data was collected on ten one-way trips in April (five each direction) and seven one-trips in July (four northbound, three southbound). Table 11-10 shows the distribution of passenger activity by station for the two survey months. During the April data collection period, 435 surveys were completed. In July, 588 surveys were received. Because of parental consent issues, passengers under 18 years old were not surveyed; also, passengers traveling in organized groups were not surveyed. Of the eligible passengers that chose to participate in the survey, 98 percent returned their survey instrument complete.

Table 11-10
Origin and destination station distribution of passengers

Station	April	July
Oklahoma City	31%	32%
Norman	9%	11%
Purcell	1%	1%
Pauls Valley	2%	3%
Ardmore	8%	4%
Gainesville	6%	4%
Fort Worth	43%	45%

Station access

Several modes of arriving or departing the station are available (Table 11-11). The survey revealed that the private automobile is the dominate mode of accessing the rail station.

Making the connection to the national Amtrak system accounts for just fewer than 10 percent of passengers but has been a primary driver in setting the *Heartland Flyer* schedule to make the connection with the Texas Eagle. However, an examination of the

[7] Benjamin Sperry & Curtis Morgan, *Measuring the Benefits of Intercity Passenger Rail: A Study of the Heartland Flyer Corridor*, Texas Transportation Institute, April 2010.

Mode	Percent of Passengers	
	at Origin	at Destination
Drove or rode with other passenger	41%	32%
Drop-off/pick-up by private car	36%	37%
Local transit	4%	6%
Commuter train (TRE)	2%	2%
Amtrak connection (*Texas Eagle*)[1]	9%	6%
Intercity bus[2]	0%	0%
Pedestrian or bicycle	4%	7%
Taxi or shuttle	5%	10%

[1] Numbers of passengers accessing the *Texas Eagle* connection was substantially higher in July than April. This may indicate the use of the connection is for longer vacation-like trips.

[2] Greyhound Lines services the Fort Worth station directly but does not coordinate any schedules to the *Heartland Flyer* schedule. Amtrak does not operate any Thruway bus services in connection with the Heartland Flyer.

Table 11-11
Means of station access

station access data indicates that only 2 percent of *Heartland Flyer* passengers connect to the TRE commuter train to Dallas. While this would be a cross platform transfer, the timing of the trains does not make this connection convenient. Some alteration of train schedules could improve this opportunity to build ridership by providing convenient access to Dallas.

Market area

The time needed to travel to the train station is an indicator of the distance from which passengers are drawn to the train service (Table 11-12 and Table 11-13).

Access Time	April	July
10 minutes or less	23%	18%
10 to 30 minutes	43%	42%
30 minutes to 1 hour	13%	16%
1 to 2 hours	11%	13%
over 2 hours	11%	12%

Table 11-12
Origin station access time

Access Distance	April	July
10 miles or less	35%	32%
10 to 20 miles	26%	18%
20 to 50 miles	15%	23%
50 to 100 miles	7%	15%
over 100 miles	17%	13%

Table 11-13
Access distance to origin station

In July, the radius of the destination hinterland is larger, likely indicating using the train for longer trips (Table 11-14).

Trip purpose

The reasons that passengers have for making a trip is of value in evaluating whether opportunities might exist to alter the service to make a greater market penetration. Recreational and social purposes currently dominate the current ridership (Table 11-15). These purposes might not be as sensitive to schedule alterations as other, more clock-sensitive purposes.

Pleasure travel dominates *Heartland Flyer* trips. The presence of the University of Oklahoma at Norman might be expected to generate more trips, but the proximity of Norman to Oklahoma City combined with a single trip per day probably accounts for the low

Table 11-14
Destination radius

Destination Radius	April	July
10 miles or less	39%	38%
10 to 20 miles	32%	26%
20 to 50 miles	18%	21%
50 to 100 miles	8%	14%
over 100 miles	16%	10%

Table 11-15
Trip purpose

Purpose	April	July
Visit family/friends	36%	42%
College/university	2%	1%
Business trip	5%	2%
Leisure/recreation	45%	33%
Personal business	6%	5%
Shopping	1%	2%
Vacation	4%	15%

Table 11-16
Diverted and induced trips

Alternative Travel Mode	April	July
Diverted Trips		
Private automobile	58%	63%
Rental or company vehicle	3%	2%
Airline	7%	5%
Intercity bus	3%	3%
Induced Trips		
Would not otherwise make trip	29%	27%

number of riders for that purpose. Students have historically been a good source of riders. The University community would be better served by a commuter or the Tulsa-Oklahoma City intercity services that are proposed with multiple daily frequencies.

Table 11-16 reveals the travel mode that would have been used if the *Heartland Flyer* was not used. The 27- to 29-percent range for induced trips, that is trips that would not have been made without the *Heartland Flyer*, is higher than usually seen for similar operations. As an alternative, the private automobile dominates. Significant in the results were the numbers of persons that would not have made the trip if it were not for the *Heartland Flyer.* This level of induced travel is higher than what is usually predicted for this type of travel.

Questions regarding trip duration yielded answers not completely predictable yet some general and expected patterns were present upon closer examination. First, Oklahoma residents can and do make single day round trips. Two nights away are more prevalent for Texas residents traveling to Oklahoma. The survey did not determine the relationship between state of residence and trip duration directly. It can be seen that summer trips tend toward slightly longer duration (Table 11-17).

Table 11-17
Trip duration

Nights Away from Origin	April	July
None	22%	19%
1	23%	19%
2	20%	23%
3 to 5	24%	25%
6 or more	10%	14%

Other characteristics

The vast majority of passengers are low frequency riders with 89 percent indicating making four or fewer one-way trips per year.

The survey permitted up to two answers on why the *Heartland Flyer* was chosen for the trip. The most common reasons (in order) were (1) more comfortable/relaxing (38 percent), (2) least expensive (32 percent), (3) rather not drive (22 percent), (4) avoid congestion or parking (12 percent). Only

7 percent of riders responded that they did not have access to another vehicle or did not drive. The novelty of a train trip or the opportunity to treat grandchildren to a train trip was a common response (14 percent).

Oklahoma residents made up the majority of passengers at 73 percent. Texas residents accounted for 20 percent. The train schedule is more convenient for Oklahoma residents but it should be noted that spending by passengers at their destination would better benefit Texas.

The gender of *Heartland Flyer* passengers was heavily weighted toward females at 62 percent. This result is not uncommon, but the percentage is high. All ages of passengers were represented but there is a bias towards passengers 45 years of age or older.

Passenger service issues

Southwest Chief reroute

A re-route of the *Southwest Chief*, currently operating between Chicago and Los Angeles via the BNSF Raton Pass, has been proposed. One possible re-route would be directed onto the BNSF TransCon[8] line and the train would pass through Wichita and across western Oklahoma. A stop at Woodward would be possible.

The re-route has been discussed but no plans to institute the change have been put in motion. The current route, through Dodge City and Garden City, Kansas, La Junta and Trinidad, Colorado, across Raton Pass, and through Raton, Las Vegas, and Albuquerque, New Mexico, was the original main line of the BNSF predecessor Santa Fe Railroad and famous for its former premier train, the Super Chief.

The possible re-route is over the current BNSF TransCon and passes through Wichita, Kansas, Woodward, Oklahoma, Amarillo, Texas, and Vaughn, New Mexico. The route, however, misses Albuquerque before rejoining the historic main track at Belen, New Mexico, on its way to Los Angeles. This bypass of the historic Raton Pass mainline was originally built for freight trains to avoid the steep gradients. The *Southwest Chief* has been kept on the Raton Pass route to benefit from the scenery. As little freight now uses the route, and the incremental cost arrangement between the host railroads and Amtrak now makes operation over the original main more expensive for Amtrak.

An alternative re-route would be on the BNSF MidCon[9] line, through Wichita to Perry, then west on the BNSF Avard subdivision to rejoin the TransCon at Avard, about 44.6 miles east of Woodward.

Delay

Research into passenger preferences indicates that on-time performance is the most important parameter in customer satisfaction.[10] Service unreliability is a problem

[8] TransCon—short for Trans Continental, is the BNSF high traffic density east-west route connecting California markets to the Midwest.
[9] MidCon—short for mid-continent, is the BNSF high traffic density north-south route connecting the Midwest with Mexico and Gulf ports.
[10] Taylor Nelson for British Railways Board, 1976.

experienced by Amtrak systemwide. The *Heartland Flyer* has benefited from the perspective of BNSF that passenger train on-time arrivals reflects upon its brand also and has made changes to greatly improve its performance. With the improvement, ODOT cannot become complacent in monitoring delay and its causes. On-time performance is an issue made for constant improvement approaches.

Dirty cars after maintenance

This issue was raised in interviews with ODOT personnel involved with *Heartland Flyer* stewardship. When returned from their periodic maintenance visits to Amtrak's Beech Grove shops in Indiana, the cars have been used in other regular Amtrak operations before delivery to the *Heartland Flyer*. It has been noted that the cars are not returned clean and orderly. Customer preference research has shown that the cleanliness of cars and stations is a high priority, even higher than trip time. The Operating Agreement calls on Amtrak to perform in creating a high quality service. Methods to improve the situation need exploring by the parties.

Need for improved connections

Both ends of the *Heartland Flyer* route have numerous transit and transportation operations that could enhance the usefulness of both the *Heartland Flyer* and the connecting services. Tight connections with the *Heartland Flyer* are not currently in place, and those connections are important, especially with shorter trips within the metropolitan areas.

Wi-fi

The installation of wireless internet access onboard passenger rail cars has proven to be a popular and widely used customer service feature on Amtrak's routes in the northeast U.S. Wi-fi provides many passengers, not just business passengers, with the ability to be productive or just to be connected. Oklahoma is initiating investigations into the costs and logistics of providing internet connectivity for the *Heartland Flyer*.

Other Rail Passenger Operations

No other passenger trains operate in Oklahoma strictly for the provision of transportation.

The Oklahoma Railway Museum in Oklahoma City offers short rides on passenger trains equipment. The rides are available primarily on weekends and holidays.

Farmrail, in cooperation with the Lone Wolf and Quartz Mountain Arts and Conference Center and Nature Park, offers excursion rides between the Quartz Mountain Resort and Lone Wolf. For 2010, five excursions are scheduled in the summer and fall months. The station is located at the intersection of State Highways 44 and 44A, near Lake Altus. Specific information can be obtained at (580) 323-1234.

12. Multimodal Connectivity—Passenger

For numerous reasons detailed in the Oklahoma railroad development sections, passenger rail services have not been blended into the overall fabric of the transportation system in the U.S. except in the older, densely-populated northeast. The newer urbanized areas grew in the two-mode era of commercial aviation and private automobiles. While the speed of the airplane and the convenience of the private automobile have significant mobility benefits, neither of these modes are energy efficient and have rendered land use patterns that further exaggerate energy demand and consume vast tracts of land.

A stand-alone intercity passenger rail system does not make for convenient transportation. Its ability to attract patronage from the competing modes is greatly diminished without convenient connections. Consequently, the presence of last mile alternatives is critical to the success of intercity passenger rail services (just as they are to commercial air service). Intercity passenger trains themselves can assume the role of a feeder service for extended journeys. Newark Liberty International Airport in Newark, New Jersey, and Baltimore-Washington International Airport are prime examples of where Amtrak (and local commuter trains) feed passengers from an entire region to the airport.

Amtrak has had success with its Thruway motorcoach services as a means of linking to a broader market. Thruway buses are used at many locations on Amtrak's system to connect passengers to popular destinations. There is no Thruway bus service currently connected with the *Heartland Flyer,* but passengers connecting with the southbound Texas Eagle can use the Thruway to reach Killeen, Texas, and Fort Hood from the Temple, Texas, Amtrak station. A return connection is also available.

ODOT recently conducted a Transit Gap analysis, surveying where there is a lack of mobility in the state. This investigation found "Information obtained during public outreach efforts associated with the update of the Oklahoma Statewide Intermodal Plan found that, in general, adequate urban and regional transit is available for users. However, a need exists to improve statewide mobility and provide modal connections that will permit transit users to travel beyond urban and regional boundaries." While the analysis found that transit can be used for general mobility, it did not particularly address the convenience issues that make public transportation options attractive to the segment of the public that have other travel options. Capturing those riders is key to growing ridership and further growing the transport option available.

Intercity Rail Connections

The nearly five-hour layover of the *Heartland Flyer* in Fort Worth complicates a tight connection with the Texas Eagle. While the connection with the southbound *Heartland Flyer* is reasonable, the return to Oklahoma requires waiting throughout the afternoon. An

earlier departure to Oklahoma could reduce this wait but would harm other trip purposes that need time in Fort Worth. Fort Worth is home to world-class art museums and historical sites. Currently, the Texas Eagle connection accounts for only 6 to 9 percent of the *Heartland Flyer* passengers. Leisure passengers account for a much higher percentage and an earlier departure from Fort Worth might discourage day-trippers.

Three days per week, cars from the Texas Eagle continue to Los Angeles connected to the Sunset Limited at San Antonio. Some cars from Los Angeles are connected to the Texas Eagle for the return trip. Connection to the Sunset Limited between San Antonio and New Orleans is also convenient at San Antonio.

Commuter Rail Connections

The Trinity Railway Express is a regional commuter train service that operates between Dallas Union Station and the Fort Worth ITC. There are 17 weekday departures from Fort Worth. Reduced service is offered on Saturday and no service on Sunday.

Connections between the *Heartland Flyer* and TRE are not coordinated at Fort Worth. Synchronization between these two services has the potential of increasing ridership for both services. A close connection would open the Dallas market for the *Heartland Flyer*.

A layover of 1 hour 12 minutes awaits the southbound *Heartland Flyer* passenger at Fort Worth wanting to continue to Dallas or the DFW airport. Moving either the TRE or *Heartland Flyer* departures to an earlier time would close this time gap.

Departing Dallas at 3:50 p.m. to connect to the northbound *Heartland Flyer* at Fort Worth is a better (but not ideal) situation with only a 41-minute layover at the ITC. A later 4:20 p.m. from Dallas is also available but leaves only an 11-minute layover; and only a slight delay in the TRE schedule would result in a missed connection.

Further improvement would be to time the airport shuttle buses to the TRE trains. The current system has the shuttles running every 15 minutes, regardless of arrivals or departures of TRE trains.

Intercity Bus Connections

Oklahoma is served by two traditional intercity motorcoach operators—Greyhound and Jefferson Lines. Several newer, specialty intercity bus systems also serve Oklahoma. These companies in Oklahoma are target marketed to the Hispanic community and tend not to use centralized bus stations but rely on curbside pickup at locations within the ethnic communities. Among these carriers are El Conejo, Americanos, and Rapido Chihuahua. Their schedules and stops are published to reach their particular market segment rather than the general population.

The bus was once the source of commercial transportation service for small rural communities. Today, intercity buses bypass most small towns and place the majority of their routes along the interstate highway corridors (Figure 12-1). This has rendered most small town residents completely dependent on the private automobile for regional trips.

Figure 12-1
Intercity bus routes (2011)

Two primary bus routes correspond with Interstate highways 35 and 40, the primary north-south and east-west corridors crossing at Oklahoma City. A diagonal route crosses the state from the southwest (originating at Wichita Falls, Texas), through Oklahoma City, Tulsa, and Bartlesville, crossing into Kansas en route to Kansas City. Another diagonal route proceeds from Oklahoma City to Tulsa and then Joplin Missouri en route to St. Louis.

In addition to the direct I-35 route from Dallas, a second route enters the state near Durant, proceeding through McAlester, Muskogee, terminating at Tulsa.

A sampling of intercity bus travel between Oklahoma City and Tulsa, and between Oklahoma City and Lawton for an outbound leg on February 16, 2011, and returning on February 17, 2011, revealed:

- Oklahoma City–Tulsa—5 published schedules by 2 bus lines (each way)
  Shortest trip time 1:40
  Lowest roundtrip fare $30.00 (>14 day advance)
- Oklahoma City-Lawton—1 published schedule by 1 bus line (each way)
  Shortest trip time 1:40
  Lowest roundtrip fare $56.00 (>14 day advance)

Oklahoma City

At one time, an Amtrak Thruway bus (operated by Jefferson Lines) provided overnight service to Kansas City. This bus met the train at the Oklahoma City station. This service also connected Tulsa, Bartlesville, and other Amtrak trains at Kansas City. This coordinated service is no longer operated.

Reasonable connections between Kansas City and the *Heartland Flyer* at Oklahoma City can be made with Greyhound's schedule 0487 that leaves Kansas City at 11:10 p.m. and arrives in Oklahoma City at 5:30 a.m. (6 hour 20 minute trip time). A return trip departs

Oklahoma City at 12:20 a.m., arriving at Kansas City at 6:40 a.m. (6 hour 20 minute trip time) on Greyhound schedule 484. The intercity bus station is located about one-half mile from the train station and passengers would either need to summon a taxi or walk the distance.

Fort Worth

Greyhound bus lines connect the Fort Worth ITC with Dallas, but the connections are not convenient to the *Heartland Flyer* schedule. The next bus to Dallas following arrival of the *Heartland Flyer* is at 2:00 p.m. almost 1 hour 30 minutes after the train's arrival. The last bus leaving Dallas in time to make the northbound *Heartland Flyer* departs Dallas at 1:55 p.m., arriving at Fort Worth at 2:35 p.m., 2 hours 50 minutes before scheduled departure. These schedules preclude a day trip to Dallas.

Other intercity bus connections toward Amarillo, Lubbock, El Paso, and Del Rio can be made at Fort Worth with varying degrees of convenience.

No intercity bus service is purposely coordinated with the *Heartland Flyer*.

Planned Passenger Rail Intermodal Improvements

Opportunities exist to enhance the multi-modal role of the *Heartland Flyer* with agencies at both the Oklahoma City and Fort Worth terminals. Discussion with rural transit districts to coordinate at intermediate stops in Oklahoma may also be worthwhile. Ridership improvements could be anticipated if intermodal connections were improved and publicized. Most of these connections would require extraordinary cooperation between companies or agencies with diverse goals and objectives.

Fort Worth already has its ITC where rail passenger, commuter rail, local transit, and intercity bus services come together, although the services are not coordinated.

In Oklahoma City, recent emphasis on integrating various modes of public transportation into the city's overall transportation matrix has led to several studies and initiatives. The ACOG just completed the *Intermodal Transportation Hub Master Plan*, which focuses on expansion and development of the existing Santa Fe Depot, and COTPA is about to begin *The Greater Downtown Circulator AA,* which is the first step toward implementing enhanced commuter transportation options such as light rail. The City of Oklahoma City is also in the process of building a modern streetcar line which will serve the central business district. All these efforts work in conjunction to point toward a greatly enhanced transportation network in the coming years.

Locating the intermodal hub in Oklahoma City will lead to improved market reach as the hub lays the groundwork for merging pedestrian, bicycle, bus, light rail, and heavy rail at the preferred location of the Santa Fe train station. The Santa Fe station is the home of the *Heartland Flyer*. The hub plan includes the capacity necessary for expansion of the *Heartland Flyer*, introduction of rail service between Oklahoma City and Tulsa, and space for the introduction of commuter rail lines serving central Oklahoma. Expanded taxi service and parking will also be located at the planned hub to ensure this location is capable of meeting transportation needs for decades to come.

Tulsa is experiencing a similar effort to prepare the way for expanded public transportation needs. Studies carried out by the City of Tulsa and the Indian Nations Council of governments (INCOG) are preparing the way for introduction of an enhanced transportation network.

All of the plans discussed may be viewed in their entirety on the internet:

- Overall fixed-guideway transit improvements for Oklahoma City by COTPA. This *2005 Fixed Guideway Study* includes the modern streetcar downtown circulator, bus rapid transit, and commuter rail www.gometro.org/fgp
- Since the *2005 Fixed Guideway Study*, further work has been conducted on the modern streetcar downtown circulator. The most recent information on the ongoing planning process can be found at www.letstalktransit.com
- In coordination with the COTPA studies on fixed guideway transit in the Oklahoma City region, ACOG recently published a comprehensive study for creating an intermodal hub to connect the wide variety of planned transportation options. in Oklahoma City. This report can be downloaded from www.acogok.org/Newsroom/Downloads11/hubreport.pdf
- In the Tulsa region, the City of Tulsa and INCOG released their comprehensive transit development plan in October 2011. Entitled FastForward, the final report can be obtained at www.fastforwardplan.org/FinalPlan.aspx

High-speed Intercity Passenger Rail

ODOT began studying the issue of high speed rail in 1999, and it subsequently issued studies on this topic—the 2001 *High Speed Passenger Rail Feasibility Study* and the 2002 *Oklahoma High Speed Rail Initiative*. Oklahoma was also instrumental in obtaining a high speed rail route designation for the region which led to the founding of the South Central Corridor designation by the FRA in 2000. This route includes portions of Oklahoma and Texas, and it is one of only 11 designated high-speed rail corridors in the U.S.

With the launch of the FRA HSIPR in 2009, ODOT renewed its efforts to examine the expansion of passenger rail in the state. It submitted a series of funding applications for every one of the HSIPR Program's funding notices beginning in 2009, including an initial application that sought to fund a new passenger rail line between Oklahoma City and Tulsa.

Several descriptions and definitions of high-speed rail have circulated; recently, FRA has classified the various levels of intercity passenger rail services as follows:

- **High-speed rail express**—Trains connecting major population centers 200 to 600 miles apart with few intermediate stops. Top speeds are at least 150 mph on completely grade-separated and dedicated rights-of-way. Some exception to grade separation and dedicated track requirements may be acceptable in terminal areas.
- **High-speed rail regional**—Trains with relatively frequent service between major and moderate population centers, 100 to 500 miles apart with some intermediate stops. Top speeds range between 110 and 150 mph with some dedicated and some freight-shared tracks. Tracks are grade-separated with terminal area exceptions.

- **Emerging high-speed rail**—Passenger rail in corridors of 100 to 500 miles that have strong potential for future high-speed rail (regional or express) development. Top speeds range from 90 to 110 mph, generally on shared track with advanced grade-crossing protection or grade separations. This stage is intended to provide travel options and develop a market for rail service.
- **Conventional rail**—Traditional intercity rail service of more than 100 miles with as little as 1 to as many as 12 daily frequencies. Served corridors do not necessarily have potential for future high-speed rail development. Top speeds range from 79 to 90 mph, generally on shared tracks.

FRA has also stated that high-speed intercity passenger rail systems be time-competitive with air and automobile travel.

Through the HSIPR Program, ODOT has individually secured three separate grants to aid Oklahoma's passenger rail efforts. Grants were awarded to (1) help the state complete its long-term rail plan, (2) complete the Service Development Plan and the Environmental Impact Statement for the rail corridor from Oklahoma City to Tulsa, and (3) fund infrastructure improvements at the Santa Fe Station for safer and more efficient operation of the *Heartland Flyer*.

Regionally since 2009, ODOT, TxDOT, KDOT, along with Missouri DOT have been working together on HSIPR efforts related to the expansion of passenger rail service. ODOT and KDOT mutually funded and completed the *Passenger Rail Service Development Plan*[1] in 2011 that looks at options for adding passenger rail lines between Kansas and Oklahoma. TxDOT, with input from KDOT and ODOT, is about to begin a similar study for the corridor from Oklahoma City to South Texas. This study will also perform an environmental analysis of the corridor. While HSIPR has served as a vital tool to boost the State's passenger rail efforts, other federal programs have led to beneficial rail projects as well for both existing and proposed services.

In 2010, ODOT was awarded a TIGER grant for construction of the I-244 Multimodal Bridge in Tulsa, which has been designed to carry both intercity passenger rail and commuter rail on the lower deck of this state-of-the-art transportation facility. This project was one of the first granted in round one of USDOT's innovative *Transportation Infrastructure Generating Economic Recovery* grant program. This project is a keystone to any new passenger rail service connecting Oklahoma's two largest population centers.

In fall of 2011, ODOT received a *Rail-Highway Crossing Hazard Elimination Grant* to upgrade three at-grade rail crossings in Ardmore to improve safety and operations for the existing *Heartland Flyer* passenger rail service.

In terms of additional intercity and high speed passenger rail planning efforts, the Oklahoma City Intermodal Hub discussed earlier in this section included significant research to ensure that the hub was capable of supporting added passenger rail capacity should any of the projects being examined by ODOT, KDOT, and TxDOT move forward into construction. Additionally, ODOT and the Oklahoma Turnpike Authority have been examining upcoming large-scale highway projects to ensure they include necessary

[1] This document may be viewed on the internet at www.ksdot.org/PDF_Files/PDF-Passenger-Rail-SDP.pdf.

right-of-way to allow for the inclusion of passenger rail structures should they be needed in the future.

Passenger Rail Improvement and Investment Act

The passage of PRIIA in 2008 will have effects on the expansion of Oklahoma's passenger rail system. Section 209 mandates changes to Amtrak's cost accounting and how costs are shared with the states for their state-sponsored trains. Current trains operated under the RPSA, Section 403(b) (state-sponsored trains), and trains with routes of less than 750 miles, except Northeast Corridor trains, are subject to state support. Only long-distance trains and Northeast Corridor trains remain solely under Amtrak's responsibility.

States have raised concerns since a state's expenses will increase under Section 209. While direct expenses assessed to a state-sponsored service are, to a degree, controllable by the state, the allocation of shared expenses is not. Shared expenses are those which are averaged over all Amtrak passenger operations and cannot be assigned to any specific train or route. For example, if a state adds a second train daily, its allocation of the shared expenses will almost double although the second train will have little effect in increasing the total shared costs across the system. If states start dropping services because of the cost, the shared costs will then be spread over a fewer number of trains and costs will further increase.

PRIIA, which was enacted into law on October 16, 2008, required that the new cost sharing agreement be finalized by October 16, 2010, and to take effect 5 years following enactment. Amtrak and the various states, through a state working group, came to an agreement on the allocation of costs with the lone descent from the State of Indiana. Since unanimous consent was required, the methodology was placed before the STB for final decision. On March 13, 2012, the STB ruled that the allocation methodology formulated by Amtrak and the state working group was reasonable.

Sample calculations made based upon cost share methodologies being discussed indicate that the subsidy provided by Oklahoma for *Heartland Flyer* operation will increase by approximately 14.5 percent. Amtrak has not yet provided the State of Oklahoma with a final determination of the charges.

Under Section 305 of the Act, Amtrak is directed to establish a committee to define requirements for the next generation of train equipment, the Next Generation Corridor Equipment Pool Committee. The committee is charged with the design of the next generation equipment; the development of technical specifications; preparation of procurement and contracting plans; preparation of funding and financing plans; and development of contract and service specifications.

The committee was formed on January 13, 2010. Membership is made up of representatives of Amtrak, FRA, host railroads, equipment manufacturers, interested states, and other passenger train operators.

Initial specifications issued have been for (1) double-deck passenger cars, (2) single-level passenger cars, (3) diesel-electric locomotives, and (4) trainsets. The issued specifications

are for equipment capable of up to 125 mph operations. A specification for Diesel Multiple Units is currently under development.

Future procurement of passenger train equipment using federal funds will be required to comply with the 305 specifications and process.

In general, the specifications leave adequate flexibility for adaptation to a particular use. For Oklahoma, where serious consideration will be given to passenger trains powered by compressed natural gas (CNG), the locomotive specification explicitly provides for associated technologies indicating CNG would be potentially acceptable as a substitute for diesel fuel.

Tulsa-Oklahoma City passenger rail corridor investment study

In 2012, ODOT will initiate a corridor investment study for a passenger line from Tulsa to Oklahoma City. Under FRA guidelines, corridor investment studies incorporate preparation of a service development plan (SDP) and an environmental impact statement (EIS). Both of these documents are required for further funding of any system construction and federal financing.

An SDP analyzes the transportation needs and the purposes to be served by the service. The plan also presents the results from testing various alternatives for performance, ability to attract riders, and generate revenue. Financing of the system as well as the benefits accrued to both users and non-users are also examined. The benefit analysis will also include an examination of safety improvements associated with developments of a Tulsa-Oklahoma city service. Requirements for an SDP are defined by FRA.

The EIS will examine the impact of system development on the natural, built, and cultural environments. The EIS is also required to examine the resulting effects if the system is not built. Requirements for an EIS are defined under NEPA.

The 2011 Oklahoma Legislature enacted HB 1686, later signed into law by Governor Fallin. This legislation formed the Eastern Flyer Passenger Rail Development Taskforce comprised of 17 members. The taskforce is charged with examining the development of conventional and high-speed passenger rail transportation between Tulsa and Oklahoma via the use of public-private partnership (P3) formulas. The taskforce is to present its final report to the Governor and state legislative bodies by December 31, 2012. Currently, the use of P3s is not legally authorized in Oklahoma. If a P3 is to finance a Tulsa-Oklahoma City system, further legislative action would be required.

ODOT has conducted previous work on the Tulsa-Oklahoma City Corridor, including an incomplete Environmental Assessment in 2009. Almost all of this previous work will materially contribute to the current effort.

13. Safety and Security

Oklahoma's rail system is protected and monitored by both state and national entities. The events of September 11, 2001, led to a wave of security measures aimed at protecting America's transportation systems, including both freight and passenger rail, and a recent rail tragedy led to the 2008 *Rail Safety Improvement Act,* which greatly enhanced all of the regulations and requirements aimed at ensuring the country's trains run on safe infrastructure.

Security

Federal security

As with all states, Oklahoma is covered by the federal Department of Homeland Security, which is administered locally by the Oklahoma Department of Homeland Security, which was established by state legislation in 2004 (HB 2280). While this department oversees coordination and communication, its on-the-ground enforcement is conducted through the Transportation Security Administration (TSA) which operates locally through a central office in Oklahoma City. TSA is charged with the safety of our country's freight rail system, including the administration of the Freight Rail Security Grant Program. This grant program offers funding to railroads for both en-route monitoring projects as well as bridge hardening projects for high volume rail bridges.

Within the TSA, the Transportation Sector Network Management's Freight Rail Security Division leads the unified national effort to protect and secure the nation's freight rail system. Efforts are divided into developing practices, protocols, and conducting enforcement to protect freight system infrastructure, monitor access to the infrastructure, and guard potentially hazardous material en route from trip origination to trip termination (www.tsa.gov/what_we_do/tsnm/freight_rail/index.shtm).

State security

Oklahoma Emergency Management and all local 911 dispatch centers coordinate regularly with police and fire departments to ensure incoming calls affecting railroads are handled appropriately. Many local police and fire departments conduct annual exercises, both tabletop and field-based, to identify best practices for handling of railroad accidents or threats. BNSF and UP, Oklahoma's largest railroads, conducted field exercises in 2011 that focused on handling of hazardous materials accidents.

Other security

All Class I railroads (BNSF, UP, KCS) maintain police units within Oklahoma, and these units include K9 deployments. These units not only offer protection, they also devote their time to extensive public outreach, education, training, and accident investigation. They interface with local law enforcement and respond to rail-involved accidents. All these organizations maintain Special Response Units trained to deal with hazardous spills and catastrophic incidents. Through tabletop exercises and live field events, the Class I railroads interact with in-state law enforcement to ensure coordination and communication remain open.

Oklahoma's Class III railroads fall under the jurisdiction of the FRA and, as such, they are held to the same national standards as the Class I railroads. While these railroads do not maintain static police elements, they all participate in annual training and work hand-in-hand with the FRA and the local police to remain vigilant to trespassing, enforce infrastructure and employee standards and reporting, and participate in annual inspection programs aimed at both rail crossings and rail infrastructure. As summed up by one of Oklahoma's short lines, *Farmrail's* motto is "Working safely may get old, but so do those who practice it."

Safety

Federal safety

FRA is charged with the overall safety of our nation's rail network, and it conducts on-the-ground inspection and enforcement activities throughout the U.S., including Oklahoma (FRA Division 6). With the *Rail Safety Improvement Act of 2008,* FRA was charged with a redoubling of its mission of promoting safety on America's rail infrastructure.

The act was a comprehensive effort to address all the areas that affect rail safety by introducing requirements affecting rail workers, rail infrastructure, rail crossings, rail research, and technology. While it was mostly noted for its requirement concerning the implementation of PTC, the act has proven to be very far-reaching, and ODOT Rail Programs Division has noted a tremendous increase in field inspections being conducted by FRA across Oklahoma. Additionally, our state's Class III railroads have noted it has led directly to increased employee safety requirements.

State safety

Oklahoma contains some 3,852 public at-grade railroad crossings, making up one of the state's most important matters concerning rail safety. By state statute, the Oklahoma Corporation Commission (OCC) is charged with overseeing this network. OCC's Railroad Department monitors the operations of 21 Oklahoma railroads for compliance with state railroad crossing safety regulations. It also investigates and makes recommendations concerning railroad crossing openings, closings, and crossing signal upgrades.

In addition to this main function, OCC's Rail Division also handles crossing violations (such as blockages) and the state's rail fencing ordinance, which requires railroads to maintain fencing under certain conditions to ensure the safety of adjoining land owners.

It also oversaw development of the *Oklahoma Railroad Grade Crossing Task Force Final Report* in 1998, which led to codified recommendations for improving Oklahoma's highway-rail crossing safety as well as guidelines for opening or closing crossings. ODOT's Rail Programs Division has addressed many of the recommendations made through the Final Report.

In conjunction with oversight by the OCC, ODOT Rail Programs Division administers a comprehensive Rail Crossing Safety Program. It conducts annual ranking and field inspections to ascertain which railroad crossings are most in need of upgrading, and it then works with all of Oklahoma's railroads to enact an annual Crossing Upgrade Project List. As part of this program, ODOT built and maintains a comprehensive crossing database which is updated monthly to ensure that all the characteristics of Oklahoma's railroad crossings are available at all times.

The State of Oklahoma owns 428 miles of railroad line, the vast majority of which is currently in operation through various agreements with second-party operators. However, the State of Oklahoma conducts an annual inspection of its rail property through the Rail Programs Division within ODOT. The State-Owned Property Section of the Rail Programs Division also administers an annual maintenance program to ensure continuous safe operation of its rail inventory. This same section coordinates the *8-Year State-Owned Rail Construction and Maintenance Work Plan*, which funds basic maintenance and repairs on the state-owned rail system to ensure the track is kept in operating condition.

Earthquake safety

Railroads in Oklahoma follow established Earthquake Safety Procedures to ensure immediate assessment and response to any earthquake reported by the U.S. Geological Survey in Golden, Colorado. Depending on the nature of the earthquake, trains may be ordered into immediate shutdown until assessment determines the extent of the damage caused. Quakes rated 5.5 or higher cause immediate shutdown of train operations, while quakes 5.4 or lower cause slow orders to be issued. Following any reported earthquake, qualified safety inspectors are required to travel the rail infrastructure to identify any possible safety concerns with the track or bridge structures.

ODOT Rail Safety Program

The Rail Programs Division Safety Section works with all railroads active in Oklahoma and the OCC, as well as the counties and communities in which the railroads are found, to actively pursue actions that lead to direct improvements for Oklahoma's citizens as well as employees of the railroads themselves.

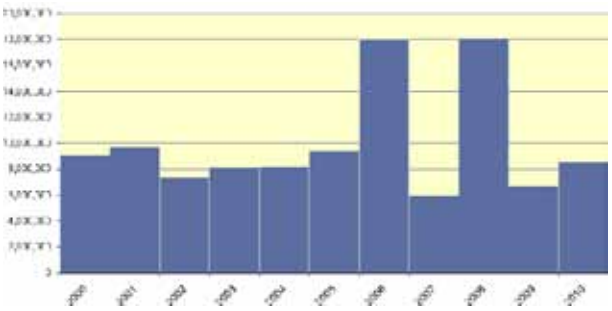
The ODOT Rail Safety Program is comprised of three primary focuses—single high-priority rail crossing locations, statewide minimum rail safety standards projects, and rail corridor safety improvements. These programs aim to either improve on-the-ground safety conditions or close and eliminate highly active railroad crossings that rise to the top of the annual ranking and inspection reports. Through a combination of annual OK.RAIL crossing database reporting results and the field-based diagnostic team inspections, the ODOT Rail Programs Safety Section can identify the crossings most in need of attention.

Funding

As previously stated, an average of 25 projects per year are instigated for rail crossing safety improvements. The single most important factor in determining how many projects can be carried forward is the size of the annual budget for such projects. The funding for all of the rail safety improvement projects comes from a combination of Section 130 (railroad safety improvement funds) funding set aside through the highway funding bill current at the time of the project implementation, Hazard Elimination Safety (HES) funding sources provided through the same segment of highway safety funding, and 10 percent project match requirements that fall on either the railroads or the political entities geographically bound to the crossing.

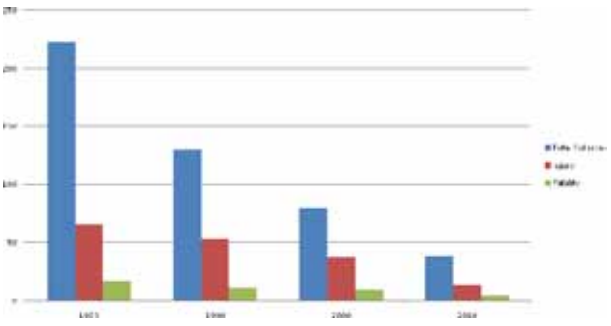
Oklahoma receives an average of $3.2 million per year in Section 130 railroad safety funding that is solely applied to the upgrade or consolidation of at-grade railroad crossing locations each federal fiscal year. In some years, additional funding is made available through HES funding sources provided through the same segment of highway safety funding. It should be noted, however, that HES funds are only utilized on railroad safety improvements when no other roadway HES improvement projects require its full funding during that fiscal year. HES averages $5 million per year for rail crossing safety projects. The only other source for railroad crossing safety improvement funding comes from the community or railroad through the 10-percent funding match participation required for the various project types described below. Occasionally, to comply with new safety standards, additional funding is arranged to ensure Oklahoma remains a leader in railroad safety compliance (Figure 13-1).

Figure 13-1
Rail safety section funding



As shown in Figure 13-2, all of Oklahoma's safety activities have significantly improved Oklahoma's overall rail safety record in regards to public-involved crashes.

Figure 13-2
Public-involved crashes



Diagnostic team inspection

The Rail Programs Division Safety Section will utilize the results of the annual rail crossing ranking analysis to identify the crossings most in need of safety improvements. The Safety Section will then make arrangements with both the railroads operating the crossings, as well as the political entities within whose boundaries the crossings are located, to set up diagnostic team inspections (on-the-ground field inspections) aimed to further identify the crossings most in need of

improvement. Annually, the Safety Section will conduct an average of 50 diagnostic team inspections. Of those 50, approximately 25 will result in projects.

Single priority location safety improvements

The single location safety improvements are selected utilizing the methods previously described in conjunction with Section 130 requirements and the FRA Accident Prediction Equation. This combination provides the incredibly detailed information necessary to prioritize locations with the highest potential for hazard, and it gives Oklahoma one of the nation's most sophisticated models for conducting rail crossing hazard analysis calculations. These projects are paid with 90 percent funding from ODOT and 10 percent funding from the local community or political entity tied geographically to the crossing. The railroad will occasionally offer to pay the 10 percent match for the community.

Statewide minimum requirements program

This program is focused on providing the minimum safety requirements at at-grade crossing locations as established nationally and accounted for in the Manual on Uniform Traffic Control Devices. The types of improvements included in this program are crossbuck signs, advanced warning signs, AARDOT inventory number postings, supplemental advanced warning signs where applicable and advanced warning pavement markings at locations where the surface will facilitate the life cycle of the pavement marking proposed for placement. ODOT has previously completed several crossbuck upgrade projects on rail lines throughout the State and completed an Advanced Warning Sign and Pavement Marking program in the late 1980s for each local jurisdiction throughout the State who would sign a corresponding maintenance agreement.

The most recent compliance program under Statewide Minimum Requirements involves the installation of YIELD or STOP signs at all passive railroad crossings where crossbucks are present. FHWA established a 10-year compliance period (until December 31, 2019) in the 2009 MUTCD for the installation of Crossbuck Assemblies at passive grade crossings. ODOT is currently working on the installations for this compliance. They have established a 50/50 funding split with the railroads.

Corridor safety improvements

When a community holds a section of track with multiple crossing locations, it becomes eligible to participate in a "Corridor Rail Crossing Improvement Project." This project aims to eliminate hazardous and redundant railroad crossings by targeting closures as well as improvements. If a community holds 4 rail crossings, and it is willing to allow for at least 1 of these crossings to be permanently closed, it will not be responsible for any project costs. This can also be done on a 6+2 equation, where 6 crossings are improved and 2 crossings are closed. ODOT pays 90 percent, while the railroad pays the remaining 10 percent. These projects result in the greatest potential rail safety improvements.

Corridor history

- Corridor projects: 42
- Closures: 52
- Pending Corridor projects: 1 with 1 closure

2000–2011: A decade of success

Over the past decade, approximately 175 safety projects utilizing approximately $52,500,000 has been completed. These projects are comprised of surface improvements, signal improvements, signage/ marking improvements, and closures. As discussed previously, the projects may take place as single-location projects or as corridor projects.

For the current year, FY2011, ODOT Rail Programs Division Safety Section has 25 commissioned projects and 8 projects pending. Within the 8 pending, 1 is a major corridor project, 3 are signal upgrades, and one is a closure (Duncan). For the next fiscal year, FY2012, we currently have 25 additional scheduled diagnostic team inspections to complete.

Other Safety and Security

Heartland Flyer passenger rail corridor

With the recent award of an FY 2011 High-Speed Rail-Highway Crossing Hazard Elimination Grant, ODOT has nearly completed a 100-percent active crossing protection program for the corridor from Oklahoma City to the Oklahoma-Texas state line along the route traveled by the *Heartland Flyer.* This line is also a segment of the nationally designated South Central High-Speed Rail Corridor. Currently, only three unprotected crossings remain.

Positive train control

Recent federal legislation (PRIIA 2008) mandates all railroads implement PTC on rail operations deemed as critical safety corridors. All lines with passenger rail operations are so designated. Regarding PTC, Oklahoma's only passenger rail service (the *Heartland Flyer)* runs on a BNSF corridor that has already been outfitted with a PTC system. BNSF has already conducted extensive testing of the system, and the *Heartland Flyer* route is at the forefront of this new federal requirement.

Additional public and private entities

As with the Class I railroads, Amtrak maintains its own police units that the State of Oklahoma participates in supporting annually by way of the *Heartland Flyer* Annual Operating Agreement. Amtrak, in conjunction with TSA, has developed a nationwide network of agents and officials charged with ensuring that Amtrak's passenger rail operation offers safe travel to its customers. It focuses on the luggage and people who travel with them as well as the railroad equipment. Amtrak maintains all FRA standards as well as enforces its own policies and programs geared to ensure safe passage on its routes.

Operation lifesaver

Oklahoma Operation Lifesaver is a nonprofit, public safety education program committed to preventing and reducing collisions, death, and injuries at highway-rail grade crossings and on railroad rights-of-way. It has a wide variety of partners, including federal, state, and local government agencies, highway safety and transportation organizations, and the nation's railroads. Oklahoma Operation Lifesaver was established in 1979 and is a member of the national organization, Operation Lifesaver, Inc., which is headquartered in Alexandria, Virginia. Its education efforts include increasing the public's awareness of the dangers at highway-rail grade crossings and railroad rights-of-way through free Operation Lifesaver safety presentations made by trained, certified volunteers. The program strives to improve driver and pedestrian behavior at highway-rail grade crossings by encouraging compliance with traffic laws relating to crossing signs and signals. In conjunction with its education program, Oklahoma Operation Lifesaver emphasizes the enforcement of existing traffic and trespassing laws, consolidation and closure of redundant highway-rail grade crossings, and engineering improvements, including the installation and upgrade of crossing warning devices and signs.

Additional needs

One area that has been of concern to ODOT is the timely reporting of accidents to ODOT's Rail Programs Division. While the Division maintains detailed accident records, including accident reports and investigations, it has shared a concern with railroad operators of the need to receive immediate notification when incidents or accidents occur that involve injury, death, or catastrophe so that it may fulfill its role as a public information source through ODOT. The State of New York, for instance, by law requires all railroads to notify the state immediately upon clear indication of a rail-involved accident or incident.

In addition to accident notification, ODOT would benefit from the railroads including it in table-top and field-based training exercises carried out across the state with local jurisdictions. ODOT could coordinate with its field divisions to grow and expand its rail safety education through participation and observation of rail safety training events routinely conducted by operators such as BNSF, UP, and KCS.

14. ODOT Statewide Freight and Passenger Rail Plan Vision, Goals, and Objectives

ODOT's passenger and freight rail network is an integral component of a broader multi-modal network and an even larger continental and global transportation system. Development of an implementable long-term rail transportation plan involved public and private sector stakeholders representing a variety of interests. They included rail operators, shippers, interest groups, residents, and government planning partners. To ensure that the statewide rail plan is part of the broader transportation planning effort in the state, its development was informed by other existing plans as well as current planning efforts in the state. At the same time, the plan is guided by the federal mandate provided by PRIIA, which stipulates the requirements of state rail plans.

The vision, goals, and objectives of Oklahoma's rail system have been developed in view of its role in domestic and internal commerce and in recognition of the important role rail transportation plays in improving the state's economy and environment. With the vision statement as the guiding principle, five goals of the state's rail transportation system have been identified and used to shape the state rail plan, serving as broad statements of purpose for the rail transportation system. Each goal was translated into specific objectives, which serve as targeted, measurable, intended outcomes for rail transportation in the State.

Oklahoma Rail Vision

Through coordinated efforts aimed at developing a dynamic and responsive statewide rail system that provides for the safe, effective and environmentally sound movement of both people and goods, Oklahoma seeks to expand its economy and meet the needs of its future growth while also aligning its rail system with regional and national goals when appropriate.

Like many states, Oklahoma faces the challenge of funding an ever-growing need for infrastructure maintenance as well as improvement. Both will result in measurable regional economic and environmental benefits. The challenge, however, is to allocate scarce financial resources to their highest and best use. Taken together, the vision, goals, and objectives reflect the desires of rail stakeholders and constituents to preserve and enhance the system, while recognizing the challenges and opportunities that exist in a rapidly changing economy.

Vision

Goals and Objectives

1. **Further develop and expand rail-based economic activity across Oklahoma and the region.**

   Objectives
   - A rail network that enhances Oklahoma's economic competitiveness by maximizing efficiency and geographic reach of the freight rail system.
   - A clear understanding of the rail industry's role in promoting Oklahoma's economic viability and supporting emerging industries that rely on rail transportation.
   - Expanded rail capacity to promote and meet projected growth in freight and passenger demand.
   - A rail capital development program aimed at increasing capacity and connecting businesses to the rail network.

2. **Maintain and develop a dynamic rail system that provides safe, efficient, and reliable movement of people.**

   Objectives
   - A safe and secure rail system that employs advances in rail technology to protect both people and assets.
   - Rail as part of a multimodal transportation vision and comprehensive funding strategy throughout Oklahoma.
   - Creation of a cohesive door-to-door passenger network that grows with Oklahoma.
   - Re-establishment of passenger rail service where supported by demand.
   - Expanded metropolitan area transportation options available for residents and visitors.
   - Continued use of federal policy-compliant project development procedures to advance viable passenger rail concepts.
   - Integration of Oklahoma's major population centers into the national passenger rail system.

3. **Maintain and develop a dynamic rail system that provides safe, efficient, and environmentally sound movement of goods.**

   Objectives
   - A safe and secure rail system that employs advances in rail technology to protect both people and assets.
   - Compliance with all Federal Railroad Administration policies, procedures, and regulations.
   - Maintenance of the existing infrastructure to ensure reliable freight service.

- Cost-effective programs to preserve the existing freight rail network and to meet expected future rail network capacity needs, including addressing potential choke-points in the system.
- Upgrading of rail infrastructure as required to permit universal accommodation of higher capacity rail rolling stock and higher operating densities.
- Increased share of Oklahoma freight traffic through improved highway-rail and water-rail intermodal connections as well as improved rail connectivity to Oklahoma's industries.
- The capability to support changes in the supply chain, such as the containerization of agriculture crops and the expanded use of rail to transport petroleum products.

4. **Identify, develop, and secure funding that promotes and enhances rail system investment.**

Objectives

- Stable and sufficient funding secured for a program of rail investments to support operating, constructing, and maintaining Oklahoma's rail network.
- Statutory authority to enable the use of innovative funding sources, such as public-private partnerships.
- Additional funding for high-priority grade crossing improvements that protect the public and enhance rail service.

5. **Promote the understanding of both rail service as a cost-effective, safe, secure, environmentally sound, and energy efficient means of improving freight and passenger mobility, as well as its importance to Oklahoma's economy.**

Objectives

- Effective safety and security partnerships with passenger and freight railroads.
- An open door to Oklahoma Department of Transportation's planning process and transparency in communicating with and educating the public.
- An appreciation of short and longer-term rail-related benefits by elected officials, the business community, and the public.
- An expedited decision-making process to advance beneficial rail projects.
- An understanding by elected officials, the business community, and the public of where and when passenger rail service is a viable transport alternative.
- An awareness of agriculture-related rail issues in Oklahoma by elected officials, the business community, and the public.
- Continuing education on the benefits of rail transportation and the opportunities to integrate rail and other modes of transportation.

15. Current Rail Development Activities

The State of Oklahoma, through ODOT and agency partners, is supporting several rail development and improvement projects. The projects encompass freight and passenger services both locally and regionally.

Oklahoma Statewide Freight and Passenger Rail Plan

The development of this state rail plan is an initiative funded through a FY 2010 FRA HSIPR state rail planning grant. Because of the federal mandate to develop state rail plans, HSIPR program funds have been made available to the states.

I-244 Multimodal Bridge in Tulsa

The ODOT received a TIGER grant to fund this state-of-the-art transportation facility, which is a double-deck structure carrying auto and truck traffic on the top deck with intercity passenger rail and commuter rail on the lower deck. It also has a pedestrian and bike facility connecting downtown Tulsa to its West Bank.

Service Development Plan for Expanded Passenger Rail Service: Fort Worth–Oklahoma City–Kansas City

ODOT is participating in the preparation of a passenger rail service development plan evaluating the investment required to expand passenger rail service in the region. Two alternatives are under consideration—extension of existing *Heartland Flyer* service from Oklahoma City to Newton, Kansas, to connect with Amtrak's Los Angeles–Chicago *Southwest Chief* and the introduction of a new train operating between Fort Worth and Kansas City. The latter would provide additional train service between Fort Worth and Oklahoma City. The project is jointly funded by KDOT, ODOT, and FRA.

Tulsa–Oklahoma City High-Speed Rail Corridor Investment Plan

With funding received from an FY 2010 FRA HSIPR planning grant, ODOT will be developing a federally mandated High-Speed Rail Corridor Investment Plan for a new service between Tulsa and Oklahoma City. The investment plan will comprise an updated service development plan and documentation required to comply with NEPA requirements. At the conclusion of the plan development, the project can enter the design phase.

South Central HSIPR Corridor Study: Oklahoma City to South Texas

An FY 2010 FRA HSIPR planning grant was awarded to TxDOT to develop a plan for high-speed passenger rail service from the Mexican border to Oklahoma City with the direction to examine initially the Fort Worth–Oklahoma City segment. TxDOT recently issued a request for consulting services.

Oklahoma City Amtrak Station Access Improvement

ODOT is improving access to the Santa Fe Railroad station in downtown Oklahoma City. The project funded through a FY 2010 FRA HSIPR construction grant will include the installation of a power switch and new rail line to provide the *Heartland Flyer* in-and-out access to the station.

Great Plains Freight Rail Project

KDOT, on behalf of SKOL, received TIGER funding for the construction of a new yard and rail line improvements, which will permit the operation of heavier freight cars at higher speeds. Half of the project is located in Oklahoma.

Oklahoma Rolling Pipeline Freight Rail Upgrade Project

ODOT received TIGER III funding for upgrade of the rail line between Clinton and Sayre to meet the growing needs of western Oklahoma and, particularly, the energy sector. The improvements will expand the capacity of the line and permit higher operating speeds for trains serving the Anadarko Basin oil fields.

16. Strategic Initiatives

The outreach meetings and individual stakeholder interviews identified strategic initiatives that should be considered by ODOT as it moves forward with its rail programs. These initiatives fell into several categories:

- Communication and education
- Economic development
- Funding
- Infrastructure/system improvements
- Legislative
- Passenger rail service
- Safety
- Studies

The following initiatives, drawn from those recommended by stakeholders, are designed to move ODOT from a position of preserving rail service to one of rail industry growth in the state. As with many states, Oklahoma is facing several strategic challenges:

- The need to support and promote rational growth of the short line industry and passenger rail service in the state
- The need to find new sources of funds to replace lease revenues lost as rail lines owned by the state revert to the rail operators as part of the lease-purchase program
- The need to exploit the economic and public benefits of rail transportation
- The need to inform the public of the benefits of rail transportation

Communication and Education

Continue developing effective relationships between ODOT and the freight railroads

In order to maximize the efficiency of the state's rail network and the public and private investments made in that network, ODOT will continue to have regular and effective dialogue and communication with the railroads through the Oklahoma Railroad Association and other venues. The railroads have requested development of a mutual forum to keep them current on proposed future highway projects with rail infrastructure impacts. This cooperative effort would enhance planning efforts, and it would lead to more efficient project coordination.

Use the *State Rail Plan* as a platform for the continuation of a rail information program

As ODOT continues to be active in rail planning and other related programs, the need to educate the public on the benefits of rail transportation will increase. General public education information campaigns should build off the plan.

Better inform the public on rail policies and requirements

The public would benefit from a better understanding of ODOT activities and programs, such as the rail line acquisition program and its ongoing passenger rail service development.

Incorporate passenger rail stations into the Oklahoma official state travel map

Add notations for passenger rail station locations to the state's travel map that is distributed to motorists and other travelers.

Initiate a state rail workshop

Convene a workshop on a recurring basis with relevant state agencies, such as the Departments of Transportation, Agriculture, and Commerce along with representatives of the MPOs, the rail industry, and major shippers to discuss current rail issues affecting Oklahoma.

Establish regular rail forums between shippers and railroads

Improving relationships and communication between railroads and shippers would enhance the economy of the state. Such events would allow participants to better understand opportunities and issues related to existing and emerging markets as well as rail service issues and infrastructure needs faced by both the railroads and the shippers.

Continue partnering with adjacent states regarding rail passenger service

Continue to meet on a regular basis with Kansas, Texas, and Missouri DOTs, a practice started with the preparation of the Fort Worth–Oklahoma City–Kansas City passenger rail service development plan, to create a regional base of support to enhance existing rail passenger services and create a regional passenger rail vision for the future which includes regional extensions of existing rail passenger services.

Economic Development

Integrate rail into Oklahoma's economic development process

ODOT should coordinate with the Governor's Task Force on Economic Development and Job Creation in regard to implementing the rail-related recommendations in that Task Force's report entitled *Bold Ideas for Oklahoma*.

Leverage the railroads connections with Mexico to stimulate business with Mexico

NAFTA and subsequent related Congressional legislation, has opened up numerous new business opportunities with Mexico. Oklahoma should explore the potential for creating new business alliances with Mexico that would benefit both Oklahoma shippers and producers but also its short Line and Class l railroads.

Promote rail-served industries, industrial parks, and transload facilities at strategic locations

The need to establish more rail-served industrial parks was a theme at the workshop/open house meetings around the state. They would not only generate new rail business for the short line and Class l railroads but would also generate additional economic development for Oklahoma's economy.

- ODOT and the Department of Commerce should conduct a workshop on freight rail transportation and invite short line and Class l railroads, regional economic development agencies, Oklahoma Chamber of Commerce.
- Should funding be available, the ODOT railroad assistance program should be expanded to include transload and transfer facilities.

Integrate land use and transportation planning

ODOT should provide leadership in the integration of freight and passenger transportation and land use planning at local, regional, and state levels with both governments and businesses.

Establish a trackside land preservation education program

ODOT and the Department of Commerce would work with local economic development agencies to preserve trackside for rail-dependent industrial use.

Establish industrial rail access program

There is a need for funding for rail spurs and industrial rail leads connecting Oklahoma's industrial properties to the Oklahoma rail network. The state should explore the creation of an industrial rail access program and sources of funding for the program.

Monitor and promote opportunities for development of an intermodal terminal in Oklahoma

Although conditions today are not favorable to the development of an intermodal container terminal in the state, the future may be different. The recent interest by the railroads in short haul domestic containerization may provide a future opportunity for a new terminal strategically located in Oklahoma.

Partner with the Waterways Advisory Board to implement recommendations of Oklahoma's Intermodal Capacity Study and to encourage increased transportation of commodities by both rail and water

Develop strategies with the ODOT Waterways Advisory Board and the ports at Catoosa and Muskogee to increase transportation of commodities and goods by rail and waterway, to increase access to both waterways and railways, and to take advantage of the efficiencies of these two modes of transportation and relieve Oklahoma's highways of unnecessary heavy truck traffic.

Funding

Explore and analyze innovative funding and financing alternatives, including public-private partnerships

The transfer of state-owned rail properties to rail operators as part of the state's sale-leaseback program will reduce revenues for rail improvements. ODOT will need to assess current approaches to infrastructure funding to compensate for reduced availability of resources.

Continue to pursue regional approaches to secure federal rail-related funding

ODOT should explore multi-state regional initiatives for obtaining federal funding for both freight and passenger rail-related projects.

Explore development of innovative local funding mechanisms, such as the port authority concept

Oklahoma should explore what is required for the creation of local authorities, such as Kansas Port Authorities, that can issue bonds for rail development.

Educate stakeholders on existing rail funding programs and processes

Educate rail stakeholders on the processes for applying for rail-related grants/loans, including TIGER, Community Development Block Grants, and Section 108 loans.

Infrastructure and System Improvements

Support increasing freight rail speeds where supported by business

Increasing permitted speeds on short lines serves to both increase capacity and reduce operating costs. This should be done where warranted to support traffic growth.

Continue to support the development of emerging industries to strengthen Oklahoma's economy

Provide the capacity in the state's rail network to allow for the use of the rail network in the development of emerging industries, such as the Bakken Shale and wind energy.

Support the upgrading short line rail lines to accommodate 286,000-pound rail cars

As with most states, the short line railroad industry in Oklahoma faces the issue of keeping its infrastructure on par with its larger counterparts, the Class I railroads. Currently, the Class I railroads maintain a minimum standardized railcar weighing 286,000 pounds loaded (286 cars). Railroads with bridges, structures, or rail that are not rated for these heavier loads are limited to shipping 263,000-pound rail cars or loading 286,000-pound cars 23,000 pounds short of their full capacity. This can place limits on their ability to interchange with Class I railroads and to maximize their business potential. It is important that Oklahoma's short line industry be able to maintain its infrastructure at the heavier 286,000 classification.

Although the short lines provided ODOT with basic 286,000 infrastructure data during the development of the Rail Plan, additional analysis is needed in Oklahoma to fully determine the costs and magnitude of the issue the short lines face in bringing all of their lines up to the 286,000-pound standard.

Create a rail corridor preservation program

Continue to preserve abandoned rail lines, even in those instances where the tracks have been removed or salvaged for future rail use.

Legislative

Continue to promote legislative action to enable public-private partnerships opportunities

Current state law in Oklahoma does not permit public funding in private corporations or businesses. Legislative changes need to continue to be pursued and implemented to provide other funding alternatives.

Passenger Rail Service

Continue supporting Oklahoma City as a multimodal hub

Facilitate institutional arrangements that would enable Oklahoma City to become a multimodal passenger rail hub—*Heartland Flyer*, additional proposed intercity rail services, new proposed commuter rail services, proposed high-speed rail, intercity bus service, and local transit services serving the Oklahoma City metropolitan area.

Develop strategies with the Oklahoma City area MPO to enhance the connectivity of passenger rail options

Strategies should address the development of selected commuter rail lines which would include linking the downtown area to the Will Rogers World Airport.

Evaluate potential enhancements to existing passenger rail services on an ongoing basis

Evaluate the potential for rail passenger operators other than Amtrak for the *Heartland Flyer* and other new proposed rail passenger services. Also, evaluate potential state ownership of rail passenger equipment.

Safety

Partner with the railroads to enhance safety

Specific elements of this effort could include developing plans to contact ODOT in the event of an emergency and conducting Emergency Management System field training.

Studies

Periodically, perform an analysis of Oklahoma's rail network to identify future connectivity gaps based on changing freight patterns

Periodically re-evaluate the rail freight network in Oklahoma to identify potential gaps in freight service due to issues such as abandonments or lines taken out of service. The analysis should take into consideration emerging freight economic sectors and distribution patterns.

Conduct grain supply chain study to determine future multimodal needs

Conduct a study, in cooperation with the Oklahoma Department of Agriculture, to evaluate the future supply chain requirements of the agriculture industry. The study should consider changes in grain distribution, future railroad service practices, freight car supply, storage capacity, and modal connectivity.

Prepare and disseminate a GIS-based statewide rail database

Create a publicly accessible GIS- and web-based railroad inventory which includes items such as right-of-way ownership, weight of rail, 286,000-pound load capability, etc.

Develop an unused rail siding inventory

In conjunction with the Department of Commerce, develop an inventory of all unused rail sidings and industrial leads in the state. This information would be valuable to economic development in identifying sites and locations for potential rail-served businesses in the state.

17. Rail and Rail-related Infrastructure Improvement Projects

A number of rail infrastructure improvement projects for the State of Oklahoma have been identified through submittals from Class I railroads and short line railroads, as well as by identifying potential passenger rail operations projects, including both intercity passenger rail and commuter rail. At present, ODOT has inadequate resources to fund all of the major capital improvement projects compiled other than projects that have been designated for inclusion in the state's 8-Year Rail Program, or included as part of the 8-Year Highway Construction Program. The latter includes road projects that have a railroad element. The ODOT programs and railroad wish lists are outlined below.

The State-owned Rail Construction and Maintenance Work Plan

The *State-owned Rail Construction and Maintenance Work Plan* is funded through the RMRF established through the passage of the *Railroad Rehabilitation Act* in 1978. Funding comes from both the Oklahoma Freight Car Tax and from the lease-purchase agreements with rail operators in the state. Annual contributions to the fund are approximately $1.8 million per year, expected now to fall to $1.2 million per year with the UP acquisition of its lease lines.

Projects are, and will continue to be, identified from applications submitted through the *Railroad Rehabilitation Act* Loan Program as well as in the future from this State Rail Plan. Projects are prioritized based on safety considerations and infrastructure deficiencies. Consideration is given to the following in project selection:

- Track condition
- Rail structure condition
- Annual tonnage transported
- Anticipated percentage of truck traffic reduction
- Capacity
- Rail highway safety
- National freight transportation trends

ODOT has employed an objective investment program intended to maximize the benefit from its scarce resources. Last year's plan included 31 multiple year projects on six short line railroads. The current plan is pending approval by the Oklahoma Transportation Commission.

Table 17-1
ODOT construction work plan—projects with railroad improvements

County	Highway	Description	Programmed Construction Estimate
Canadian	I-40B	I-408 over the UP railroad on the south edge of El Reno	$6,500,000
Grant	U.S. 81	U.S. 81 over Pole Cat and unnamed creeks approximately 6.0 and 6.7 miles north of the U.S. 81 and SH 11 junction	$6,663,700
Kay	I-235	I-35 beginning at mile marker 220 and extending north to mile marker 224.43, including removal of abandoned railroad bridges	$20,000,000
Kay	U.S. 77	U.S. 77 add shoulder and resurface from Newkirk city limits north 3.2 miles south of the Kansas stateline	$5,907,834
Logan	SH 51	SH-51 over East Beaver Creek 0.3 miles west of the U.S. 77 and SH 51 junction (includes improvements to the junction and BNSF railroad overpass).	$12,000,000
Logan	SH 33	SH-33 over Cottonwood Creek Noble Street railroad in Guthrie (an additional rail project will be tied to this project)	$13,554,466
Oklahoma	I-235	I-235 NW 50th and BNSF bridges and approaches (Segment 4A)	$7,760,267
Oklahoma	I-235	I-235 mainline from NW 36th street interchange to north of NW 50th (Segment 7) (S-48) (H-88, 69) (an additional rail project will be tied to this project)	$15,450,000
Oklahoma	I-235	I-35 over the I-240 junction (Phase I) reconstruct interchange (an additional rail project will be tied to this project; BNSF rail bridges over I-240, north of Flynn Yard)	$14,233,431 (additional railroad bridge costs to be determined)
Oklahoma	I-40	I-40 Crosstown WP 14, pedestrian bridge (superstructure) in the vicinity of Harvey Avenue (100 percent state)	$3,056,725
Oklahoma	I-40	I-40 Crosstown WP 34, GR, DR, BR and surface from Agnew west 0.7 mile	$21,528,822
Oklahoma	I-40	I-40 Crosstown deconstruction of the existing Crosstown bridge	$9,949,993
Oklahoma	I-40	I-40 Crosstown WP 35, west connection of new Crosstown with the boulevard	$12,247.811
Oklahoma	I-40	I-40 Crosstown WP 1.5, BNSF bridge at boulevard	$6,688,495
Oklahoma	I-40	I-40 Crosstown WP, 4.4, GR, DR, BR and surface from the Oklahoma City Canal east 0.9 mile and shift I-40 traffic to new alignment	$30,000,000
Oklahoma	I-40	I-40 Crosstown WP 4.5, GR, DR, BR and surface the boulevard from BNSF east to I-40	$6,116,431
Oklahoma	I-40	I-40 Crosstown UP at the Harter Yard	$1,315,097
Oklahoma	I-40	I-40 Crosstown WP 1.5, railroad work for the BNSF bridge at the boulevard	$1,340,000
Oklahoma	I-40	I-40 Crosstown BNSF Riverside Connection tracks, from I-35 to the new permanent interchange track site (an additional rail project will be tied to this project)	$8,583,181
Payne	SH 51	SH-51 over Boomer Creek, just west of U.S. 177 in Stillwater City = right-of-way, UT, and preliminary engineering	$8,540,000

ODOT Construction Work Plan (Highway)

Oklahoma has a similar plan for highway construction projects. Some of those projects include a railroad component. They are shown in Table 17-1.

Stakeholder identified projects

Many projects were identified during the development of this State Rail Plan. They have been categorized by type of railroad—Class I, state-owned Class III, privately owned Class III, and commuter rail. The projects are summarized in the following tables.

Major Rail-related Issue Facing Oklahoma

Oklahoma has been involved in the business of preserving and maintaining rail service within the state for the past 30+ years. The efforts to acquire lines subject to abandonment via mergers or bankruptcies has been well documented earlier in this Plan as the state has worked to maintain the rail freight network. In the same sense, the state's involvement in retaining/maintaining rail passenger service after the creation of Amtrak in the early 1970s was detailed in Chapter 11.

The overriding theme of this state rail plan is to take advantage of the ability for both freight rail and passenger rail to serve as fuel for the economic engine of the state. The state is focusing on growth in all sectors of the state; and, the railroad sector should be a leader in this growth movement.

Instead of attempting to preserve and maintain the state's rail infrastructure, Oklahoma should focus on *upgrading* the infrastructure of its Class III short line railroads so that they can all serve the 286,000-pound rail cars that are the state of the art in the movement of commodities by rail today. Expansion and growth should also occur in emerging and growing energy sectors as well as in the areas of additional rail-served industrial parks and transload facilities.

Also, the state should go forward in the movement of people by seeking increased service and extension of service into new markets on its state-supported *Heartland Flyer* passenger rail service. Also, the potential for high-speed passenger rail service connecting Oklahoma's two largest cities should continue to be explored as well as new commuter rail services that would provide mobility options for commuters into the Oklahoma City Area.

Class III railroad 286,000-pound capacity issue

The short line railroad industry in Oklahoma, as well as many other states, has a significant portion of its rail system that is deficient in terms of being able to handle 286,000-pound rail cars. This is the equipment that is currently the standard for the Class I railroads. For those railroads that are not capable of these loads, either due to bridges or structures that are not rated for these heavier loads, or light weight rail (pounds per 3-foot sections of rail), they are limited to shipping 263,000-pound rail cars or loading 286,000-pound cars 23,000 pounds short of their full capacity. This puts shippers at a disadvantage by removing some of the efficiencies and advantages of rail freight shipments.

Table 17-2
Proposed Class I railroad improvements (continued on next page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
1	UP	UP	Jacks siding extension	Jacks	Kingfisher	$6,000	Added capacity benefits shippers and improves efficiency	2012–2016	Potential stimulus
2	UP	UP	Tank farm—new siding			$8,000	Added capacity benefits shippers and improves efficiency	2012–2016	Potential stimulus
3	UP	UP	El Reno—power switches and south leg of wye	El Reno	Canadian	$12,000	Private benefits include reduced switching costs	2012–2016	Potential stimulus
4	UP	UP	CTC—Enid/Duncan subs	Chickasha Duncan El Reno Enid Kingfisher Medford Waurika	Canadia Garfield Grady Grant Jefferson Kingfisher Stephens	$40,000	Added capacity benefits shippers with reduced shipping time; private benefits include reduced rail operating costs	2012–2016	Potential stimulus
5	UP	UP	Washita/Chickasha run through terminal		Caddo Grady	$40,000	Terminal improvements benefit shippers by reducing total time; private benefits include improved safety and reduced costs	2017–2031	Potential stimulus
6	UP	UP	CTC—Wagoner sub	Wagoner	Wagoner	$15,000	Added capacity benefits shippers with reduced shipping time; private benefits include reduced rail operating costs	2012–2016	Potential stimulus
7	UP	UP	Sunray—siding extension	Sunray	Stephens	$6,000	Added capacity benefits shippers and improves efficiency	2017–2031	Potential stimulus

Table 17-2
Proposed Class I railroad improvements (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
8	UP	UP	Waurika—siding extension	Waurika	Jefferson	$6,000	Added capacity benefits shippers and improves efficiency	2012–2016	Potential stimulus
9	UP	UP	Rush Springs—siding extension	Rush Springs	Grady	$6,000	Added capacity benefits shippers and improves efficiency	2017–2031	Potential stimulus
10	UP	UP	Enid terminal improvements	Enid	Garfield	$10,000	Terminal improvements benefit shippers by reducing total time; private benefits include improved safety and reduced costs	2012–2016	Potential stimulus
11	UP	UP	Ryan—siding extension	Ryan	Jefferson	$6,000	Added capacity benefits shippers and improves efficiency	2017–2031	Potential stimulus
12	ODOT	UP/BNSF	Grade separation of UP and BNSF	Claremore	Rogers	$59,000	Public benefits include reduced crossing delays and safety; private benefits include reduced train delays	Proposed TIGER Grant 2012–2016	Potential stimulus
13	City of Tulsa	BNSF	Downtown Tulsa sealed corridor (BNSF railway) extension	Tulsa	Tulsa	$400	Public benefits include improved safety and reduced crossing accidents	2012–2016	Potential stimulus
14	ODOT	BNSF	BNSF bridge at boulevard—I-40	Oklahoma City	Oklahoma	$6,700	Public benefits include improved downtown accessibility	Related to I-40 Crosstown Project	2012-2016

Table 17-2
Proposed Class I railroad improvements (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
15	ODOT	UP	Reconstruct Harter yard	Oklahoma City	Oklahoma	$1,300	Private benefits include improved capacity and operating efficiency	Related to I-40 Crosstown Project	2012-2016
16	ODOT	UP	Relocate up wye track	Oklahoma City	Oklahoma	$5,400	Private benefits include operating flexibility	Related to I-40 Crosstown Project	2012-2016
17	ODOT	BNSF	BNSF Riverside connecting track to new permanent interchange site	Oklahoma City	Oklahoma	Unknown	Private benefits include reduced time for railroad interchange moves; public benefits include reduced train movements on roadway crossings and elimination of rail back-up moves	Related to I-40 Crosstown Project	2012-2016
18	ODOT	BNSF	Bridge/SH 33/over cottonwood creek	Guthrie	Logan	$13,600	Public benefit—highway improvement		2017-2031
19	ODOT	BNSF	I-235/BNSF bridges and NW 50th	Oklahoma City	Oklahoma	Unknown	Public benefit—highway improvement		2017-2031
20	ODOT	BNSF	BNSF rail bridges over I-240 north of Flynn Yard	Oklahoma City	Oklahoma	Unknown	Public benefit—highway improvement		2017-2031

Table 17-2
Proposed Class I railroad improvements (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
21	Oklahoma City	BNSF	Multimodal HUB	Oklahoma City	Oklahoma	$26,000	Public benefit—improved public transport	Related to Commuter Rail and Intercity Passenger Rail	TIGER Funds requested 2012-2016
22	City of Perry	BNSF	Grade separation	Perry	Noble	Unknown	Public benefit—highway improvement		2017-2031
23	BNSF	BNSF	DT sections of Panhandle sub		Woods Ellis Woodward Alfalfa	Unknown	TBD	TBD	
24	BNSF	BNSF	Siding extensions along Avard sub		Woods Alfalfa Garfield Noble Pawnee Creek Tulsa	Unknown	TBD	TBD	
25	BNSF	BNSF	DT sections of Cherokee Sub		Tulsa Rogers Craig	Unknown	TBD	TBD	

Table 17-2
Proposed Class I railroad improvements (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
26	BNSF	BNSF	New sidings along Cherokee sub		Tulsa Rogers Craig	Unknown	TBD	TBD	
27	BNSF	BNSF	Siding extensions along Cherokee sub		Tulsa Rogers Craig	Unknown	TBD	TBD	
28	BNSF	BNSF	Siding extensions along Red Rock sub		Kay Noble Logan Oklahoma Cleveland McClain Garvin Murry Carter Love	Unknown	TBD	TBD	
29	BNSF	BNSF	Track improvements at Scullin		Johnston	Unknown	TBD	TBD	
30	BNSF	BNSF	East leg of wye Avard to Panhandle subs		Woods	Unknown	TBD	TBD	
31	BNSF	BNSF	East leg of wye, Port of Catoosa		Rogers	Unknown	TBD	TBD	

Table 17-3
Proposed Class III railroad improvements—state-owned lines (continued on next page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
1	AT&L	AT&L	Tie project	Unknown	Blaine Canadian	$268	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs		2012
2	AT&L	AT&L	Tie projects	Unknown	Blaine Canadian	$270 to $300	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs		Multi-year 2012–2016
3	BNGR	BNGR	Grain shuttle facility site	Braman or Blackwell	Kay	$750	Benefit shippers through reduced shipping rates	Need to identify site	2012–2016
4	BNGR	BNGR	Grain shuttle mainline improvement	Braman or Blackwell	Kay	$1,000	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs	Assumed improvement for project #5	2012–2016
5	BNGR	BNGR	Fertilizer distribution site	Braman or Blackwell	Kay	$250	New service reduces shippers trucking costs	Need to identify site	2012–2016

Table 17-3
Proposed Class III railroad improvements—state-owned lines (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
6	SLWC	SLWC	Spot ties for gauge and curves, 20 miles	Sapulpa Chandler Oklahoma City El Reno Chickasha Anadarko Lawton Hobart	Creek Lincoln Oklahoma Canadian Grady Caddo Comanche Kiowa	$671	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs	Assumed improvement not for Stillwater Branch	P2012
7	SLWC	SLWC	Resurface, ballast, 20 miles	Sapulpa Chandler Oklahoma City El Reno Chickasha Anadarko Lawton Hobart	Creek Lincoln Oklahoma Canadian Grady Caddo Comanche Kiowa	$207	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs	Assumed improvement not for Stillwater Branch	W2012
8	SLWC	SLWC	Ballast, 600 tons, 20 miles	Sapulpa Chandler Oklahoma City El Reno Chickasha Anadarko Lawton Hobart	Creek Lincoln Oklahoma Canadian Grady Caddo Comanche Kiowa	$218	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs	Assumed improvement not for Stillwater Branch	W2013

Table 17-3
Proposed Class III railroad improvements—state-owned lines (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
9	SLWC	SLWC	Cross ties, resurface, 100 miles	Sapulpa Chandler Oklahoma City El Reno Chickasha Anadarko Lawton Hobart	Creek Lincoln Oklahoma Canadian Grady Caddo Comanche Kiowa	$588	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs	Assumed Improvement not for Stillwater Branch	W2014
10	SLWC	SLWC	Cross ties, surface, ballast, 38 miles of track			$517	Preserves state investment, improves capacity for shippers to use bigger cars; improved operating speeds reduce shipping time and reduce crew costs		W2015
11	FMRC	FMRC	Sayre yard rehabilitation	Sayre	Beckham	$175	Yard improvements reduce derailments with public and private benefits		2012–2016
12	FMRC	FMRC	Weatherford yard track	Arapaho	Custer	$150	Increased yard capacity and efficiency		2012–2016

Table 17-3
Proposed Class III railroad improvements—state-owned lines (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
13	FMRC	FMRC	Sayre to Clinton upgrade tracks	Sayre Elk City Canute Foss Clinton	Beckham Washita Custer		Improves track capacity for larger freight cars and increased operating speeds—public and private benefits	TIGER Grant from FRA	2012–2016
14	BNGR	BNGR	Rail improvements, 36 miles Wellington, Kansas, to Blackwell (17 miles in Oklahoma)		Kay County	$25,000	Preserves state investment, improves freight service for shippers		2017–2031

AT&L = Austin, Todd & Ladd Railroad

BNGR = Blackwell Northern Gateway Railroad

FMRC = Farmrail Corporation

FRA = Federal Railroad Administration

SLWC = Stillwater Central Railroad

Table 17-4

Proposed Class III railroad improvements—privately owned lines (continued on next page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
1	KRR	KRR	Sub improvement	Ashdown/ Lakeside	Arkansas	$11,000	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2017–2031
2	KRR	KRR	Sub rail replacement	Antlers	Pushmataha	$2,000	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2012–2016
3	KRR	KRR	System 75# replace rail	Unknown		$1,000	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2012–2016
4	SKOL	SKOL	Replace cross ties, switch ties, surface new ballast			$1,200	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		W2012
5	SKOL	SKOL	Replace cross ties and surface			$400	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		W2014

Table 17-4

Proposed Class III railroad improvements—privately owned lines (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
6	SKOL	SKOL	7,000 ballast, cross ties, and surface			$1,300	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		W2015
7	TOE	TOE	Track maintenance and bridges	Idabel	McCurtain	$1,500	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2012–2016
8	TOE	TOE	Grade separation U.S. 70	Valliant	McCurtain		Improved public safety by elimination of grade crossing of U.S. 70		2012–2016
9	TSU	TSU	5 bridges—stringer, cap, and tie	Sapulpa Tulsa	Creek Tulsa		Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2012–2016
10	GNBC	GNBC	Relay new rail (2,500 feet)	Arapaho Cordell Enid Fairview Frederick Hobart Taloga Watonga	Blaine Custer Dewey Garfield Kiowa Major Tillman Washita	$110	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs	Need to ID site	P2012–2016

Table 17-4

Proposed Class III railroad improvements—privately owned lines (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
11	GNBC	GNBC	Tie replacement (6,000)	Arapaho Cordell Enid Fairview Frederick Hobart Taloga Watonga	Blaine Custer Dewey Garfield Kiowa Major Tillman Washita	$375	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		P2012–2016
12	GNBC	GNBC	10 crossing upgrades	Arapaho Cordell Enid Fairview Frederick Hobart Taloga Watonga	Blaine Custer Dewey Garfield Kiowa Major Tillman Washita	$250	Improved public safety at crossings		2012–2016
13	PC	PC	Pre-construction initial line logistics center	Claremore	Rogers	$2,670 FRA Capital Grant Application	Public benefits through improved intermodal service for shippers		2012–2016
14	PMR	PMR	Build wye to add north access	Muskogee	Muskogee	$1,000	Improved rail access		2012–2016

Table 17-4

Proposed Class III railroad improvements—privately owned lines (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
15	PMR	PMR	Connection between UP and BNSF	Muskogee	Muskogee	$4,000 to 5,000	Improved rail access for competitive shipping rates		2017–2031
16	PMR	PMR	Longer third track expand yard	Muskogee	Muskogee		Improved rail access		2012–2016
17	City of Shawnee	UP (out of service)	Restore rail Shawnee to McAlester		Hughes Pittsburg Pottawatomi Seminole	$36,500	Public benefits through new east-west service		2017–2031
18	ODOT, ADOT, TxDOT	KRR	Upgrade siding tracks, industrial leads, grade crossings		Bryan Choctaw McCurtain Pushmataha	$28,300	Public benefits through new east-west service		2017–2031

Table 17-4

Proposed Class III railroad improvements—privately owned lines (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project name/ description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status
19	WTJR	WTJR	Reconstruct bridge (52.4)			$320	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2012–2016
20	WTJR	WTJR	Reconstruct bridge (76.1)			$100	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2012–2016
21	WTJR	WTJR	Replace 61.06 miles 85 and 90# rail with 115# rail			$20,000	Public benefits include reduced transit times and capacity for larger freight cars; private benefits include reduced crew costs and lower maintenance costs		2017–2031

ADOT = Arkansas Department of Transportation

FRA = Federal Railroad Administration

GNBC = Grainbelt

KRR = Kiamichi Railroad

ODOT = Oklahoma Department of Transportation

PC = Tulsa's Port of Catoosa

PMR = Port of Muskogee Railroad

SKOL = South Kansas & Oklahoma Railroad

TOE = Texas, Oklahoma & Eastern Railroad

TSU = Tulsa-Sapulpa Union Railway

TxDOT = Texas Department of Transportation

UP = Union Pacific Railroad

WTJR = Wichita, Tillman & Jackson Railway

Table 17-5
Proposed commuter and passenger rail improvements (continued on next page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project Name/ Description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status	
1	Commuter Rail	Commuter Rail	20 miles north to Edmond	Oklahoma City–Edmond	Oklahoma Logan	Unknown		Add BNSF mainline track, station facilities at Edmond crossinging improvements; public benefits include new commuter service and improved crossing safety; private benefits include added freight rail operating capacity	Alternatives analysis in progress	2017–2031
2	Commuter Rail	Commuter Rail	20 miles south to Norman	Oklahoma City–Norman	Oklahoma Cleveland	Unknown		Add BNSF mainline track, possible station upgrades, review possible crossing improvements; public benefits include new commuter service and improved crossing safety; private benefits include added freight rail capacity	Alternatives analysis in progress	2017–2031
3	Commuter Rail	Commuter Rail	30 miles west to El Reno	Oklahoma City–El Reno	Oklahoma Canadian	Unknown		Track improvements to be determined, station facilities in El Reno and Yukon, crossing improvements, possible park and ride in West Oklahoma City; public benefits included new commuter service and grade crossing improvements	TBD	TBD

Table 17-5
Proposed commuter and passenger rail improvements (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project Name/ Description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status	
4	Commuter Rail	Commuter Rail	30 miles east to Shawnee	Oklahoma City–Shawnee	Oklahoma Pottawatomie	Unknown		Track rehabilitation, station facilities in Shawnee, other possible station facilities in McLoud, Harrah, Choctaw and Spencer, crossing improvements, possible second bridge over Oklahoma River; public benefits include new commuter service and grade crossing improvements; private benefits include improved freight capacity	TBD	TBD
5	Commuter Rail	Commuter Rail	5 miles east to Midwest City	Oklahoma City–Midwest City	Oklahoma	Unknown		Track rehabilitation, station facilities in Midwest City and Del City, crossing improvements; public benefits include new commuter service and grade crossing improvements	Alternatives analysis in progress	2017–2031

Table 17-5
Proposed commuter and passenger rail improvements (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project Name/ Description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status	
6	Intercity Passenger Rail	Intercity Passenger Rail	Oklahoma City to Tulsa, 110 Miles	Oklahoma City–Tulsa	Oklahoma, Lincoln, Creek, Tulsa	Unknown		Oklahoma City station/platform improvements, construct wye connection from elevated BNSF tracks to UP tracks in former CRIP freight yard, track rehabilitation from BNSF connection to NE 50th Street, address crossing and grade separation improvements, construct new trackage NE 50th to Sapulpa, new park and rides near Arcadia and Sapulpa, new mainline track from Tulsa to Sapulpa, station facilities in Tulsa, new trackage around Cherokee yard; public benefits include new intercity passenger service and option for travel between State's two major cities	Corridor investment plan in progress	TBD
7	ODOT, KDOT	Intercity Passenger	Extend *Heartland Flyer* to Newton	Oklahoma City–Kansas		$136,500	ODOT, TxDOT, KDOT with FRA	Provide new passenger service to North Central Oklahoma and to Wichita; connections at Newton, Kansas, to Southwest Chief; public benefits include new option for intercity travel	Service development plan completed	TBD

Table 17-5
Proposed commuter and passenger rail improvements (continued from previous page)

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project Name/ Description	Municipalities	Counties	Estimated Cost (thousands)	Benefits	Program	Status	
8	ODOT, KDOT	Intercity Passenger	New Daytime Service Kansas City–Oklahoma City–Fort Worth	North-South Corridor		$436,200	ODOT, TxDOT, KDOT with FRA	Provide new daytime passenger service between Kansas City, Wichita, Oklahoma City, and Fort Worth; public benefits include new option for intercity travel	Service development plan completed	TBD
9	ODOT	Intercity Passenger	New passenger rail equipment	Statewide		TBD		Possible use of CNG; public benefits include reduced diesel emissions	TBD	TBD

FRA = Federal Railroad Administration

KDOT = Kansas Department of Transportation

ODOT = Oklahoma Department of Transportation

TxDOT = Texas Department of Transportation

Table 17-6
Proposed industrial improvements

	Sponsors/ Advocates	Railroad(s) Operating or Owning Lines	Project Name/Description	Municipalities	Counties	Estimated Cost (thousands)	Fund Source	Program
1	PC	PC	Pre-construction initial line LOGISTICS CENTER	Claremore	Rogers	$2,670 FRA Capital Grant Application	TBD	TBD
2	PMR	PMR	Build wye to add north access	Muskogee	Muskogee	$1,000	TBD	TBD
3	PMR	PMR	Connection between UP and BNSF	Muskogee	Muskogee	$4,000 to 5,000	TBD	TBD
4	PMR	PMR	Longer third track expand yard	Muskogee	Muskogee	NA	TBD	TBD
5	City of Shawnee	UP (out of service)	Restore rail Shawnee to McAlester	NA	Pottawatomi Seminole Hughes Pittsburg	$36,500	FRA	TIGER
6	Neal McCaleb	WATCO operator: BNSF serving railroad	North American Opportunity Zone	Ardmore	Carter	$33,000	Sovereign Development Fund, LLC	NA
7	WATCO Companies/ Kinder Morgan Energy Partners	SLWC	WATCO-Kinder Morgan CRUDE OIL TRANSFER FACILITY	Stroud	Lincoln	TBD	WATCO-Kinder Morgan	NA
8	Citizen's Pottawatomie Nation	UP and AOK	Citizen's Pottawatomie Nation industrial park	Shawnee	Pottawatomie	TBD	TBD	TBD

In some cases, 90-pound[1] rail may be sufficient to handle 286,000-pound loads, but usually these higher weight shipments require 115-pound rail. The condition of the ties and ballast on the short line are also factors that affect the rail line's ability to carry heavier loads.

Railroad	Structures deficient at 286,000-pound Load	Miles of Rail less than 90 pounds per yard
Arkansas-Oklahoma Railroad	Structures on 12 miles	Good
Austin, Todd and Ladd Railroad	All good	8.5 miles
Blackwell Northern Gateway Railroad	28 structures	18 miles
Kiamichi Railroad	Structures on 143.2 miles	Good
Stillwater Central Railroad	All structures on 22 miles	Good
Tulsa-Sapulpa Union Railway	All structures on 23 miles	10 miles (estimated)
Grainbelt	94 structures	Good
Farmrail Corporation	109 structures	80 miles
Wichita, Tillman and Jackson Railway	4 structures	12.2 miles
Northwestern Oklahoma	1 structure	Good

Table 17-7
Proposed 286,000-pound capacity improvements

Figure 17-1
Lines with 286,000-pound deficiency

[1] Rail size is designated in pounds per yard; in this case, a 3-foot section of rail weighs 90 pounds.

Additional analysis is needed in Oklahoma to fully determine the magnitude of the issue the short lines face in bringing all of their lines up to the 286,000-pound standard. The short lines provided ODOT with data during the development of this State Rail Plan that are shown in Table 17-7 and Figure 17-1.

18. Funding and Financing Alternatives

This section provides funding and financing sources used by ODOT as well as a survey of federal rail funding and financing sources currently available in the U.S. It also offers snapshots of alternatives used in other states. A number of the sources examined could serve as models to offset infrastructure and operating costs related to new and existing rail service in Oklahoma.

Funding vs. Financing Programs

Funding and financing are two different concepts, though they are often misused interchangeably. Funding is money provided to pay for the capital or operations and maintenance needs of a project and could come from grants, fare revenue, tax collections, bond programs, private equity, or a variety of other sources. Funding is generally received as a cash payment on a one-time or ongoing basis.

Financing, on the other hand, refers to a number of mechanisms that accelerate cash flows through borrowing. There are a number of public and private financing programs available, and each requires an ongoing (short- or long-term) flow of funds to repay the debt. The most attractive financing programs are those that are both inexpensive (have low initial fees and interest charges) and are flexible in the repayment terms. But financing is not simply a series of cash inflows; rather, it is a transaction that dedicates all or part of a series of cash inflows to the repayment of an upfront sum that fits the needs of a project.

Existing Oklahoma Rail Funding

State-owned rail funding in Oklahoma is collected from several sources and deposited into the RMRF. This fund is then utilized for projects on Oklahoma's state-owned rail system. Major revenue sources for the funds are highlighted below.

Oklahoma freight car tax

This fund, composed of an annual 4-percent tax on freight rail car revenues, yields a nearly constant annual income because its rate has not been changed since its inception in 1978.

Lease agreements

ODOT Rail Programs Division receives annual lease and operations payments from seven separate short line rail operators. (ODOT has most all of its state-owned rail under lease at this time.) These leases also carry a revenue-sharing component. Until recently, there were nine such leases, but UP and WTJR both exercised their right to purchase the lines they were operating under the terms of their matured lease-purchase agreements.

It is significant to note that the loss of the annual payment that was being made by UP is roughly equivalent to 66 percent of the total annual RMRF, so there is a strong need to make up for this reduction in annual funding starting in 2012.

Following are the current leases:

- Farmrail Corporation (FMRC)—179 miles on the Sunbelt Line between Hydro and Erick and the Orient Line between Thomas and Elmer
- Austin, Todd & Ladd (AT&L)—29-mile segment between El Reno and Geary
- Arkansas-Oklahoma Railroad (AOK)—70-mile segment between McAlester and Howe
- Stillwater Central Railroad (SLWC)—125 miles on two segments: one segment from Stillwater to Pawnee and the other from Oklahoma City to Tulsa
- Blackwell Northern Gateway Railroad (BNGR)—17-mile segment from Blackwell to the Oklahoma-Kansas state line

At this time, almost all of the state-owned rail lines are under lease and in operation. The only track not under lease or in operation is a heavily deteriorated segment between Hydro and Bridgeport.

Right-of-way sales

ODOT occasionally sells portions of land deemed as excess to its needs, and some of these sales are former rail rights-of-way acquired by ODOT. Also, as discussed previously, ODOT has situations where sales are generated as a result of a mature lease-purchase agreement. ODOT also recently sold a former rail segment, known as the Guthrie, to Fairmont Line following exhaustive efforts to return the rail line to active use. These sales are very infrequent and do not constitute any significant amount of annual funding.

Funding for the *Heartland Flyer* passenger rail operation

The *Heartland Flyer* passenger rail operation is funded through two sources: (1) an annual line item state appropriation which goes into the Oklahoma Passenger Rail and Tourism Revolving Fund and (2) HB 1873. This house bill was passed in 1994 to establish a dedicated fund for the public transit revolving fund. Past funding has come as a result of the appropriations process. Previously, $500,000 from the motor fuel tax was going to public transit every year. In 1993, the Legislature established a dedicated fund for passenger rail service from the motor fuel tax. This passenger rail fund amounted to approximately $1.2 million. This bill combines two funds (Amtrak earmark of $1.2 million and transit funding of $500,000) and splits the $1.7 million funds evenly between the two systems at $850,000 each.

Federal Funding Programs

ODOT Rail Programs Division participates in all rail-specific and rail-related federal programs. Recent years have provided numerous rail funding opportunities which have resulted in very positive results for the state. ODOT'S success is summarized below following descriptions of the various programs.

Passenger Rail Improvement and Investment Act of 2008

PRIIA was enacted in October 2008 and provided for the reauthorization of the National Railroad Passenger Corporation (Amtrak); the act tasked Amtrak, USDOT, FRA, individual states, and other stakeholders with improving operations, facilities, and service. PRIIA authorized over $13 billion between 2009 and 2013 and promotes the development of new and improved intercity rail passenger services and state-sponsored corridors throughout the U.S., as well as the development of high-speed rail corridors.

PRIIA established three new competitive grant programs for funding high-speed intercity passenger rail improvements. Each of these three programs provides 80-percent federal funding with a required 20-percent non-federal match. The three grant programs established by PRIIA are described individually below:

- **Intercity passenger rail service corridor capital assistance program**—Under PRIIA, an intercity passenger rail capital grant program was established, which requires individual states to identify passenger rail corridor improvement projects as potential funding recipients in their state rail plans. The program is intended to create the framework for a new intercity passenger rail service corridor capital assistance program. The HSIPR Program provides funding assistance to states, groups of states, interstate compacts, public agencies, and Amtrak (both alone and in cooperation with states). HSIPR funds can be utilized for service development programs; planning projects; or financing facilities, infrastructure, or equipment necessary to provide or improve intercity passenger rail transportation. Existing or proposed intercity passenger services are eligible for funding under this program.
- **High-speed rail corridor development program**—PRIIA also authorized $1.5 billion annually to establish and implement a high-speed rail corridor development program. Funding is currently restricted to projects intended to develop the ten federally designated high-speed corridors for intercity passenger rail services that may reasonably be expected to reach speeds of at least 110 miles per hour.
- **Congestion grants**—PRIIA authorizes $325 million annually for grants to states, or to Amtrak in cooperation with states, for financing the capital costs of facilities, infrastructure, and equipment for high-priority rail corridor projects necessary to reduce congestion or facilitate intercity passenger rail ridership growth.

ODOT has received three FRA HSIPR grants, providing matching planning and capital funds towards the state's effort to improve and expand its passenger rail service. These funds are being used to complete planning and environmental studies for the proposed high-speed rail route from Tulsa to Oklahoma City, to complete the *Oklahoma Freight and Passenger Rail Plan,* and to improve infrastructure at the Santa Fe Depot related to operation of the *Heartland Flyer*.

The state also participated in the recently completed HSIPR-funded KDOT-ODOT SDP examining passenger rail service expansion between Kansas, Oklahoma, and Texas. Additionally, ODOT will participate in the $14-million HSIPR-funded Texas-Oklahoma study, which will produce an EIS and an SDP for the Oklahoma City to South Texas Passenger Rail Corridor.

As noted, funding for programs associated with PRIIA must be appropriated annually and, at this time, these programs have not been funded for fiscal year 2012. However, the initial appropriation is nearing 100 percent obligation, and these projects will be completed over the next few years. ODOT, for instance, will be completing two projects associated with this program over the next three years.

American Recovery and Reinvestment Act of 2009

ARRA allocated $48.1 billion in transportation investments throughout the U.S., including $8.0 billion for high-speed rail, $1.3 billion for Amtrak, and $1.5 billion in TIGER grants. Additional information on ARRA funding programs available for HSIPR services is detailed below.

ODOT Rail Programs Division carried out two ARRA-funded projects that improved rail infrastructure. AOK was able to shore up a section of rail line being encroached upon by the North Canadian River, and BNSF was able to improve operating conditions on an industrial track serving the community of Shawnee.

TIGER

To date, the TIGER program has provided over $2.6 billion for the National Surface Transportation System through 2011. Funds are awarded towards capital investments on a competitive basis toward projects that demonstrate they will have a significant national or regional impact. Congress dedicated $1.5 billion for the first round of the TIGER program as part of ARRA, and rounds two and three dedicated an additional $1.1 billion through FYs 2010 and 2011 appropriations acts. Congress has appropriated $500 million for the TIGER program for FY 2012, with details to be announced this year in the *Federal Register*.

The third round of TIGER funding in 2011 allocated $511 million in grants, of which 10 percent will go to freight rail projects.

Oklahoma has been the recipient or co-recipient of three TIGER grant awards totaling $66.5 million, which all significantly improve rail in the state:

- The I-244 multimodal bridge replacement is Tulsa's first multimodal bridge crossing and will accommodate highway, high-speed intercity and commuter rail, and pedestrian and bicycle traffic.
- The Great Plains freight rail project is constructing yard, shop, and 286,000-pound line improvements and relocating the SKOL hub from an urban to a rural area.
- The Oklahoma freight rail upgrade will upgrade 49 miles of state-owned rail line in the Anadarko Basin to more efficiently and safely transport crude oil and gas to the refinement stage.

SAFETEA-LU programs

The *Safe, Accountable, Efficient Transportation Equity Act—A Legacy for Users* (SAFETEA-LU), the current authorization bill for the nation's surface transportation program, was scheduled to expire on October 1, 2009. However, temporary extensions for SAFETEA-LU have been passed through March 2012 or until a new transportation authorization bill is approved.

The SAFETEA-LU bill contains a number of program provisions with specific eligibility for rail. These include both funding and financing programs, which are described in detail below.

Section 130 highway-rail grade crossing program

This program provides federal support to projects in an effort to reduce the incidence of accidents, injuries, and fatalities at public rail-highway crossings. States may utilize funds to improve the safety of railroad crossings, including installing or upgrading warning devices, eliminating at-grade crossings through grade separation, or consolidating or closing at-grade crossings. The federal share for these funds is 90 percent, with the remaining 10 percent to be provided by local matching funds.

As discussed in the Safety and Security Section, ODOT Rail Programs Safety Branch carries out numerous grade crossing safety improvement projects annually utilizing this fund.

Rail line relocation and improvement capital grant program

Section 9002 of SAFETEA-LU authorizes funding for the purpose of providing financial assistance for local rail line and improvement projects. Any construction project that improves the route or structure of a rail line and (1) involves a lateral or vertical relocation of any portion of the rail line or (2) is carried out for the purpose of mitigating the adverse effects of rail traffic on safety, motor vehicle traffic flow, community quality of life, or economic development is eligible. The federal share for these funds is 90 percent, not to exceed $20 million.

Successful grant applicants will meet cost-benefit requirements—specifically, the requirement that a project's benefits (for the period of the estimated economic life of the improvements) exceed the costs of that project for the same time period.

Congestion mitigation and air quality improvement program

CMAQ funds transportation projects and programs that improve air quality by reducing transportation-related emissions in non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter. Examples of CMAQ-funded rail projects include intermodal facilities, rail track rehabilitation, diesel engine retrofits, idle-reduction projects, and new rail sidings.

Funding is available for areas that do not meet the National Ambient Air Quality Standards (non-attainment areas) as well as former non-attainment areas that are now in compliance (maintenance areas). Funds are distributed based on a formula considering an area's population by county and the severity of an area's ozone and carbon monoxide problems.

SAFETEA-LU requires states and MPOs to give priority in distributing CMAQ funds to diesel engine retrofits and other cost-effective emission reduction and congestion mitigation activities. SAFETEA-LU also requires the Secretary of Transportation to evaluate and assess the effectiveness of a representative sample of CMAQ projects to determine the direct and indirect impacts of projects on air quality and congestion levels as well as to ensure the effective implementation of the program.

Freight initiatives may be eligible under the 1999 CMAQ guidance. Although freight is not mentioned specifically, the provision for P3s represents another avenue of support for freight and intermodal projects that generate air quality benefits. Emissions reductions can be generated directly by private projects through treatment of tailpipe exhaust or application of advanced engine technologies and thus may qualify for CMAQ funding (assuming all other requirements are met).

State DOTs and MPOs select and approve projects for funding. The federal matching share for these funds is 80 percent.

Surface transportation program

The surface transportation program is a grant program available for improvement of any federal-aid highway, bridge, or transit capital project. The program is meant to provide flexible funding to be used by states and localities. Eligible rail improvements include lengthening or increasing vertical clearance of bridges, eliminating crossings, or improving intermodal connectors. State DOTs and MPOs select and approve projects for funding under this program. The federal matching share for these funds is 80 percent.

Rail and fixed guideway modernization

The transit capital investment program (49 USC 5309) provides capital assistance for new rail systems (new starts/small starts program), bus systems (bus and bus-related equipment and facilities program), and modernization of existing rail systems (fixed guideway modernization program). Funding can be used for a variety of purposes, including the following:

- Purchase and rehabilitation of rolling stock, track, line equipment, structures, signals, and communications
- Development of power equipment and substations
- Construction of passenger stations and terminals
- Purchases of security equipment and systems
- Construction of maintenance facilities
- Operational support equipment, including computer hardware and software
- System extensions
- Preventive maintenance

Eligible recipients for new starts funding are public entities and agencies (transit authorities and other state/local public bodies and agencies), including states, municipalities, other political subdivisions of states; public agencies and instrumentalities of one or more states; and certain public corporations, boards, and commissions established under state law. Modes eligible for funding include heavy rail, commuter rail, and a number of other transit modes.

Transportation and community and system preservation pilot program

The TCSP program provides funding for initiatives, including planning and implementing grants; performing research to investigate and address the relationships between transportation, community, and system preservation; and identifying private sector-based initiatives.

Funds are available to states, MPOs, local governments, and tribal governments. The law requires the equitable distribution of funds to a diversity of populations and geographic locations. For discretionary funding, an interagency team evaluates applications for competitive TCSP grants. TCSP grants can also be designated by Congress. Although SAFETEA-LU authorized TCSP funding, specific funding levels can vary based on Congress' annual appropriations.

Transportation enhancement program

These funds are available to strengthen the cultural, aesthetic, and environmental aspects of the nation's intermodal transportation system. Eligible projects include the rehabilitation of historic transportation facilities and the preservation of abandoned rail corridors, though a number of environmental preservation, scenic beautification, and historic preservation projects would also qualify. Projects are usually chosen at the local government level. The federal share of project costs is 80 percent.

Federal Financing Programs

Private activity bonds

SAFETEA-LU established a new financial assistance program that allows the issuance of up to $15 billion in private activity bonds for transportation infrastructure projects. States and local governments are allowed to issue tax-exempt bonds to finance projects sponsored by the private sector subject to rules set forth by the Internal Revenue Service.

Eligible projects include privately owned-or-operated highway and rail-truck transfer facilities, including any surface transportation project receiving Title 23 assistance. This provision, therefore, extends eligibility to TIFIA-assisted public transportation, intercity bus, or rail facilities and vehicles. Eligible rail activities include Amtrak vehicles and

facilities, public freight rail facilities, or private facilities providing public benefit for highway users, as well as intermodal freight transfer facilities.

Transportation infrastructure finance and innovation act

The *Transportation Infrastructure Finance and Innovation Act* (TIFIA) program provides credit assistance for qualified large-scale surface transportation projects of regional and national significance. State and local governments, as well as special authorities, are eligible applicants.

The TIFIA program provides credit assistance for qualified projects of regional and national significance. Many large-scale surface transportation projects—highway, transit, railroad, intermodal freight, and port access—are eligible for assistance. Eligible applicants include state and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities.

TIFIA offers three distinct types of financial assistance designed to address the varying requirements of projects throughout their life cycles—secured (direct) loans, loan guarantees, and standby lines of credit. The amount of federal credit assistance may not exceed 33 percent of total reasonably anticipated eligible project costs. The exact terms for each loan are negotiated between USDOT and the borrower, based on the project economics, the cost and revenue profile of the project, and any other relevant factors. TIFIA interest rates are equivalent to Treasury rates. Depending on market conditions, these rates are often lower than what most borrowers can obtain in the private markets. Unlike private commercial loans with variable rate debt, TIFIA interest rates are fixed. Overall, borrowers benefit from improved access to capital markets and potentially achieve earlier completion of large-scale, capital-intensive projects that otherwise might be delayed or not built at all because of their size and complexity or the market's uncertainty over the timing of revenues.

Any project that is eligible for federal assistance through existing surface transportation programs (highway projects and transit capital projects) is eligible for the TIFIA credit program.

The following types of projects are eligible:

- International bridges and tunnels
- Intercity passenger bus and rail facilities and vehicles
- Publicly owned freight rail facilities
- Private facilities providing public benefit for highway users
- Intermodal freight transfer facilities and projects that provide access to such facilities
- Service improvements on or adjacent to the National Highway System
- Projects located within the boundary of a port terminal under certain conditions

An eligible project must be included in the applicable state transportation improvement program. Major requirements include a capital cost of at least $50 million (or 33.3 percent of a state's annual apportionment of federal-aid funds, whichever is less) or $15 million in the case of Intelligent Transportation Systems. TIFIA credit assistance is limited to a

maximum of 33 percent of total eligible project costs. Senior debt must be rated investment grade. The project also must be supported at least in part by user charges or other non-federal dedicated funding sources. Applicable federal requirements include, but are not limited to, USC Titles 23 and 49, NEPA, Buy America provisions, and the Civil Rights and Uniform Relocation Acts.

Railroad rehabilitation and improvement financing program

The Railroad Rehabilitation and Improvement Financing (RRIF) Program provides direct federal loans and loan guarantees to finance development of railroad infrastructure. The FRA is authorized to provide direct loans and loan guarantees of up to $35 billion. The funding may be used to acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings, and shops; refinance outstanding debt incurred for the purposes listed above; and develop or establish new intermodal or railroad facilities. Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, joint ventures that include at least one railroad, and limited-option freight shippers who intend to construct a new rail connection.

The RRIF program was established by the *Transportation Equity Act for the 21st Century* and amended by the SAFETEA-LU. Up to $7.0 billion is reserved for projects benefiting freight railroads other than Class I carriers.

Direct loans can fund up to 100 percent of a railroad project with repayment periods of up to 35 years. Interest rates on loans are equal to current Treasury rates. All federal financial assistance programs must pay for the cost to the government of providing that financial assistance. In most cases, this is done with appropriations from Congress. Since RRIF does not currently have an appropriation, this cost must be borne by the applicant, or another entity on behalf of the applicant, through the payment of the credit risk premium. FRA will calculate the amount of the credit risk premium that must be paid for each loan before it can be disbursed. In addition to the credit risk premium, which is paid only if a loan is approved, each applicant must pay an investigation fee regardless of whether the loan is approved. The investigation fee defrays costs that FRA incurs in evaluating RRIF loan applications and may not exceed one-half of one percent of the requested loan amount, but it is often substantially less.

State infrastructure banks

SAFETEA-LU established a new State Infrastructure Bank (SIB) program under which all states are authorized to enter into cooperative agreements with the Secretary of Transportation to establish infrastructure revolving funds. The SIB program gives states the capacity to increase the efficiency of their transportation investment and significantly leverage federal resources by attracting non-federal investment. A SIB, much like a private bank, can offer a range of loans and credit assistance enhancement products to public and private sponsors of Title 23 highway construction projects or Title 49 transit capital projects. Oklahoma has authorization for a SIB; however, Oklahoma's bank has not been capitalized sufficiently.

Future Federal Funding

Surface Transportation Reauthorization Act

The last full SAFETEA-LU authorization expired at the end of September 2009. Unable to pass a full reauthorization, Congress has passed nine temporary extensions, set to expire in March 2012. There is significant uncertainty over when SAFETEA-LU will be reauthorized and in what form:

- The House has proposed a six-year bill at current funding levels which would require $75 billion of federal appropriations in addition to gas tax receipts.
- The Senate has proposed a two-year bill at current funding levels which would require $12 billion of federal appropriations in addition to gas tax receipts.
- Speculation that the Congressional *Super Committee* would include a robust Highway Trust Fund reauthorization proposal as part of its deficit reduction plan died with the Committee's failure to reach an agreement last November.

With such uncertainty, it is unlikely that we will see a full extension of the Transportation Reauthorization Act before the 2012 elections.

Expanded public-private partnership opportunities

Many public agencies that have faced financial or operational difficulties managing infrastructure assets have found P3s to be an attractive means of achieving a desired level of service over the long term while transferring undesired risks to the private sector. In its simplest form, a P3 is an agreement between public and private sector parties that transfers some or all infrastructure functions to the private sector for some predetermined period of time.

Varying degrees of private sector involvement are available, from design-build contracts for new construction projects to long-term operations concession agreements. Specific project characteristics and prevailing market trends will guide what is desirable and acceptable in a P3 arrangement for a given project. A number of rail project components can be transferred to the private sector in a P3 arrangement, including project development, design, construction, financing, operations, and maintenance.

Currently, Oklahoma is one of 19 states without P3-enabling legislation, which is typically required in order to complete complex transfers of risk or rights over state property. As such, the state is currently unable to enter into most P3 arrangements. However in 2011, Governor Fallin approved the creation of the Eastern Flyer Passenger Rail Development Task Force, which will study the feasibility of using P3 delivery formulas to accelerate passenger rail operations between Tulsa and Oklahoma City. The Task Force is scheduled to deliver its final report by the end of 2012. In addition, the State of Oklahoma is currently studying options for implementing P3 legislation, and discussion of this issue will be taken up during the 2012 State legislative session.

Oklahoma Statewide Freight and Passenger Rail Plan

Oklahoma Department of Transportation