Intermodal Element

2005-2030 Oklahoma Statewide Intermodal Transportation Plan

Submitted by

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For

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Final Report

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

This chapter presents the overall purpose and context for this Intermodal Element Report; summarizes the scope of the effort identified at the outset including what is contained in each chapter; and identifies the major sources of direction for this investigation.

1.1 Study Purpose & Context

This report represents the Intermodal Element of the 2005-2030 ODOT Statewide Intermodal Transportation Plan. It focuses on all modes: highways, public transportation, aviation, railways and the inland waterway system. The report has been prepared with full recognition of the role the transportation system plays in the state and local economy. To that end both freight and passenger characteristics of the modes have been fully investigated (both today and in the future) and merged with a thorough discussion of Oklahoma economic sectors. As a result not only have passenger intermodal opportunities been identified, but also a series of intermodal logistics opportunities are described. All of this information leads to a set of comprehensive intermodal transportation initiatives identified for possible implementation. These initiatives resulted from both technical investigation and valuable input from ODOT and other key stakeholders statewide.

1.2 Review of Scope of Services

This report has been assembled through a series of related Task Reports developed consistently with the study purpose above. In all five task reports were assembled and are summarized below.

1.2.1 Inventory of Existing Statewide Freight and Intermodal Facilities and Networks – Task 1

The purpose of this task was to inventory relevant modes of transportation, including major freight and passenger corridors and facilities. Focusing on intermodal linkages and taking note of potential future linkages, the inventory includes the air passenger/air cargo systems, the river-port system (the McClellan-Kerr Arkansas River Navigation waterway and its network of public and private port facilities), major interstate and state highway corridors, the freight rail system, and selected public transportation systems including intercity rail and bus systems and services. This inventory is contained in Chapter 2 – Current Conditions of the Intermodal System.

1.2.2 Needs/Issues Survey – Task 2

This task was critical to the remainder of the study, in that it is only through the "on-the-ground" knowledge of local leaders and public and private transportation providers that implementable solutions to improving the intermodal system will emerge. The search for potential logistics centers and other economic development opportunities, and the intermodal connections necessary to make these work, was also greatly supported by this task.

We reviewed the December, 2001 surveys conducted by ETC Institute, inc. on behalf of the ODOT Transit Programs Division– both the Stakeholder and Resident surveys. These were useful points of departure for our survey efforts, and were incorporated into the overall results of this task, as pertinent background information. These surveys were specifically designed to assess public perception of rural transit services in Oklahoma and the desire to expand public transportation services statewide. However, those surveys were somewhat limited in their usefulness for this study, because of their focus on public transportation service, while providing general ratings of satisfaction and rankings of importance among broad initiative categories. We went beyond them to a more pointed and focused survey effort – with considerable emphasis on all modes, economic development opportunities, logistics niche opportunities, and the intermodal system needed to support such initiatives. This was done through a mailed survey to a statistically valid sample of stakeholders.

Moreover, we followed up the formal surveys with stakeholder interviews. This format allowed us to explore economic development and logistics opportunities with individuals having extensive inside working knowledge of specific areas, modes of transportation, and economic opportunities and trends within the state.

Because of the scope of the survey effort, the results are documented in various report chapters. Views by stakeholders of the current Intermodal system are provided in Chapter 2 along with the system inventory. Stakeholder views of the future system are provided in Chapter 3 – Future of the Intermodal System. Stakeholder views of the transportation/economic relationship are provided in Chapter 4 – Oklahoma's Intermodal System and the State Economy. The survey methodology is given in Appendix B and the list of mailed survey recipients and interviewees are given in Appendix C and D respectively.

1.2.3 Assessment of Current and Future Intermodal Logistics Opportunities of Significant Economic value to Oklahoma – Task 3

The purpose of this task was to identify intermodal freight opportunities and economic growth hubs in the context of evolving logistics and supply chain patterns. The basis for this identification included:

- the characteristics of freight flows in and through Oklahoma;
- information about Oklahoma's evolving economy; and
- information obtained from the Task 2 surveys.

Such opportunities investigated included expansion of existing intermodal facilities, and creation of new public or private facilities such as inland container terminals, warehousing and distribution centers, free trade zones or industrial parks, or some combination of all of these.

In addition to supply chain opportunities associated with private goods movement, we also considered military supply chain dynamics, which are increasingly important both nationally and within Oklahoma. On the whole, military supply chains rely increasingly on the same transportation networks as do private supply chains. The results of this task are provided as Chapter 5 – Intermodal Logistics Opportunities in Oklahoma.

1.2.4 Identification of Major Existing and Likely Future Restrictions – Task 4

The purpose of this task was to identify restrictions in the intermodal transportation system in Oklahoma which currently, or may in the future, constrain the development of logistics opportunities, and in general, which constrain economic growth in Oklahoma. These included both freight transport restrictions, as well as constraints in the passenger transportation system. The latter focuses in particular on difficulties in bringing employees to major employment centers.

Restrictions may include physical infrastructure, as well as operational impediments and regulatory constraints. The discussion of existing restrictions is provided in Chapter 2 and the discussion of future restrictions is provided in Chapter 3.

1.2.5 Development of Strategies, Policies, and Project Concepts – Task 5

The purpose of this task was to develop strategies, policies, and project concepts which will enhance the intermodal transportation system in Oklahoma, and which in particular will assist in the development of economically valuable facilities that take advantage of Oklahoma's comparative logistics advantages, including both civilian and military logistics opportunities. The Task report includes identification of strategies, policies, and projects, together with an implementation plan. The results of this Task are provided last as Chapter 6 – Proposed Intermodal Transportation Initiatives. The policy framework in matrix form is provided in Appendix E.

A related objective was to develop plans in discrete, implementable steps that will maximize the potential for short and long term economic growth, result in measurable results, and demonstrate to the private sector that the state is serious about promoting economic development through strong transportation planning.

1.3 Sources of Information – Policy Direction

The data, analysis and conclusions provided represent a major collaboration between the consultant team, ODOT and major transportation and economic development stakeholders. Data sources for each of the modes and Intermodal opportunities are considerable and are summarized in a bibliography as Appendix A. This data includes many federal state and local publications accessed through web sites for each of the major modes and to document economic conditions. In addition a considerable data library was assembled including relevant publications from State and local agencies and the Oklahoma Department of Commerce (ODOC)..

Perhaps even more important to the direction and outcome of this investigation, however, was the input received from ODOT staff through one-on-one conversations as well as through a charette conducted early on that involved key members of the consultant team, ODOT top management and ODC leadership. The exchange of information at the charette allowed important dialogue between all parties on important Intermodal issues and was generally invaluable in shaping the direction of the effort. Likewise, the survey and face-to-face interviews

conducted across a broad spectrum of both private sector and public sector organizations helped identify problems with the system, logistics opportunities and major Intermodal focus areas.

2.0 CURRENT CONDITIONS OF THE INTERMODAL SYSTEM

This chapter provides vital information on statistics and characteristics of the existing transportation system; views of the current system from key stakeholders either through the mailed questionnaire or from face-to-face interviews; and current system strengths and weaknesses.

2.1 Transportation Mode Inventory

This section documents an inventory of the relevant transportation modes across the state including major freight and passenger corridors and facilities. It will be an important component of the Intermodal element of the Oklahoma Statewide Intermodal Transportation Plan. The report focuses on intermodal linkages, including air passenger/air cargo systems, the river port system, major interstate and state highway corridors, the freight rail system, both urban and rural public transit systems, intercity rail and bus systems, and selected bicycle and pedestrian facilities.

Data for this inventory have come from a variety of primary and secondary sources. Considerable data were obtained from existing Oklahoma Department of Transportation (ODOT) files with valued assistance from ODOT staff. In addition, federal statistical publications and databases were accessed by the study team and some local metropolitan transit providers made their data available. Freight and passenger utilization data are provided and in most cases recent utilization trends are summarized and described. Similarly, mapping to support the modal inventory was either provided by ODOT, local transportation providers, various agency websites, or created by the consultant team.

The inventory attempts to focus on existing intermodal facilities and the status of various intermodal connections between the various modes. This report is organized into two main sections: 1) Freight Transportation and 2) Passenger Transportation. Within the freight category, material is included on air cargo, rail freight, rail-to-truck freight, truck freight, water-borne freight, and associated intermodal connections. Within the passenger category, information is included for aviation (commercial and general aviation), bicycles and pedestrians, public transit (urban, rural and intercity), and state highways and toll facilities (turnpikes).

At the time of final preparation of this task report, certain utilization data were still being compiled by various agencies, thereby not allowing utilization time series consistency for all modes. More data will become available as this study progresses and the latest information will be inserted during preparation of the Final Report.

2.1.1 Freight Transportation

The inventory begins with a survey of the freight transportation system in Oklahoma. Modes surveyed and included in the inventory are:

- Air cargo
- Rail freight

- Intermodal rail
- Trucking
- Ports and waterways

While much of the freight traveling within and through Oklahoma is carried on a single mode – trucks – truck transport is a critical link in the intermodal chain, as intermodal connections almost invariably involve movement of goods or containers between trucks and the rail, water, or air cargo modes. Moreover, goods moved exclusively by truck may benefit from consolidation, repositioning, or warehouse distribution, and to this extent, the logistics chain for truck transported freight may involve discontinuities which, in a broader sense, represents intermodal connection opportunities.

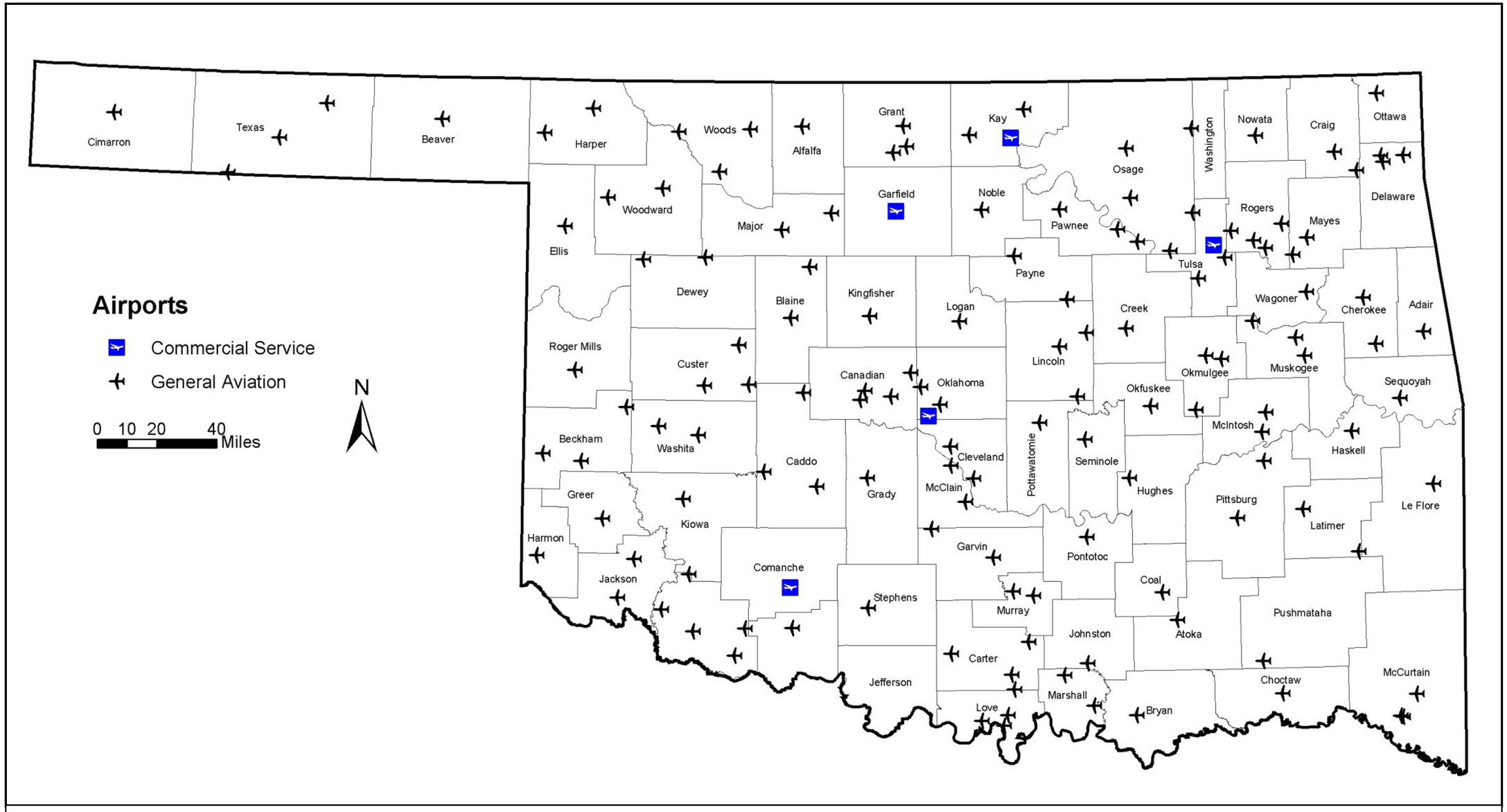
Existing total freight movements in Oklahoma exhibit the following major characteristics:

- In 1998 (latest data available), 40.9 million tons of freight moved out of Oklahoma. Most outbound movements (42.5 percent) were southbound to Texas. The northeastern U.S. received 17 percent of the state's outbound freight, and the northern plains and the southeastern U.S. each received 15 percent.
- In 1998, 58 million tons of freight moved into Oklahoma. Most freight was from the northwestern U.S. (27 percent), this primarily being coal moved by rail. Other major regions from which inbound freight originated were the southeastern U.S. (21 percent), northern plains (20 percent), Texas (13 percent), and the northeastern U.S. (15 percent).
- A total of 450 million tons of freight moved through Oklahoma, but did not originate or terminate in the state in 1998. This is approximately 4.5 times the amount of inbound and outbound freight. Approximately 57 percent of this through freight traveled in a general north/south direction, reflecting the orientation of the transportation system, the NAFTA trade corridor, and the preponderance of trade to and from Texas.
- Approximately 34 million tons of intrastate freight was transported within Oklahoma in 1998, that is, freight with both origin and destination in the state.

2.1.1.1 Air Cargo

Two major international airports serve Oklahoma—Will Rogers World Airport in Oklahoma City and Tulsa International Airport, in Tulsa. These two airports are the primary air cargo facilities in the state. Three regional airports located in Enid (Woodring Regional Airport), Lawton (Lawton-Fort Sill Regional Airport), and Ponca City (Ponca City Regional Airport) serve as commercial passenger links in their respective regions, but host no substantial cargo operations. The two major airports have both experienced recent declines (since 2000) in total cargo and mail shipped (Table 2.1 and Table 2.2), although non-mail cargo has remained relatively steady at Tulsa International. Major air cargo users in Oklahoma include oil companies, auto parts distribution firms, electronics firms, and other special industries. Oklahoma's airports are shown in Figure 2.1.

Figure 2.1 Oklahoma Airports



OKLAHOMA AIRPORTS

Source: Oklahoma Airport Master Plan

Will Rogers World Airport is located in the southwest corner of Oklahoma City. With two main runways (both 9,800 feet) and a 7,800 foot crosswind runway, the airport presently serves commercial passenger, cargo, general aviation, and Air National Guard customers. Air freight services at Will Rogers include Emery, Federal Express, United Parcel Service, Airborne, and Burlington as well as the major freight carriers. The airport is also designated as a Foreign Trade Zone, with the availability of general purpose warehouses and a U.S. Customs Port of Entry office. It is located near Interstate Highways I-44, I-35, and I-40, providing easy access for truck freight transport. Meridian Avenue and Airport Road have also been designated as National Highway System Intermodal Connectors to I-44. The airport is also located near rail services in Oklahoma City and is approximately 90 miles from the Port of Catoosa in Tulsa. A layout of the airport is shown in Figure 2.2.

Will Rogers Airport handled approximately 35,571 tons of cargo and mail in 2003 (Table 2.1 and Table 2.2), with total tonnage projected to decrease by approximately 1,000 to 34,556 tons in 2004. As noted in the tables, the amount of cargo and mail passing through the airport declined from 2000 to 2003.

Table 2.1 Cargo at Oklahoma Commercial Airports, 2000 to 2004
(tons)

Airport	2000	2001	2002	2003	2004*
Will Rogers World	49,369	45,078	42,431	32,431	31,521
Tulsa International	52,367	48,293	48,188	51,060	53,948
Total	101,736	93,371	90,619	83,491	85,469

Source: Will Rogers World Airport (www.flyokc.com); Tulsa International Airport

* 2004 estimated tonnage based on actual data for January through May.

Table 2.2 Mail at Oklahoma Commercial Airports, 2000 to 2004
(tons)

Airport	2000	2001	2002	2003	2004*
Will Rogers World	9,910	7,048	2,776	3,140	3,035
Tulsa International	7,290	5,109	2,048	2,242	2,268
Total	17,200	12,157	4,824	5,382	5,303

Source: Will Rogers World Airport (www.flyokc.com); Tulsa International Airport

* 2004 estimated tonnage based on actual data for January through May.

Tulsa International Airport is located on a 4,000-acre tract on the north edge of Tulsa, with 1,000 acres available for development. The airport has two main runways (10,000 feet and 7,400 feet) with a 6,100-foot crosswind runway that serves commercial passenger, cargo, general aviation, and Air National Guard customers. Air freight services at Tulsa International include Airborne Express, American Airline Cargo, Continental, Delta Dash, Menlo/Emery, Federal Express, Southwest, United Parcel Service, and the U.S. Postal Service. American operates a major

aircraft maintenance center at Tulsa International. The airport is also designated as a Foreign Trade Zone, with the availability of general purpose warehouses and a U. S. Customs Port of Entry office. State Highway (SH) 11 has been designated a National Highway System Intermodal Connector, providing direct access to I-244. The airport is also located near I-44 and US 169, providing easy access for truck freight transport. In addition, it is also located near rail services in Tulsa and is only minutes from the Tulsa Port of Catoosa. A layout of the airport is shown in Figure 2.3.

Tulsa International Airport handled approximately 53,302 tons of cargo and mail in 2003 (Table 2.1 and Table 2.2). As shown in the tables, the amount of cargo passing through the airport fluctuated slightly from 2000 to 2003 and is expected to increase by approximately 2,000 tons in 2004, but mail shipments have declined sharply since 2000 (69 percent) and have remained relatively stable the last three years.

Oklahoma's international airports remain important intermodal connectors in the state's transportation system. However, recent freight trends as measured in total freight tonnage seem to indicate a decline in activity for this transportation mode. Airport marketing personnel consider the drop in mail service to be largely attributable to the September 11 attacks. Since that time, increased security measures were placed on the airlines requiring that mail be sent only on approved carriers and only in approved containers. More mail is likely being shipped by truck to nearby states, with cross-country mail being transported by air. The Internet and the use of email may also be important factors in this decline. The U.S. Postal Service reports that Priority Mail and Express Mail have declined over the last three years, which is consistent with these observations.

The decline in cargo shipments at Will Rogers World Airport can be largely explained by changes in the aircraft being used by the airlines. Several commercial airlines flying into Will Rogers have shifted to using more "regional" size jets that do not have the capacity to carry cargo. These jets typically carry 70 to 90 passengers and only have cargo capacity for passengers' luggage. In addition, increased security since 2001 has also inhibited carrying cargo on passenger jets. Cargo shipped through Will Rogers World Airport from fiscal year 2001 to 2004 is shown by individual carriers in Table 2.3.

Figure 2.2 Will Rogers World Airport Facilities

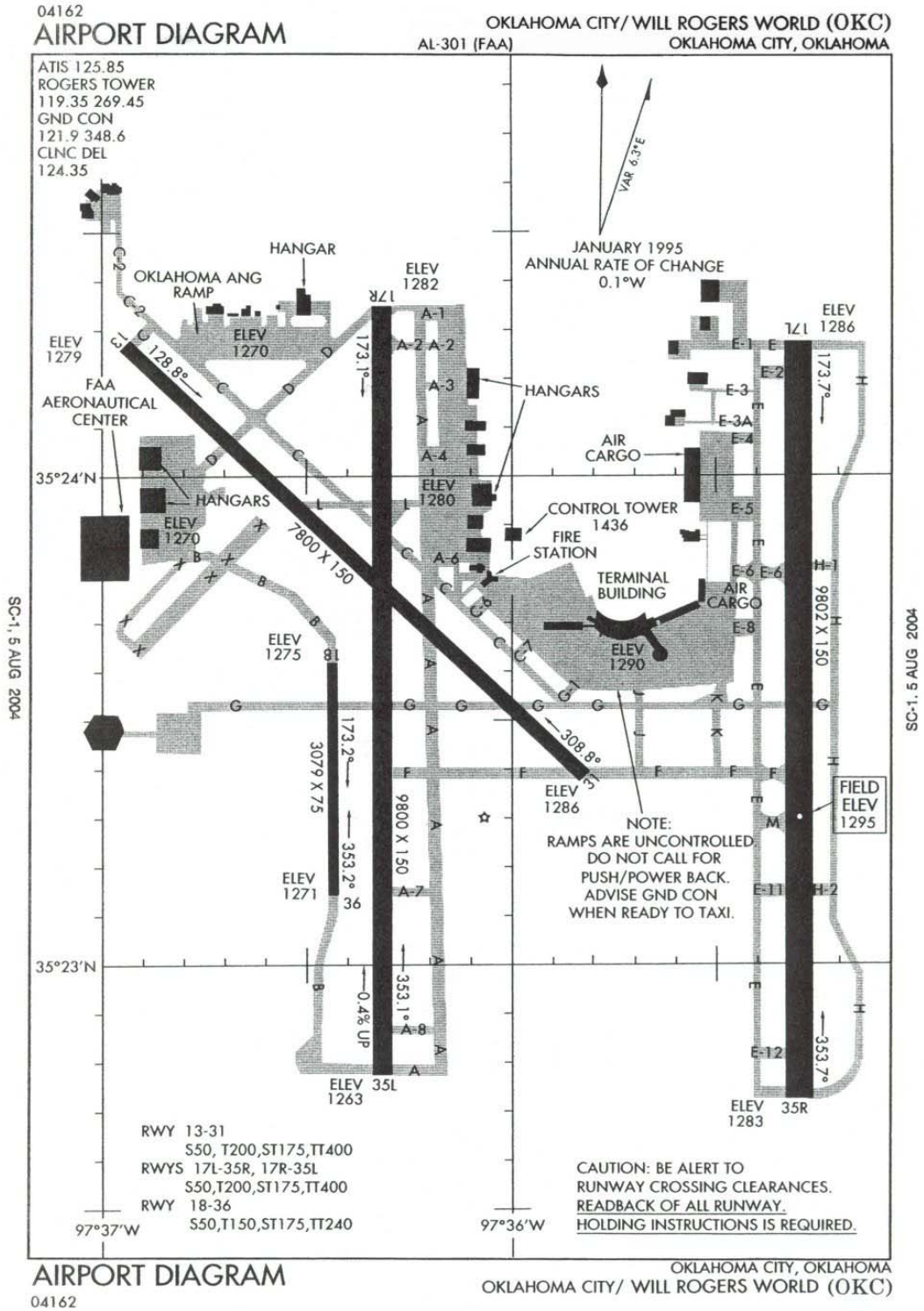


Figure 2.3 Tulsa International Airport Facilities

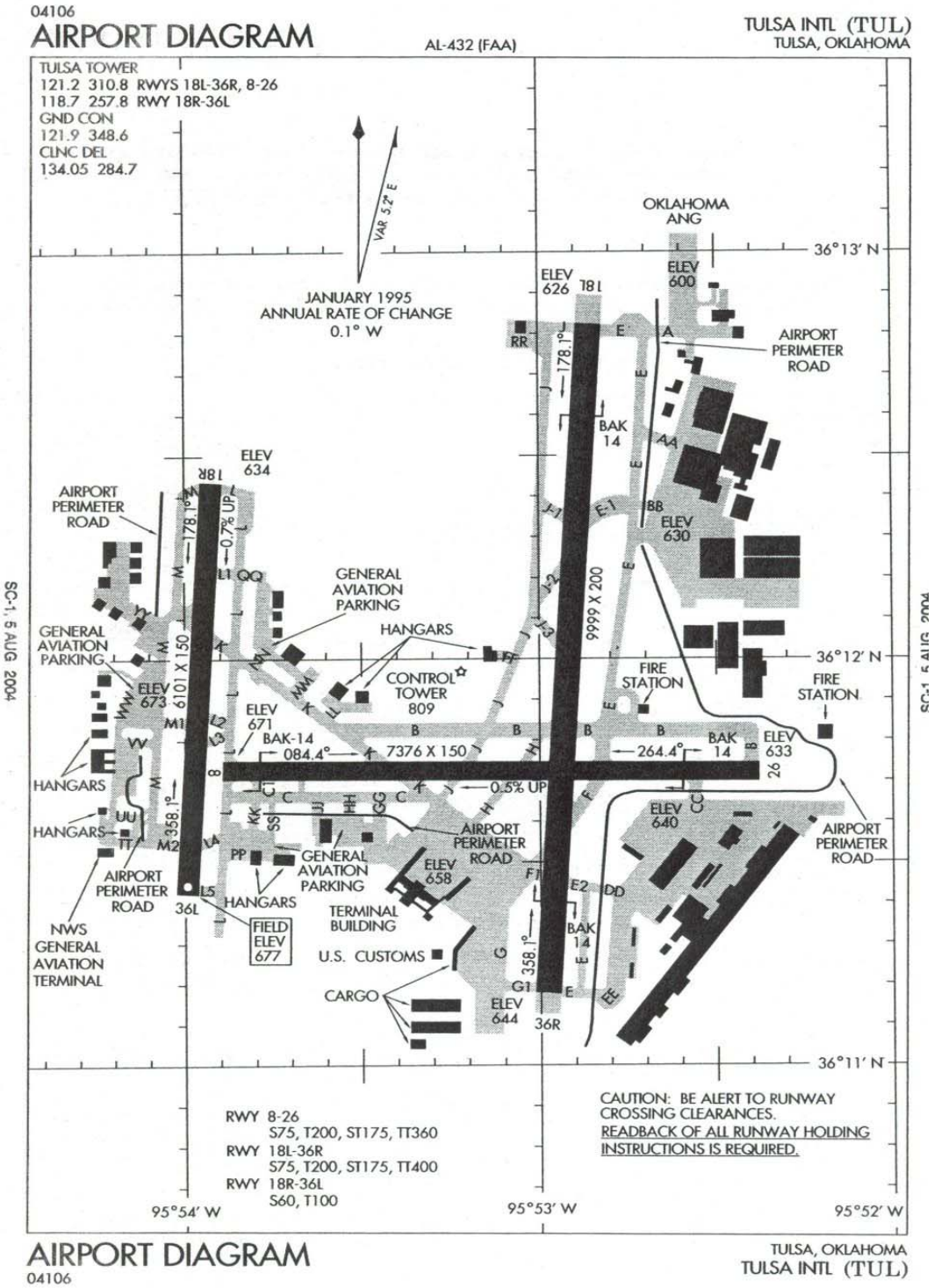


Table 2.3 Cargo at Will Rogers World Airport, Fiscal Years 2001-2004
(tons)

Carrier	2001 Enplaned	2001 Deplaned	2002 Enplaned	2002 Deplaned	2003 Enplaned	2003 Deplaned	2004* Enplaned	2004* Deplaned
American	14	54	1	5	0.4	0.6	0.1	1
American Eagle	0.6	6	0.4	2	0.2	2	0	1
Atlantic SE	5	13	3	2	0	0.1	0	0
ComAir	2	3	3	3	0	4	5	8
Continental	76	170	41	218	44	143	71	128
Delta	305	322	198	212	183	232	123	209
Frontier	0	0	0	0	36	9	7	17
Mesa	0	0	0	0	0	0	0	1
Northwest	11	48	10	46	6	43	13	26
Skywest	0	0	69	0.4	0.1	0.5	1	78
Southwest	333	865	260	765	458	897	380	946
TWA	10	87	16	2	0	0	0	0
Trans State	0	0	0	0	0	0	3	12
United	21	126	13	129	15	96	13	100
Airborne	3,023	3,525	2,135	2,269	2,214	2,159	2,130	2,181
Air Net/ US Check	399	24	3,277	7	0	0	0	0
Air Trans. International	4,733	4,592	23	3,469	30	30	0	0
Baron Aviation	115	100	230	214	0	0	0	0
Emery	2,090	3,596	0	0	0	0	0	0
FedEx	6,308	8,537	11,076	12,346	10,530	11,439	9,884	11,239
UPS	2,233	2,833	1,480	2,705	1,485	2,757	1,675	3,132
Total	19,678.6	24,901.0	18,835.4	22,394.4	15,001.7	17,812.2	14,305.1	18,079.0

Source: Will Rogers World Airport, Accounting Department, 2004

* Fiscal years run from July to June

2.1.1.2 Rail Freight

Currently, 20 freight railroads operate in Oklahoma: three Class I railroads, one regional railroad, 11 local line, and five switching and terminal lines (Table 2.4). As Table 2.4 indicates, total railroad miles operated in Oklahoma increased from 1997 to 2000 (74 miles), but then decreased from 2001 to 2002 by 769 miles. (Note that this increase was probably caused by trackage rights with the same trackage being used by two rail operators.) Class I railroads lost 770 miles over the six-year period, while local railroads increased trackage and trackage rights by 368 miles from 1997 to 2001, but declined in mileage by 165 miles from 2001 to 2002—a net increase of 203 miles. Other railroads (regional and switching/terminal) declined by 28 miles during the same six-year period. The state's railroad system is shown in Figure 2.4.

Table 2.4 Oklahoma Freight Rail Characteristics, 1997 to 2002

Characteristic	1997	1998	1999	2000	2001	2002
Number of Freight Railroads	19	20	20	20	19	20
Miles Operated:*	3,829	3,782	3,900	3,903	3,903	3,234
- Class I	2,811	2,692	2,693	2,645	2,532	2,041
- Regional	93	93	78	78	78	78
- Local	613	685	817	868	981	816
- Switching & Terminal	312	312	312	312	312	299
Total Carloads (thousands)	3,389	3,957	4,219	4,279	4,693	4,851
Total Tons (thousands)	173,066	183,820	200,802	209,199	217,470	222,551

Source: Association of American Railroads, *Railroad Service in Oklahoma*, 2002

*Including trackage rights

The State of Oklahoma supports rail transportation with ownership of several railroad rights-of-way. Most of these facilities are leased to railroad companies although a few are not in operation. State-owned railroad rights-of-way include trackage leased by: Union Pacific; Stillwater Central; Farmrail; Arkansas-Oklahoma; Wichita, Tillman & Jackson; Austin, Todd & Ladd; and South Kansas & Oklahoma.

Total tons of rail freight carried in Oklahoma increased 28.6 percent from 1997 to 2002, and by 6.4 percent between 2000 and 2002 (Table 2.4). Total rail carloads transported increased by 43.1 percent between 1997 and 2002, and by 13.4 percent from 2000 to 2002. As indicated in Table 2.5, aggregate rail freight terminating in Oklahoma generally exceeds rail freight originating in the state by roughly a three-to-two ratio, suggesting greater demand for intermodal off-loading capacity than on-loading. However, approximately 75 percent of all rail freight tonnage transported in Oklahoma in 2002 was through tonnage originating in and destined for locations outside the state.

Figure 2.4 Oklahoma Railroad System

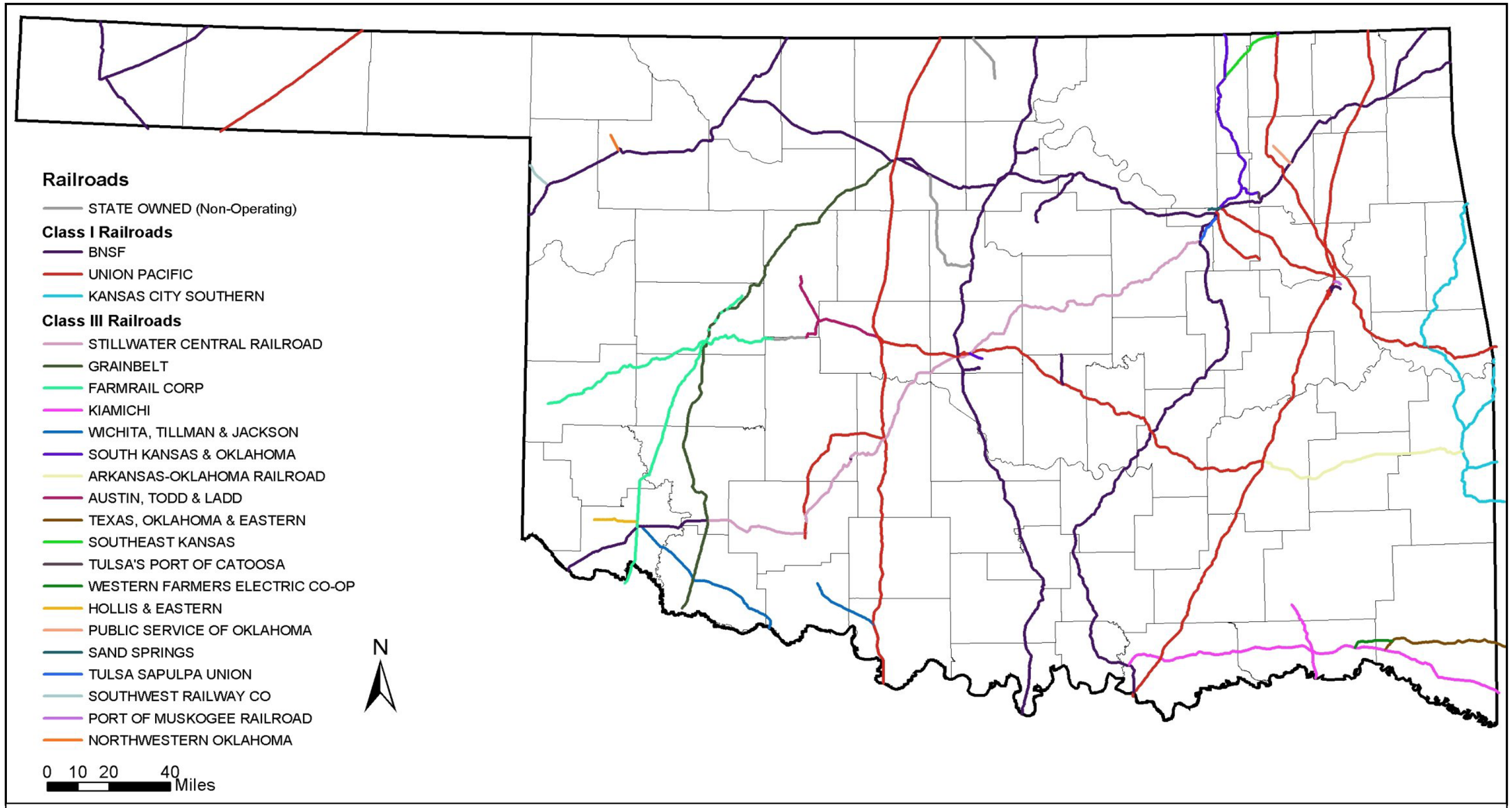


Table 2.5 Aggregate Rail Freight Trends in Oklahoma, 1997 to 2002
(thousands of short tons)

Movement Status	1997	1998	1999	2000	2001	2002
Total Originating	17,130	16,983	19,192	20,298	20,299	21,510
Total Terminating	27,680	28,466	30,559	27,099	31,626	34,445
Through Tonnage	128,256	138,371	151,051	161,802	165,545	166,696
Total Tons of Freight Carried	173,066	183,820	200,802	209,199	217,469	222,551

Source: Association of American Railroads, *Railroad Service in Oklahoma*, 1997-2002

Approximately 44 percent of all rail-shipped commodities originating in Oklahoma in 2002 were nonmetallic minerals, more than any other commodity (Table 2.6). This category also grew faster than other commodity types between 1997 and 2002—by 83 percent. Chemicals and farm products each accounted for approximately 12 percent of rail tonnage originating in the state, with growth in chemical shipments remaining relatively flat since 1997, while farm product tonnage grew by 28 percent. Other significant rail commodity freight originating in Oklahoma includes petroleum products and lumber and wood products.

Coal accounted for nearly two-thirds of rail commodities terminating in Oklahoma in 2002. Rail shipments of coal into the state grew by approximately 34 percent from 1997 to 2002. Other significant rail commodities terminating in Oklahoma include lumber and wood products, nonmetallic minerals, food products, and farm products.

Class I railroads operating in the state include BNSF Railway Company (BNSF), Union Pacific (UP), and Kansas City Southern (KCS). BNSF shares trackage with Amtrak passenger rail services between Oklahoma City and the Texas state line. Class III railroads are shown on the statewide railroad map (Figure 2.4).

BNSF's rail network in Oklahoma consists of four different operating divisions within the BNSF system. The route within the Springfield Operating Division connects Tulsa, Perry, Enid, and Avard through the northeastern corner of the state to Kansas City and St. Louis. A main line of the Kansas Operating Division in northwestern Oklahoma connects Kansas City to Amarillo as part of the transcontinental Chicago to Los Angeles corridor. The Powder River Operating Division crosses the Oklahoma panhandle carrying coal from Wyoming's Powder River Basin to Texas electric utilities. The Texas Operating Division primarily connects the Dallas – Fort Worth area to Kansas City, with two north-south main lines through Oklahoma—one through Oklahoma City and one through Tulsa. A small BNSF Intermodal Hub is located in Oklahoma City. BNSF operates 1,475 route miles within the state. Its primary customers include General Motors, Nestle Purina, Continental Carbon, Budweiser, Valero Refinery, Williams Refinery, and Georgia Gulf. The primary commodities transported by the BNSF in Oklahoma with either origins or destinations in the state are non-metallic minerals, chemicals, and grain. Coal bound for Texas electric utilities is a major commodity of BNSF's interstate traffic through Oklahoma. A map of BNSF's national intermodal network is shown in Figure 2.5.

Table 2.6 Statewide Rail Freight Trends: Tonnage Originating and Terminating, by Commodity, 1997 to 2002

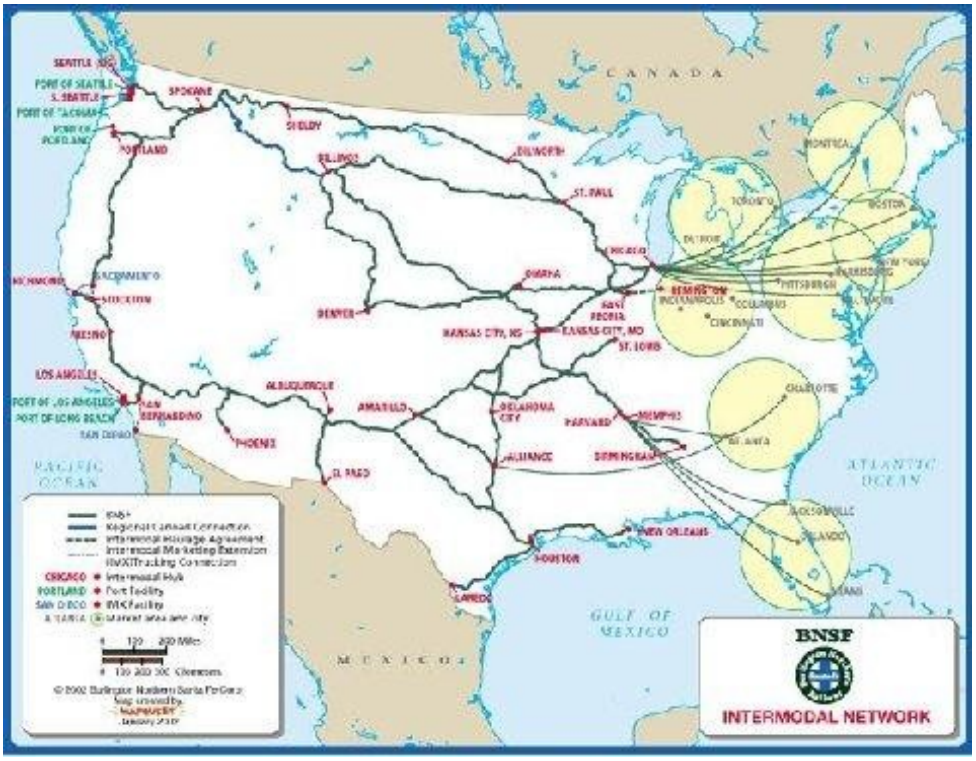
(thousands of short tons)

Originating	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Nonmetallic minerals	5,178	5,781	7,337	8,211	9,006	9,489
Chemicals	2,655	2,665	2,552	2,645	2,239	2,576
Farm products	1,997	2,263	2,550	3,037	2,739	2,561
Petroleum products	1,466	1,310	1,629	1,992	1,834	1,962
Glass and stone	1,205	1,195	1,414	n.a.	n.a.	n.a.
Lumber & wood products	n.a.	n.a.	n.a.	1,109	1,316	1,453
All other	4,629	3,769	3.710	3,304	3,166	3,469
Total Originating	**17,130**	**16,983**	**19,192**	**20,298**	**20,299**	**21,510**
Terminating	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Coal	16,070	17,024	18,247	14,650	18,704	21,604
Lumber & wood products	2,018	2,094	2,014	2,212	2,368	2,417
Nonmetallic minerals	1,619	1,557	1,886	2,094	1,906	2,052
Farm products	1,607	1,763	1,909	1,784	2,538	1,748
Food products	1,339	1,362	n.a.	n.a.	1,591	1,833
Chemicals	n.a.	n.a.	1,458	1,391	n.a.	n.a.
All other	5,026	4,667	5,067	4,969	4,520	4,692
Total Terminating	**27,679**	**28,467**	**30,581**	**27,100**	**31,627**	**34,346**
Total Through Traffic	**128,256**	**138,371**	**151,051**	**161,802**	**165,545**	**166,696**
Total Tonnage Carried	**173,065**	**183,821**	**200,824**	**209,200**	**217,471**	**222,552**

Source: Association of American Railroads, Railroad Service in Oklahoma, 1997-2002

n.a.: not available

Figure 2.5 BNSF National Intermodal Network



Source: BNSF Railway Company

Oklahoma is part of UP's north-south corridor linking the Midwest with the Gulf Coast. The railroad operates 1,181 miles of track in the state. Grain to be exported overseas and coal bound for power plants in the South is shipped through the state via UP (originating, terminating, and through rail freight commodities are shown in Table 2.6). Commodities shipped by UP originating in Oklahoma include wheat, cement, and aggregates. UP customers include Oklahoma Gas & Electric, Grand River Dam Authority and Great Lakes Carbon, Dolese Brothers, Lone Star Industries and Farmland Industries. Nearly all north-south UP traffic funnels through Wagoner, as well as some trains linking Arkansas with the Midwest. UP also operates another north-south line in western Oklahoma, serving Enid, El Reno and Duncan, which connects Kansas wheat producers to the Texas ports. Switch yards and related facilities are operated at Muskogee, Tulsa, Oklahoma City, Chickasha, Enid, and McAlester.

KCS operates primarily north-south in the eastern portion of Oklahoma, providing the shortest route between Kansas City and the Gulf of Mexico. The KCS system funnels traffic from the Kansas City area to the ports of Port Arthur, Texas, New Orleans, West Lake Charles, Louisiana, and Gulfport, Mississippi, as well as NAFTA-related Mexican border crossings at Laredo and Presidio. In the 1990s, while UP and BNSF concentrated on increasing east-west transcontinental traffic, KCS achieved its goal of creating the "NAFTA Railway," connecting the heartland of the United States to central Mexico. KCS operates 139 route miles in Oklahoma. The majority of the KCS traffic in Oklahoma is interstate traffic, having neither an origin nor destination within the state. A map depicting KCS's North American rail system is provided in Figure 2.6.

Figure 2.6 KCS Rail System

2.1.1.3 Rail Freight Intermodal—Truck/Rail

Intermodal facilities, as formally defined by railroads, are those in which containers or truck trailers are loaded to or from railcars in facilities equipped to effect those movements efficiently. Oklahoma has several intermodal facilities with the capability for rail-truck and other types of intermodal freight transfers. Five Oklahoma intermodal facilities are served by six routes designated official National Highway System Intermodal Connectors by ODOT (Table 2.7). None of these, however, is a rail-truck intermodal facility. The rail industry's definition of intermodal facilities is more restrictive than the criteria used by the FHWA in connection with designation of intermodal facility connectors. The Williams Pipeline Station is a truck-pipeline intermodal facility and the remaining facilities have considerable truck traffic. For example, the Tulsa Port of Catoosa averages over 450 trucks per day.

Table 2.7 National Highway System Intermodal Connectors

Connector	Intermodal Facility	Location	Facility Type
23rd St., from I-44 ramp to Station	Williams Pipeline Station	Tulsa	Truck/Pipeline Terminal
SH 266, from US 169 to Port SH 266, from I-44 to Port	Port of Catoosa	Tulsa	Port Terminal
SH 11, from I-244 to Airport	Tulsa International Airport	Tulsa	Airport
Meridian Ave., Airport Rd. to Terminal Airport Rd., I-44 to Meridian Ave.	Will Rogers World Airport	Oklahoma City	Airport
SH 412P, from US 412 to Port	Johnston's Port 33	Tulsa	Port Terminal

Source: Federal Highway Administration (http://www.fhwa.dot.gov/hep10/nhs/intermodalconnectors/oklahoma.html), 2001; ODOT, 2004

In addition to the facilities with officially designated connectors, BNSF has an intermodal rail-truck facility in Oklahoma City, near the junction of I-35 and I-240. BNSF's national intermodal network is shown in Figure 2.5. KCS operates an intermodal ramp in Sallisaw, where private port facilities on the McClellan-Kerr Arkansas River Navigation System are located. However, that facility was slated for closure in September 2004. BNSF also provides the names and locations of privately-operated "transload" facilities the railroad uses for intermodal transfers of freight throughout the state (Table 2.8). However, several of these facilities are currently open only to BNSF use.

Despite what appears to be relatively few intermodal freight transfer facilities in the state, Oklahoma ranked within the second highest tier of states in the intermodal share of freight originating in the state (based on total value) as early as 1993 (Figure 2.7). This places Oklahoma alongside a few select states in the central region of the U.S., with the intermodal share of originating freight being typically higher in the Northeast and on the West Coast.

Another relevant factor in considering needs and opportunities for developing intermodal transfer capabilities in Oklahoma is the location of designated foreign trade zones in the state. Four foreign trade zones are located in Oklahoma. They are in Rogers County (FTZ No. 53), Oklahoma City (FTZ No. 106), Muskogee (FTZ No. 164), and Durant (FTZ No. 227). The Rogers County FTZ is divided into five separate geographical areas:

- Bartlesville Chamber of Commerce – 160 acres
- Mid-America Industrial District – 750 acres

- Stillwater Chamber of Commerce – 500 acres
- Tulsa International Airport – 1,731 acres
- Tulsa Port of Catoosa – 61 acres

The Oklahoma City FTZ is operated by the Oklahoma City Department of Airports, with the grantee being the Port Authority of the Greater Oklahoma City Area. The Muskogee FTZ encompasses the entire Port of Muskogee, but is currently inactive. The Durant FTZ is located in the 320-acre International Business Park in Durant. The FTZ has been working to develop 16,000 square feet of business incubator space available within the business park.

Figure 2.7 Intermodal Share of Total Value of Shipments Originating in States, 1993

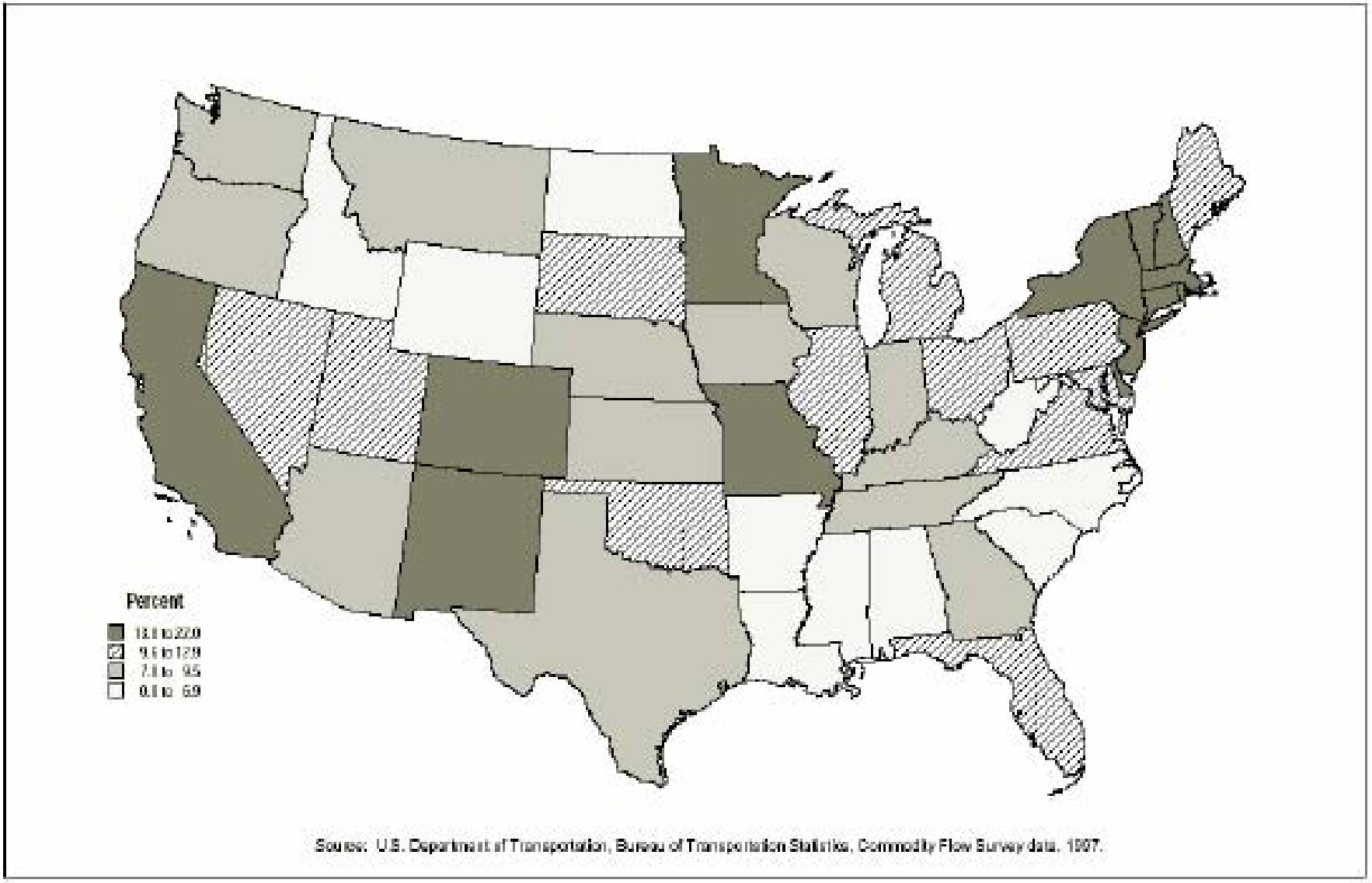


Table 2.8 Private Intermodal Facilities on BNSF and Affiliated Lines

Name	Status	Address	Operator
Oklahoma Transload Altus	BNSF use only	720 S. Grady Altus	Oklahoma Transload Co.
Steel Coil Catoosa	BNSF use only	5151 Ft. Gibson Rd. Catoosa	Staub Petroleum
Tuloma Stevedoring Catoosa	BNSF use only	5275 W. Channel Rd. Catoosa	Tuloma Stevedoring, Inc.
Affiliated Cartage Oklahoma City	Open	2101 SE 69th Oklahoma City	Affiliated Cartage, Inc.
AmeriCold Oklahoma City	BNSF use only	Oklahoma City	Americold Logistics, LLC
Apollo Distribution Oklahoma City	BNSF use only	5001 S.W. 36th Oklahoma City	Apollo Distribution, Inc.
Commercial Warehouse Oklahoma City	Open	3815 N. Santa Fe Oklahoma City	Commercial Warehouse, Inc.
CX Transport (CXT) Oklahoma City	BNSF use only	4607 S. MacArthur Blvd. Oklahoma City	CX Transportation
D & M Distribution Oklahoma City	BNSF use only	7815 Gimini Oklahoma City	D&M Distribution Services, Inc.
Oklahoma City Reload Oklahoma City	BNSF use only	1008 South High Oklahoma City	Oklahoma City Reload
Hodges Companies Okmulgee	BNSF use only	800 South Madison Okmulgee	Hodges Warehouse
Arco Warehouse Tulsa	Open	1810 East Jasper Tulsa	Arco Warehouse Co., Inc.
Ellsworth Motor Tulsa	BNSF use only	2120 N. 161st East Ave. Tulsa	n.a.
Metro Port Tulsa	BNSF use only	5524 E. 12th Street Tulsa	n.a.
Reynolds Trucking Tulsa	BNSF use only	Team Track #2 South Tulsa	Reynolds Trucking Co.
Sand Springs Tulsa	Open	1650 South 81st West Ave. Tulsa	Sand Springs Railway Co.
Frederick Sales Wheatland	Open	6800 S. Council Road Wheatland	Frederick Sales, LLC

Source: BNSF Railway Company, 2004

n.a.: not available

2.1.1.4 Truck Freight

Truck Freight Movement

Truck traffic is expected to grow throughout Oklahoma during the next 20 years. This growth will most likely occur in urban areas and on the state's Interstate highways and other major highway arterials, such as US 54, US 69, US 70, US 169, and US 412. According to FHWA's *Freight Analysis Framework* (FAF), truck traffic to and from Oklahoma accounted for 12 percent of the average annual daily truck traffic (AADTT) on the FAF road network. Approximately eight percent of this traffic comprised in-state shipments, while 32 percent involved trucks traveling across Oklahoma to markets out of state. About 48 percent of the AADTT was not identified with a route-specific origin or destination. The State's designated commercial vehicle routes are shown in Figure 2.8. the percentage of truck AADT as of 2003 on the state highway system is shown on Figure 2.9.

Over 120.6 million tons of freight originating or terminating in Oklahoma were moved via truck in 1998, the latest year for which data were available for the intermodal study. From 1994 to 1998, truck freight tonnage originating in Oklahoma grew by nearly 20 million tons (Table 2.9). Terminating truck freight grew by nearly 26 million tons during the same period.

Table 2.9 Oklahoma Truck Freight
(tons)

Direction	1994	1995	1996	1997	1998
Originating	37,286,504	45,924,352	48,824,688	50,438,850	57,178,682
Terminating	37,669,669	48,557,933	52,186,652	54,685,972	63,471,953

Source: Bureau of Transportation Statistics (www.bts.gov)

Figure 2.8 Federal Commercial Vehicle Routes in Oklahoma

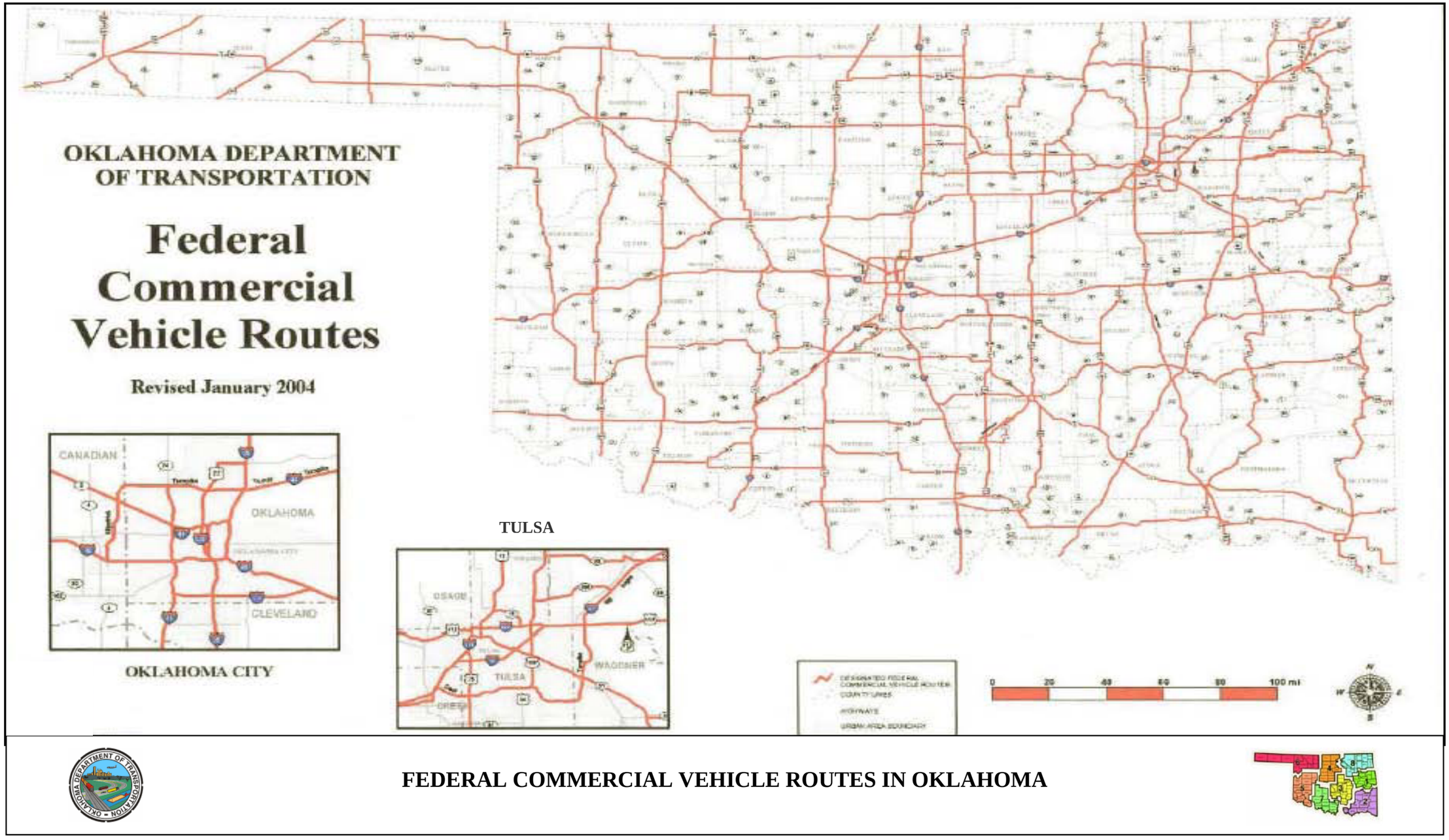
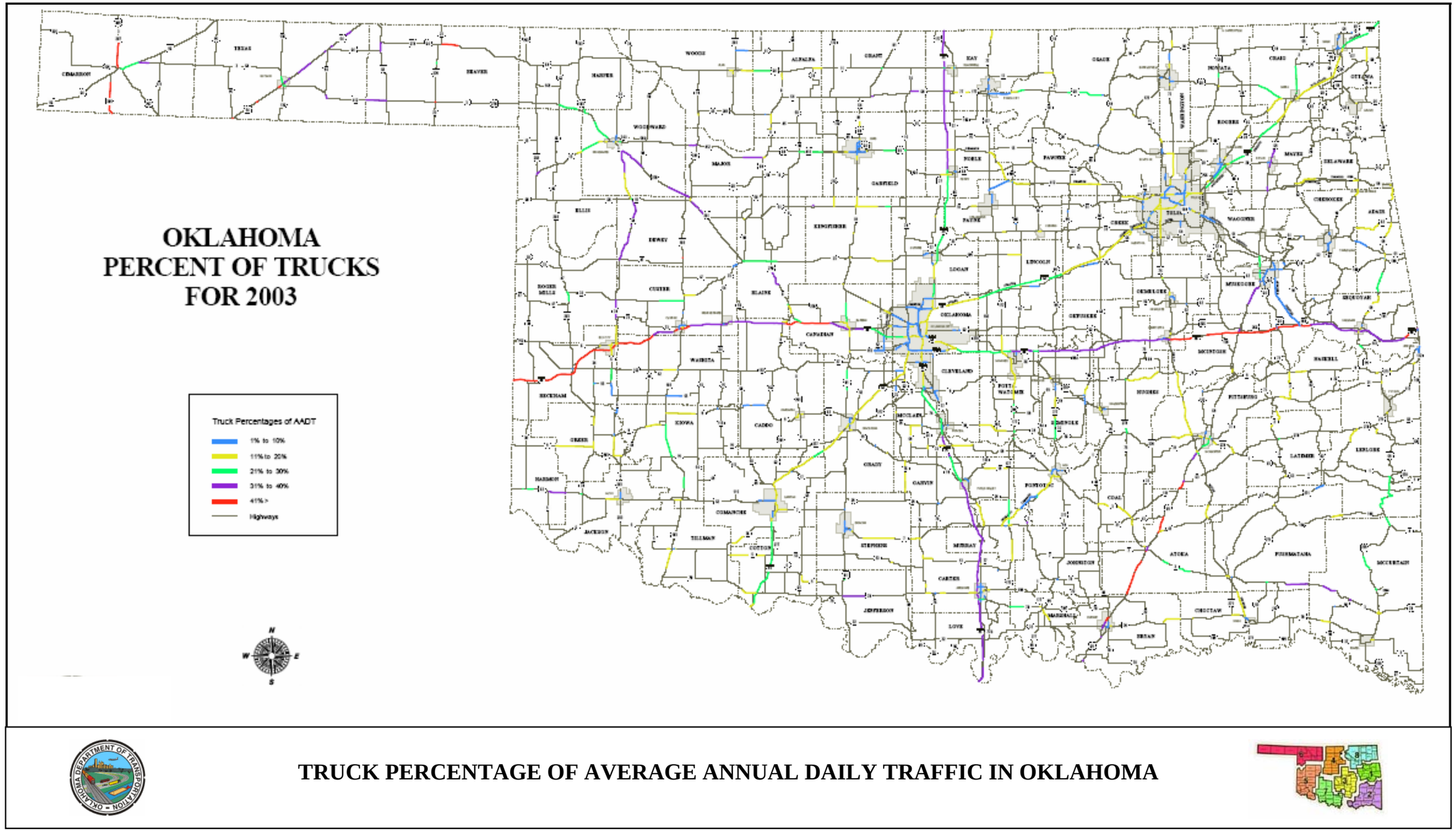


Figure 2.9 Truck Percentage of Average Annual Daily Traffic in Oklahoma



Truck Size and Weight Limitations

Oklahoma's legal truck size and weight limitations, as in any state, have implications for the planning and design of intermodal facilities so that those facilities can adequately accommodate the types of trucks likely to use them. Size and weight limits may, in other cases, represent a barrier to movement of certain types of shipments. The maximum lengths for various types of freight-hauling trucks are displayed in Table 2.10. Oklahoma's size and weight restrictions require a truck width of no more than eight and one-half feet and a maximum height of 14 feet (with some exceptions, see Table 2.10). Legal truck weight limits are shown in Table 2.11 and Table 2.12. Vehicle escort requirements are listed in Table 2.13.

Table 2.10 Oklahoma Legal Truck Dimensions

Dimension	Feet	Inches	Variations/Special Applications
Width	8	6	
Height	14	0	Baled hay 14 feet, 3 inches
Length	45	0	Single truck or bus
	53	0	Semi-trailer, excluding truck tractor
	80	0	Road tractor trailer (including towbars, excluding road tractor; 28 feet, 6 inches maximum per trailer; 19 feet, 0 inch maximum towbar)
	80	0	Straight truck-trailer
	81	6	Semi-trailer (45 feet, 0 inch maximum per trailer; second unit may not exceed first unit by more than 3,000 pounds)

Source: Oklahoma Department of Public Safety, 2004

Table 2.11 Legal Axle Weight

Single axle (dual wheel)	20,000 lbs.
Two-axle tandem	34,000 lbs.

Note: All other axle combinations per Federal Bridge Formula

Source: Oklahoma Department of Public Safety, 2004

Table 2.12 Gross Weight

Interstate	80,000 lbs. (except by special permit)
Primary and Secondary	Maximum allowed by Federal Bridge Formula

Source: Oklahoma Department of Public Safety, 2004

Table 2.13 Truck Escorts

Interstate Highways	All loads exceeding 16′ 0″, rear escort required
Non-Interstate	All loads exceeding 20′ 0″, front escort required on two-lane highways, rear escorts required on divided highways. Special requirements apply to escort vehicles.
Flagging	All loads exceeding 8′ 6″ wide; or extending more than 3′ 0″ ahead of the front bumper; or extending more than 4′ 0″ beyond the rear of the bed of a vehicle must be flagged. Minimum of 18″ square flag required. Warning signs are required on all vehicles or loads exceeding 95′ long or 12′ wide.
Holidays and Weekends	Overlength loads may move seven days a week and twenty-four hours per day if lighted (limitations apply). Overwidth loads may move seven days per week. Overwidth loads may not move during the period of day between one-half hour after sunset and one-half hour before sunrise. All oversize loads may move during weekends and holidays.

Source: Oklahoma Department of Public Safety, 2004

2.1.1.5 Ports and Waterways

The McClellan-Kerr Arkansas River Navigation System is 445 miles long, with a minimum nine-foot draft, and begins at the Mississippi River in Rosedale, Mississippi, and ends at the Port of Catoosa in Tulsa. Every year, 13 million tons of cargo are transported on the McClellan-Kerr waterway by barge. Commodities range from sand and rock to fertilizer, wheat, raw steel, refined petroleum products, and sophisticated petrochemical processing equipment. The McClellan-Kerr System is shown in Figure 2.10.

There are two public port facilities that serve Oklahoma: the Port of Muskogee, located in Muskogee, and the Tulsa Port of Catoosa, located in Tulsa. Both are administered by city-county port authorities. In addition, private port facilities are located in or near Inola, Wagoner, Webbers Falls, Keota, and Sallisaw. Five locks are located in Oklahoma, at Spiro, Sallisaw, Gore, Porter, and Inola. All lock chambers are 110 feet wide by 600 feet long.

The Port of Catoosa is conveniently located on 2,000 acres in the city of Tulsa and lies near I-244, I-44, and US 169. The port has five public terminal areas, each fully equipped and staffed to transfer inbound and outbound cargo efficiently between barges, trucks and rail cars. The port's transportation assets include waterfront docks and terminals and the 1.5-mile private channel on which they are located. The Port Authority owns two locomotives, serving the terminals and 20 private industry spurs on its 12-mile short-line system. The five public terminal areas include:

- A general dry cargo dock operated by Tuloma Stevedoring, Inc. This public dock, 720 feet long, with a 230-foot wide concrete apron, is equipped with an assortment of forklifts and cranes, including a 200-ton overhead traveling bridge crane. The primary types of freight loaded and unloaded at this dock are commodity iron and steel, project cargo, and other breakbulk material.
- A roll-on/roll-off low water wharf operated by the Port Authority. This wharf is used for transferring over-dimensional or over-weight project cargo, such as giant processing equipment used in refineries. The wharf is a public dock 180 feet long with a 50-foot wide concrete apron

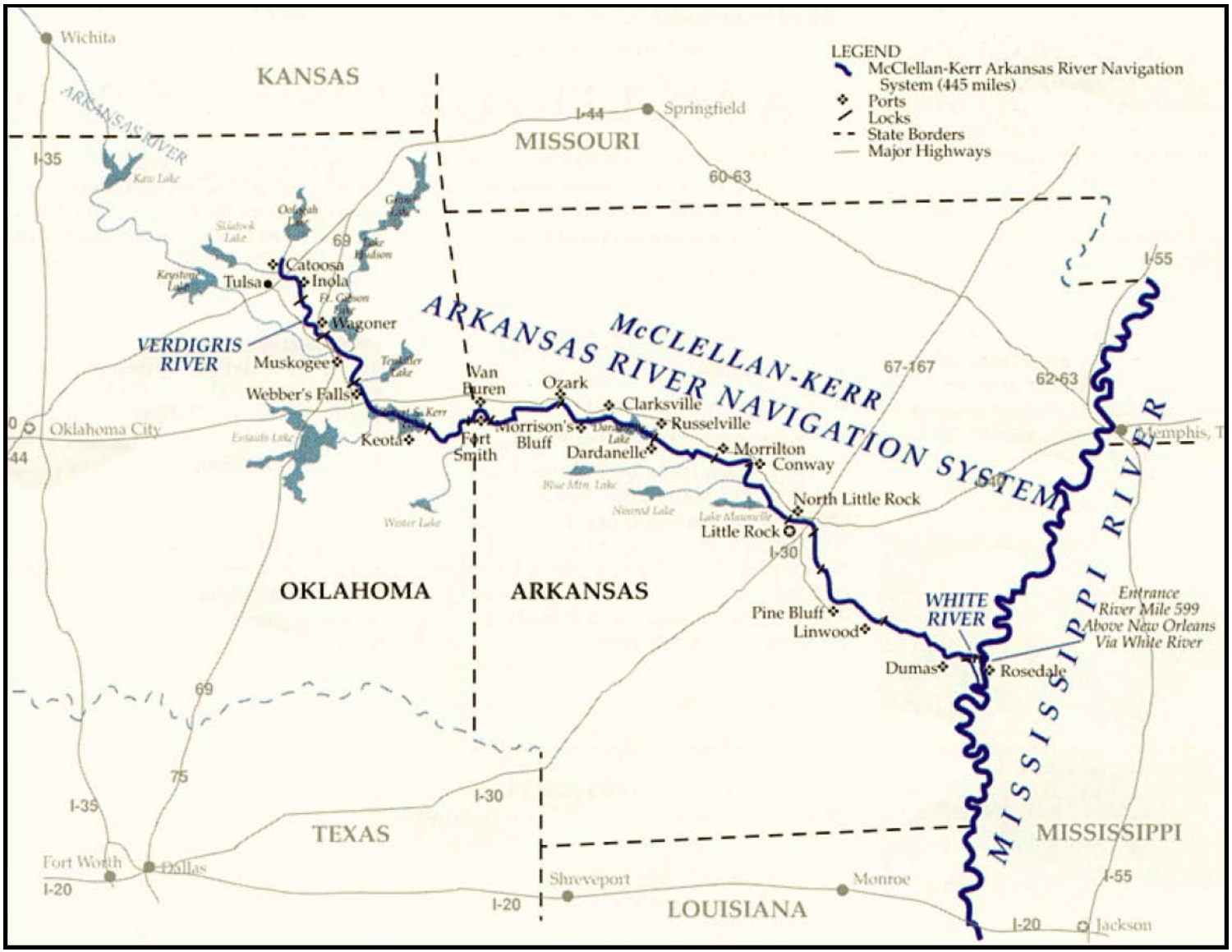
and embedded railroad tracks. The dock is connected to a concrete road with a 3.2-percent slope. Loads exceeding 600 tons can be driven directly on to or off of giant, ocean-rated, flat-deck barges using rail cars, trucks, or wheeled transporters.

- A dry bulk terminal, which is a public terminal operated by Catoosa Fertilizer Co. A wide range of dry bulk commodities, from fertilizer to pig iron, are transferred between transportation modes. Inbound and outbound systems can load or unload up to 400 tons per hour. Covered storage is available for 80,000 tons of material and open storage for 50,000 tons. The terminal is equipped with two pedestal cranes and an outbound loading conveyance system.
- A public grain terminal operated by Peavey Company, a division of ConAgra. The facility includes an outbound conveyance system with a 25,000-bushel per hour capacity, an inbound unloading system with a 30,000-bushel per hour capacity, a grain sampler, dust control system, and an approximately 4.5-million bushel storage capacity. The major product handled is outbound hard red winter wheat, but inbound or outbound soybeans, oats, milo, and millet can also be handled.
- Seven private bulk liquids terminals, where many types of bulk liquids, including chemicals, asphalt, refined petroleum products, and molasses, are transferred and stored.

The 50 companies located at the Port of Catoosa employ over 2,500 people involved in manufacturing, distribution, and processing of products ranging from agricultural commodities to manufactured consumer goods. Nationwide trucking carriers averaging over 450 trucks per day serve the Port of Catoosa. With the port located near the geographic center of the U.S., truck traffic can reach either coast in just two days. Adding to the Tulsa Port of Catoosa's accessibility is the Tulsa International Airport, which is located just seven miles from the port. The Port of Catoosa is the home of Foreign Trade Zone 53, encompassing 61 acres at the port facility, and is served by SH 266, an official National Highway System Intermodal Connector. Figure 2.11 shows a layout of port facilities.

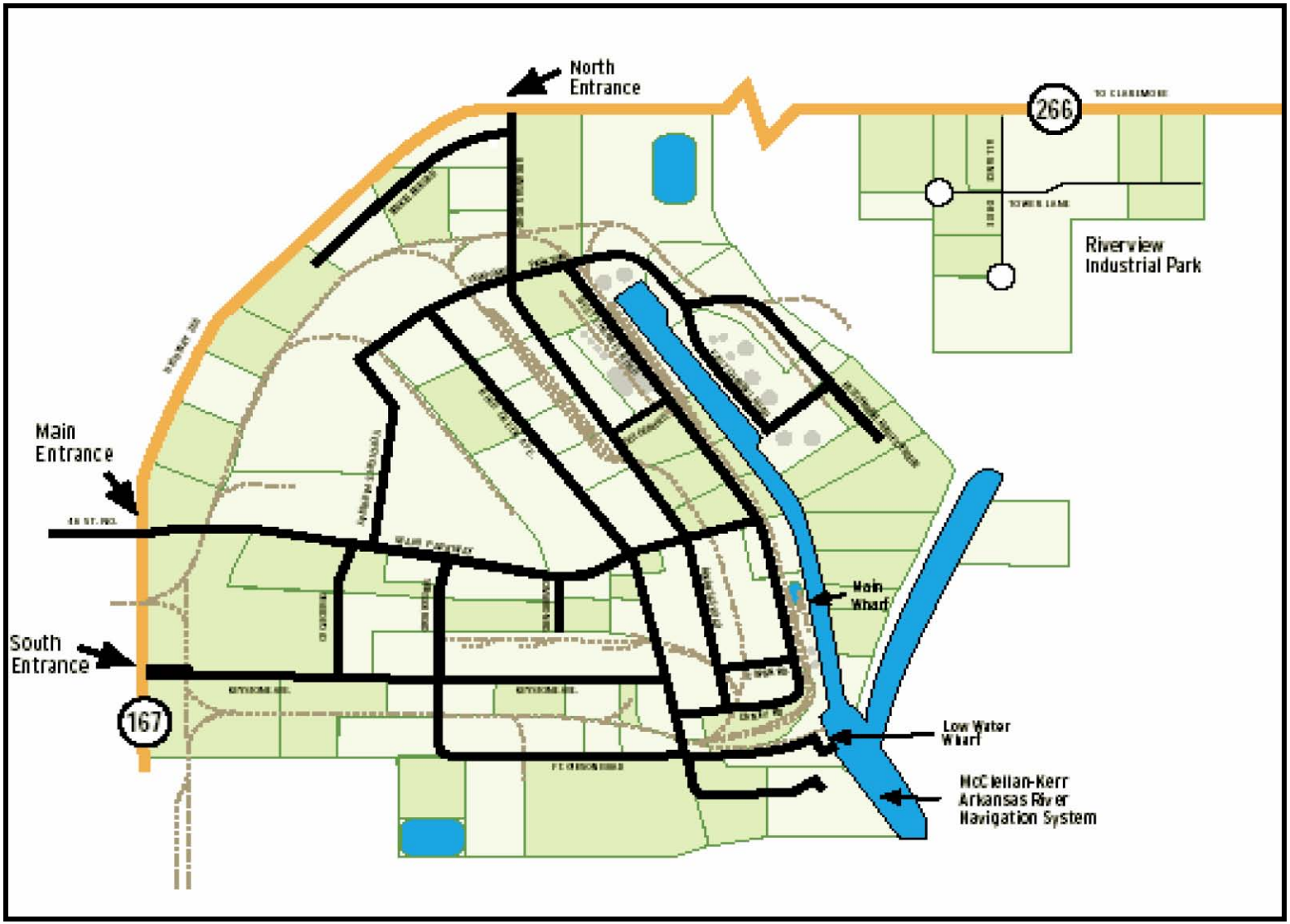
The Port of Muskogee is located in the City of Muskogee. All-weather, paved industrial roads extend throughout the port. Industrial roads connect to the Muskogee Turnpike and State Highway 165 at the port entrance. The Port of Muskogee has twenty mooring dolphins along the river channel frontage, and is fully equipped with overhead and mobile cranes for efficiently transferring inbound and outbound cargo between barges, trucks and rail cars. Port facilities also include a 94,000-square foot dockside warehouse, a rail marshalling yard, and an internal track system that is within the Muskogee switching limits of the Union Pacific Railroad. Port services include a harbor towboat for switching and fleeting barges. The port is served by most of the nationwide trucking carriers, and located near the geographic center of the U. S. Truck traffic can reach either coast in just two days. Adding to the Port of Muskogee's accessibility is Tulsa International Airport, which is located just 45 miles from the port. The Port of Muskogee is the home of Foreign Trade Zone 164, encompassing 144 acres at the port facility. Figure 2.12 shows the port location.

Figure 2.10 McClellan-Kerr Arkansas River Navigation System



Source: ODOT Waterway Branch

Figure 2.11 Tulsa Port of Catoosa



Source: Tulsa Port of Catoosa

Table 2.14 Cargo at Oklahoma Public Ports, 2000 to 2004
(tons)

Port	2000	2001	2002	2003	2004*
Port of Muskogee	488,968	498,073	576,938	672,170	541,534
Tulsa Port of Catoosa	2,210,061	2,046,692	2,223,103	2,250,139	2,205,127
Total	2,699,029	2,544,765	2,800,041	2,922,309	2,746,661

Source: Port of Muskogee, 2004; Tulsa Port of Catoosa, 2004

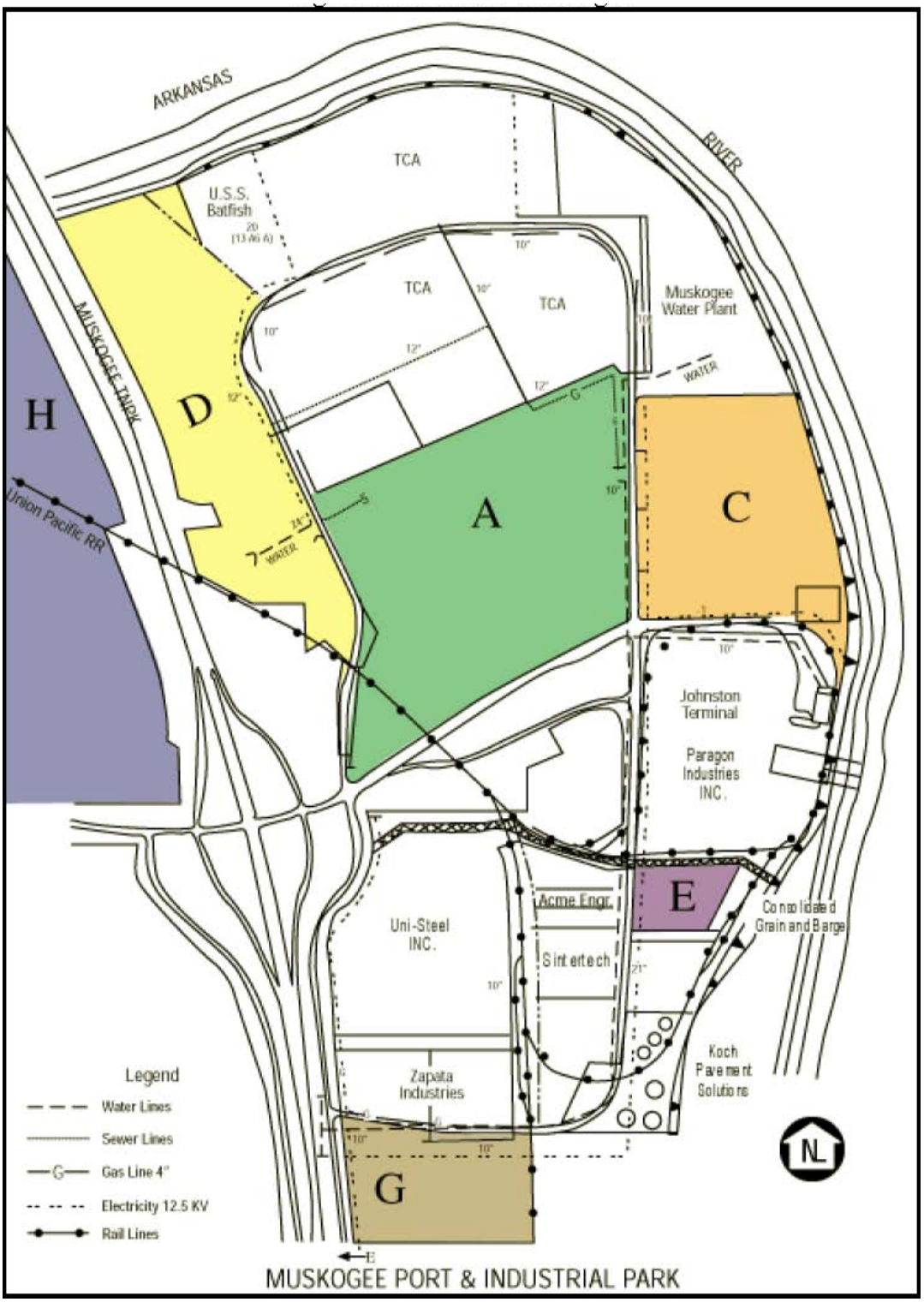
* 2004 projected tonnage

The quantities of freight moving through Oklahoma's public river ports have fluctuated considerably from 2000 to 2004 (Table 2.14). Both public ports have been subject to this pattern in river freight traffic, leaving 2004 estimated freight tonnage not substantially changed from 2000. Approximately 77 percent of the state's waterway freight was shipped through the Tulsa Port of Catoosa in 2003. Approximately 1.0 million tons were inbound and 1.2 million tons were outbound (Table 2.15 and Table 2.16).

Dry bulk and general dry commodities comprised most of the inbound tonnage to Oklahoma between 2000 and 2003 (Table 2.15), with liquid bulk and agricultural commodities constituting the remainder. However, liquid bulk and agricultural goods comprised most of the commodities shipped out from Oklahoma's ports over that same period (Table 2.16). This suggests differing needs in on-loading and off-loading capabilities at the state's ports.

Commodity categories recorded by the Port of Muskogee differ from those reported by the Tulsa Port of Catoosa (Table 2.17 and Table 2.18). Leading commodities shipped inbound to the Port of Muskogee over the last five years include steel, clay, asphalt, fertilizer, and petroleum coke (Table 2.17). Leading outbound commodities have included petroleum coke, fly ash, and cement (Table 2.18).

Figure 2.12 Port of Muskogee



Source: Port of Muskogee

Table 2.15 Inbound Cargo, Tulsa Port of Catoosa, 2000 to 2003 (tons)

Commodity	2000	2001	2002	2003
General Dry	411,096	357,929	386,860	369,552
Dry Bulk	416,223	563,339	373,025	504,019
Agricultural	14,838	25,767	24,432	32,205
Liquid Bulk	152,506	106,559	132,673	106,778
Total	994,663	1,053,594	916,990	1,012,554

Source: Tulsa Port of Catoosa, 2004

Table 2.16 Outbound Cargo, Tulsa Port of Catoosa, 2000 to 2003 (tons)

Commodity	2000	2001	2002	2003
General Dry	7,293	3,795	3,240	5,412
Dry Bulk	8,710	16,478	26,038	18,749
Agricultural	514,732	469,165	575,372	542,139
Liquid Bulk	684,663	503,660	701,463	671,285
Total	1,215,398	993,098	1,306,113	1,237,585

Source: Tulsa Port of Catoosa, 2004

Table 2.17 Inbound Cargo, Port of Muskogee, 2000 to 2004 (tons)

Commodity	2000	2001	2002	2003	2004*
Asphalt	127,356	154,157	150,221	78,272	109,651
Clay	0	0	0	28,919	198,132
Corn	2,460	0	0	0	0
Feldspar	0	0	0	19,609	0
Fertilizer	66,906	81,772	36,755	42,862	63,806
Glass	3,218	3,466	2,003	2,021	1,975
Glass Cullet	5,724	0	2,922	1,330	0
Grain Pellets	0	8,313	7,270	0	0
Machinery	0	0	600	0	0
Molasses	20,047	19,077	22,633	24,830	34,498
Nepthalene CN	0	0	0	18,061	30,350
Petroleum Coke	46,685	48,340	75,201	35,275	15,086
Pipe	0	1,091	0	0	0
Salt	10,338	7,734	8,824	4,634	0
Sand	1,398	1,619	2,999	925	1,334
Steel	53,107	105,730	161,970	206,791	213,052
Wood Mulch	8,824	1,678	0	0	0
Zinc	13,580	7,101	0	0	0
Total	359,643	440,078	471,398	463,529	667,884

Source: Port of Muskogee, 2004

* 2004 projected tonnage

Table 2.18 Outbound Cargo, Port of Muskogee, 2000 to 2004 (tons)

Commodity	2000	2001	2002	2003	2004*
Asphalt	8,376	2,835	0	0	0
Beans	0	0	15,247	9,314	4,393
Cement	0	0	0	61,424	31,651
Corn	1,306	0	0	0	0
Fly Ash	37,254	40,895	44,855	77,324	75,660
Milo	3,042	1,470	0	0	3,439
Petroleum Coke	48,459	105,589	37,894	54,394	39,232
Wheat	30,881	2,199	7,538	6,180	0
Total	129,318	152,988	105,534	208,636	154,375

Source: Port of Muskogee, 2004

* 2004 projected tonnage

2.1.2 Passenger Transportation

This section of the inventory includes information on the following passenger transportation modes:

- Aviation
- Public Transit
- Bicycle & Pedestrian
- Highways

As expected, the automobile represents by far the most dominant passenger transportation mode, with accessibility to a considerable grid of state and federal highways. At the same time there is an extensive rural transit network which provides important connections from rural areas to more populated centers in the state and beyond through connections to intercity bus lines and Amtrak. There is also an extensive system of general aviation airports statewide. The major metropolitan centers (Oklahoma City and Tulsa) are well served by commercial airlines and have active public transit systems in place.

2.1.2.1 Aviation

Two major international airports serve Oklahoma—Will Rogers World Airport, in Oklahoma City, and Tulsa International Airport, in Tulsa. Three regional airports located in Enid (Woodring Regional Airport), Lawton (Lawton-Fort Sill Regional Airport), and Ponca City (Ponca City Regional Airport) serve as commercial passenger links in their respective regions. In addition to these five commercial airports, 122 general aviation airports located around the state serve private aircraft. Figure 2.1 in Section 2.1.1 (Air Cargo) displays the state's commercial and general aviation airports.

Commercial Aviation

Will Rogers World Airport is located in the southwest corner of Oklahoma City. With two main runways (both 9,800 feet) and a crosswind runway (7,800 feet), the airport presently serves commercial passenger, cargo, general aviation, and Air National Guard customers. Airlines that serve the airport include: American, American Eagle, Atlantic Southeast, Champion Air, COMAIR, Continental, Delta, Delta Connection, Frontier, Great Plains, Northwest, Northwest Airlink, Southwest, and United.

Will Rogers Airport is located near Interstate Highways I-44, I-35, and I-40, and is linked to these facilities by a National Highway System Intermodal Connector (Meridian Avenue - Airport Road route). These facilities provide easy automobile access for air travelers. The airport is also located near rail services, including Amtrak passenger service, in Oklahoma City.

Passenger traffic through Will Rogers Airport has declined slightly from 2000 to 2003 (Table 2.19). Will Rogers served approximately 3,260,000 passengers in 2003.

Tulsa International Airport is located on a 4,000-acre tract on the north edge of Tulsa, with 1,000 acres available for development. The airport has two main runways (10,000 feet and 7,400 feet) with a 6,100-foot crosswind runway, and serves commercial passenger, cargo, general aviation, and Air National Guard customers. Airlines serving the airport include: American, Atlantic Southeast, Champion Air, Chautauqua, COMAIR, Continental, Delta, Northwest, Skywest, Southwest, and United. American operates a major aircraft maintenance center at Tulsa International.

Tulsa International has direct access to I-244 via SH 11, a National Highway System Intermodal Connector, and is located near I-44 and US 169, facilitating automobile access for air travelers. Tulsa International served approximately 2,747,200 passengers in 2003 (Table 2.19).

Lawton/Fort Sill Regional Airport is located in Lawton, which is approximately 90 miles southwest of Oklahoma City. In 2003 and 2004, American Eagle was the only commercial airline serving the Lawton/Fort Sill Airport. Lawton is home to Fort Sill, a U.S. Army base. Military personnel from the base account for a large portion of the passengers traveling through Lawton/Fort Sill Regional Airport.

Woodring Regional Airport is located in Enid, approximately 80 miles north of Oklahoma City. In 2003 and 2004, Mesa Airlines was the only commercial airline serving Woodring Airport. Vance Air Force Base is also located in Enid, and the military personnel from the base account for a large portion of the passengers traveling through Woodring Regional Airport.

Ponca City Regional Airport is located in Ponca City, which is approximately 100 miles north of Oklahoma City. In 2003 and 2004, Mesa Airlines was the only commercial airline serving the Ponca City Airport. Ponca City is home to a very large Conoco refinery and refinery personnel comprise a large portion of the passengers traveling through Ponca City Regional Airport.

Table 2.19 Enplanements/Deplanements at Oklahoma Commercial Airports, 2000 to 2004 (estimated)

Airport	Activity	2000	2001	2002	2003	2004
Will Rogers World	Enplanements	1,743,661	1,665,153	1,593,496	1,626,994	1,645,140
	Deplanements	1,738,128	1,656,542	1,599,912	1,633,120	1,629,690
Tulsa International	Enplanements	1,737,874	1,622,670	1,457,952	1,373,943	1,444,778
	Deplanements	1,744,490	1,621,295	1,449,356	1,373,260	1,432,964
Lawton – Fort Sill Regional	Enplanements	62,363	51,330	44,375	40,953	42,130
	Deplanements	61,322	51,505	43,216	38,250	41,046
Enid Woodring Regional	Enplanements	4,230	4,028	3,848	977	2,202
	Deplanements	NA	NA	NA	1,080	1,427
Ponca City Regional	Enplanements	3,949	3,458	2,327	1,959	1,876
	Deplanements	3,779	3,298	2,485	1,923	1,686
Total	Enplanements	3,552,077	3,346,639	3,101,998	3,044,826	3,136,126
	Deplanements	3,547,719	3,332,640	3,094,969	3,047,633	3,106,813

NA: not available

Source: Will Rogers World Airport (www.flyokc.com); Tulsa International Airport; Lawton-Fort Sill Regional Airport; Enid Woodring Regional Airport; Ponca City Regional Airportt

General Aviation

In addition to the five major commercial airports (international and regional) discussed in Section 2.1.1, 140 public-use general aviation airports are currently operating in Oklahoma. These facilities also present opportunities for intermodal connections in passenger transportation. Figure 2.1 in Section 2.1.1 (Air Cargo) displays general aviation airports, as well as major commercial airports.

2.1.2.2 Public Transit

This section describes ridership and service characteristics plus intermodal opportunities for public transit in the three largest Oklahoma urban areas; for a variety of services offered through ODOT's rural transit program; and for service provided by national intercity bus carriers and by Amtrak. Where available, ridership and service data are provided between the years 2000 and 2003.

Urban Transit

There are four transit systems operating in Oklahoma classified as urban: the Central Oklahoma Transportation and Parking Authority (COTPA), Norman (CART), Tulsa Transit, and the Lawton Area Transit System (LATS). Table 2.20 summarizes service and ridership statistics between 2000 and 2002. Data for 2003 are only available for Lawton at this time and will be incorporated when received. The information includes all fixed route, circulator and paratransit services.

Although total urban system revenue miles have increased by 33 percent between 2000 and 2002, total passenger trips have begun to level off even with the addition of service in Lawton

(although small in comparison). Total passenger miles have been slowly increasing and are up 10 percent since 2000.

Table 2.20 Urban Transit Information, Statistics and Trends

Transit System	Calendar Year	Revenue Miles	Passenger Miles	Total Passenger Trips
COTPA/CART[1]	2000	3,216,460	17,511,400	4,485,200
Tulsa Transit		4,693,700	18,913,200	3,306,400
LATS		(no service)	(no service)	(no service)
Subtotal		7,910,160	36,424,600	7,791,600
COTPA/CART[1]	2001	4,232,900	19,202,600	4,903,660
Tulsa Transit		5,043,500	18,403,100	3,217,900
LATS		(no service)	(no service)	(no service)
Subtotal		9,276,400	37,605,700	8,121,560
COTPA/CART[1]	2002	4,339,600	23,949,900	4,680,420
Tulsa Transit		5,619,700	15,956,500	3,042,800
LATS[2]		566,240	NA	144,920
Subtotal		10,525,540	39,906,400	7,868,140

Sources: US DOT National Transit Database - Tulsa Transit; COTPA/CARTS database; LATS database

Notes: [1] Norman system data (CART) not separated. [2] Data for July 1, 2002 thru June 30, 2003

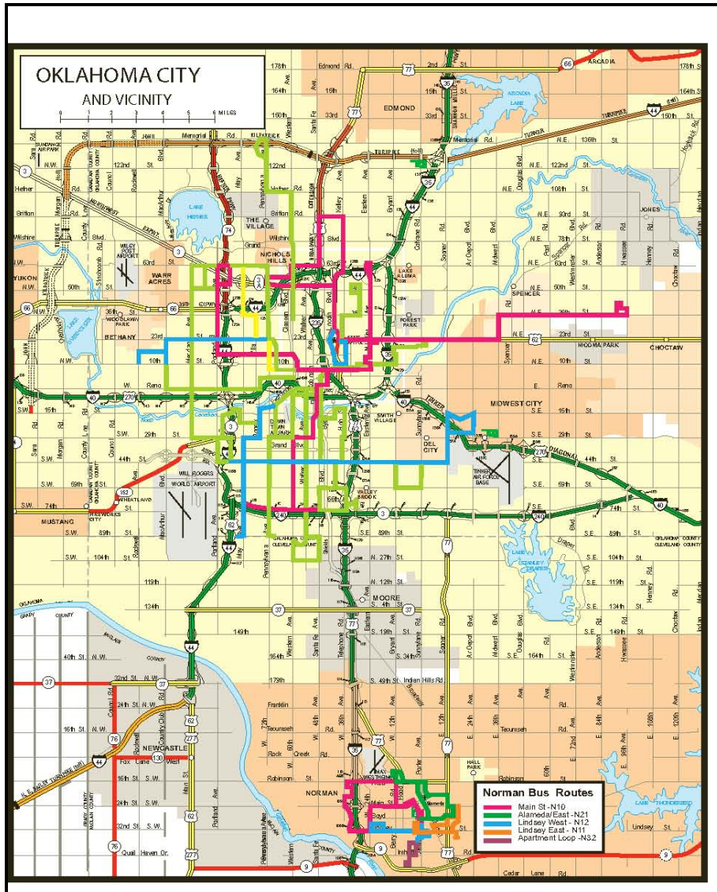
A map of the routes provided by the urban systems is provided in Figure 2.13. Currently COTPA operates 27 fixed routes in the Oklahoma Metro area, three of which provide express service. There are 15 park-and-ride locations operating informally at various church, grocery store, and retail store locations (Table 2.21). Tulsa Transit operates 15 fixed routes including two express routes each fed from an informal park-and-ride lot. The CART system has five routes and LATS also has five routes. The LATS system has one downtown transfer center where all routes converge to allow transferring. LATS also has one route serving Fort Sill – a major military base just north of downtown Lawton. Ten percent of the LATS ridership comes from Fort Sill.

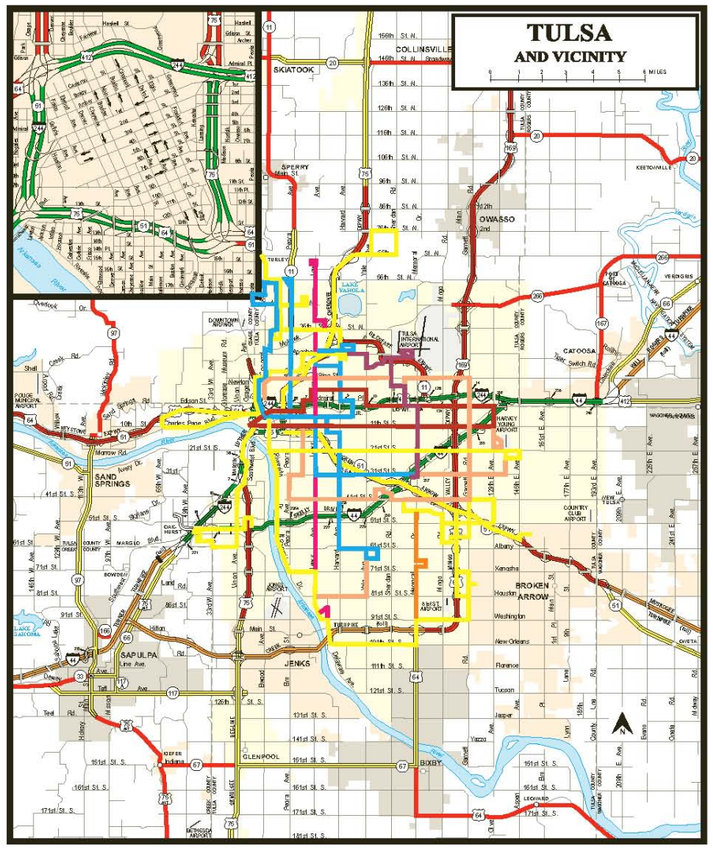
Table 2.21 Metro Transit Informal Park-and-Ride Facilities, Oklahoma City

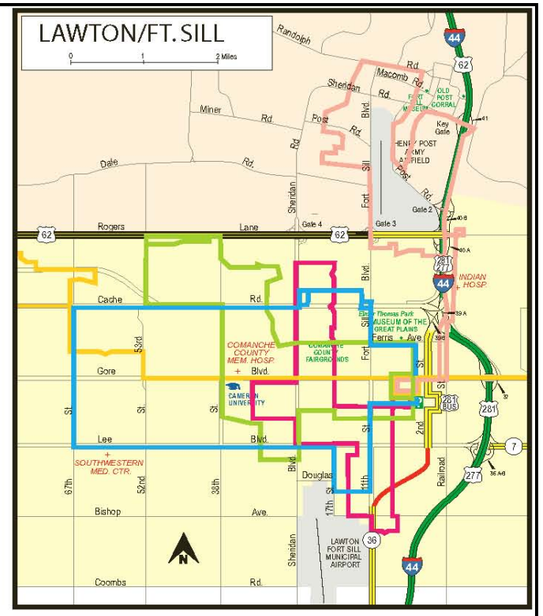
Route	Location	Address
5	Heritage Bowling Lanes	11917 N. Pennsylvania
7&8	Big Lots	3000 NW 63rd Street
8	Penn Square Mall (by Foley's)	1901 NW Expressway
8	Woodlake Racquet Club	6901 NW 63rd Street
12	Griders Discount Foods	2701 SW 29th Street
12	Oklahoma City Community College	7777 S. May Avenue
15	Target	7601 E. Reno Ave., Midwest City
20	Crossroads Mall (by J.C. Penney's)	7000 S. Crossroads Boulevard
22	Omniplex	2100 NE 52nd Street
23 &29	Big Lots	4605 NW 23rd Street
24	Albertson's Food & Drug	2600 W. Robinson Ave., Norman
37	Wal-Mart	3200 S. Broadway, Edmond
37	Southern Hills Christian Church	3207 S. Boulevard, Edmond
37	St. John the Baptist Catholic Church	9th & Boulevard, Edmond
40	Brookwood Baptist Church	8921 S. Walker Avenue

Source: Central Oklahoma Transportation and Parking Authority, 2004

Figure 2.13 Urban Transit Systems







0 10 20
Scale: one inch equals approximately 16 miles.

This map illustrates the towns where public transportation service is available . Information is based on a January 2004 survey. Services are subject to change.

LEGEND

HIGHWAY CLASSIFICATIONS

- Interstate / FREE
- (TOLL) Turnpike / (with toll gate)
- Other Multilane Highways
- Paved Highways

TRANSPORTATION SYMBOLS

- Available Service Routes

ROUTE MARKERS

- 44 Interstate Route
- 60 U.S. Numbered Route
- 152 33 8A State Numbered Route

URBAN TRANSIT SYSTEMS OF OKLAHOMA

Rural Transit

At the end of the state's Fiscal Year (FY) 2003, Oklahoma had 18 rural transit systems in operation. As of FY 2004 there are 20 rural transit systems in operation. Figure 2.14 illustrates the 20 systems operating in FY 2004; however, available data presented in this discussion are for FY 2003. All systems provide a demand responsive service and in some cases offer route deviation. Ridership and service characteristics for each system are summarized in Table 2.23 for FY 2003. During that 12-month period, over 1.9 million passenger trips were provided, with approximately 30 percent of those trips provided for elderly and disabled riders. A total of 10.4 million revenue miles were provided along with 18.1 million passenger miles. System wide, the average trip length per passenger was 9.2 miles, suggesting intercity and/or rural-to-city trip making. A summary of system-wide ridership and service characteristics since FY 2000 is provided in Table 2.22.

Although there have been increases since FY 2000 in revenue miles (8.5 percent) and passenger miles (11 percent), these indicators have been in decline since FY 2001, as have total passenger trips.

It is worth noting that current total ridership is slightly above FY 2000 levels, disabled ridership is up 19 percent, and ridership for those classified as both elderly and disabled is up 20 percent. As mentioned previously, two more systems started operation in FY 2004, one serving Oklahoma State University and the Stillwater community, and the second serving Bartlesville. Data for these new systems are not available at this time and, therefore, not included in this discussion.

As shown in Figure 2.14, many of the rural systems individually link together many communities and have extensive service areas. This explains the high average trip length of 9.2 miles. Also shown are the connections offered between the rural systems and the intercity bus and rail network.

Table 2.22 Rural System Statistics by Federal Fiscal Year

Fiscal Year	Revenue Miles	Passenger Miles	All Passenger Trips	Elderly Trips	Disabled Trips	Elderly & Disabled Trips
2000	9,573,774	16,318,812	1,952,473	381,149	198,996	105,478
2001	10,686,490	19,871,507	2,039,139	373,063	208,541	111,993
2002	10,495,496	19,172,676	2,052,546	389,103	229,783	117,668
2003	10,411,000	18,194,621	1,983,854	350,948	236,681	126,323

Source: Transit Programs Division, Oklahoma Department of Transportation, August 2004

Figure 2.14 Rural Transit Systems

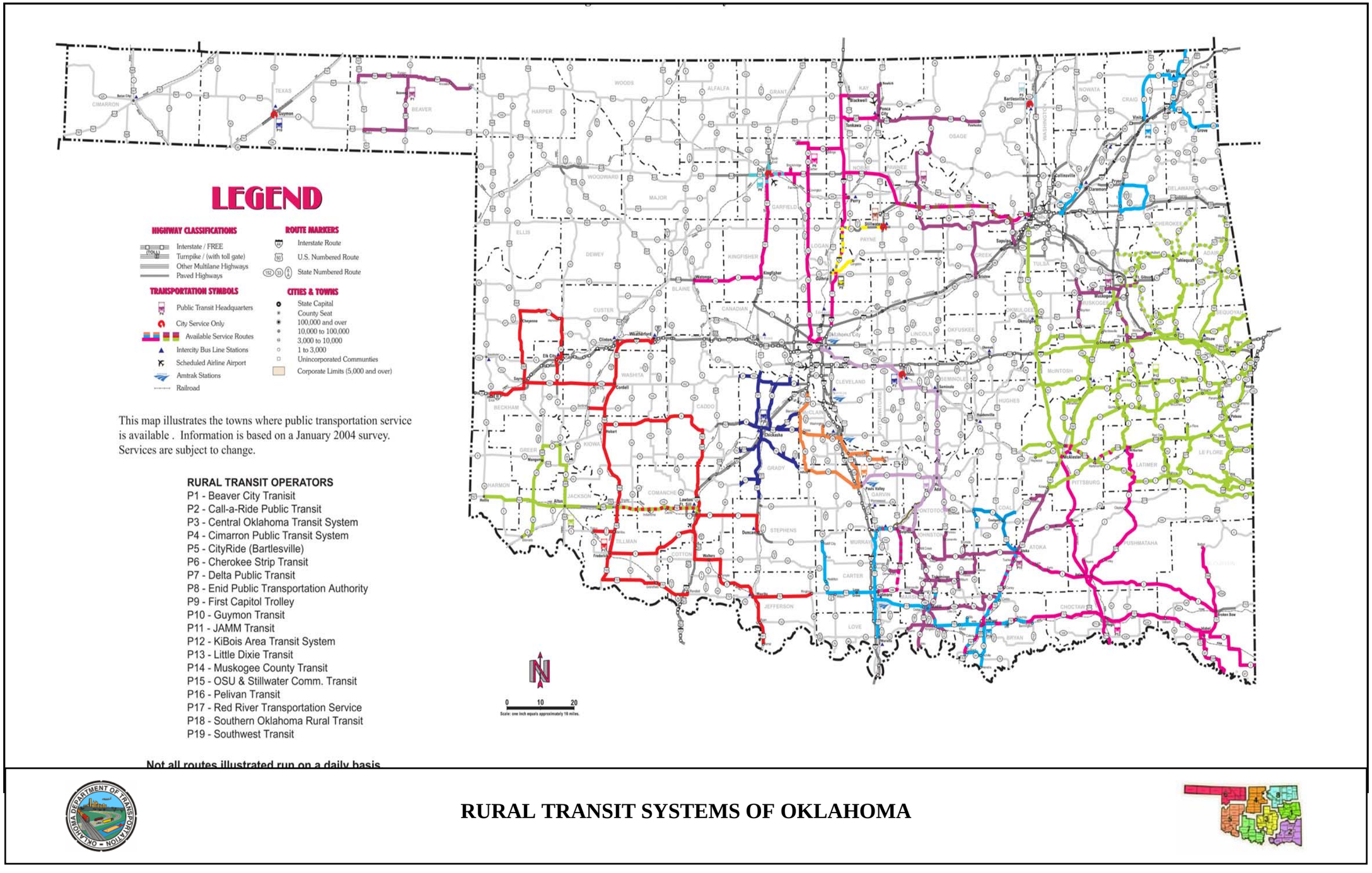


Table 2.23 2003 Rural Transit System Information and Statistics

Transit Program	Service Area	No. of Vehicles	Ridership		Annual Vehicle Revenue Miles	Annual Passenger Miles
			Elderly/ Disabled	Other		
The Transit	Enid	12	53,343	46,682	316,020	469,409
Beaver City Transit	Beaver County	2	3,881	9,403	13,897	46,370
Call-A-Ride Public Transit	Pontotoc County	23	38,352	75,868	575,703	854,357
First Capitol Trolley	Guthrie with scheduled service to Langston University	22	6,480	157,280	503,044	658,079
Kibois Area Transit System	Adair, Pittsburg, Haskell, Cherokee, McIntosh, Latimer, LeFlore, Sequoyah Cos.	108	91,897	332,504	2,587,568	4,521,376
Little Dixie Transit	Choctaw, McCurtain, Pushmataha Cos.	67	32,088	137,215	1,510,150	1,970,215
Muskogee County Transit	Muskogee Co., NEOSU	15	20,721	56,718	337,438	2,057,362
Pelivan Transit	Craig, Delaware, Mayes, Rogers, Ottawa Cos.	26	49,122	59,309	384,400	1,210,348
Red River Transit Service	Beckham, Cotton, Custer, Jefferson, Kiowa, Roger Mills, Stephens, Tillman, Washita Cos.	75	53,382	140,530	1,320,153	1,826,578
Southern Oklahoma Rural Transit System	Atoka, Bryan, Carter, Coal, Love Cos.	32	57,660	116,069	667,997	1,510,116
Southwest Transit	Greer, Harmon, Jackson Cos.	18	16,699	63,150	365,681	570,747
Cimarron Public Transit System	Creek, Pawnee, Kay, Osage Cos.	29	19,279	81,477	636,523	762,982
JAMM Transit	Johnson, Atoka, Murray, Marshall Cos.	20	55,537	21,160	297,487	563,588
THE RIDE	City of Guymon	4	9,716	30,471	75,490	85,555
Central Oklahoma Transit System	City of Shawnee	8	13,650	4,963	63,158	162,830
Washita Valley Transit System	Grady Co.	10	15,403	14,206	123,335	191,556
Delta Public Transit System	Garvin, McClain, Cleveland Cos.	9	29,626	12,541	110,227	140,961
Cherokee Strip Transit	Garfield, Noble, Kingfisher, Blaine, Kay Cos.	18	17,831	18,205	505,203	543,234
TOTALS		498	584,667	1,377,751	10,393,474	18,145,663

Source: Transit Programs Division, Oklahoma Department of Transportation, August 2004

**All transit programs listed provide "demand response" service. Under this type of service a provider may vary their bus routes, hours of service and offer varying pick up and/or drop off points, as requested by the user.*

Two transit systems, CityRide (Bartlesville) and OSU/Stillwater Community Transportation System, were initiated in 2003 and statistics are not available for these systems.

Intercity Bus Transit

Currently there are three intercity bus companies providing service in and through Oklahoma: Greyhound Lines, Jefferson Lines, and the T.N.M. & O. Routes are provided in Figure 2.15. At this time ridership and service statistics are not available for the intercity bus companies for inclusion in this report.

Intercity Rail Transit

Since June of 1999 intercity rail – the Heartland Flyer – has been in service through Amtrak and the State of Oklahoma. Two trains operate per day, one in each direction along the BNSF rail line between Oklahoma City and Ardmore, with continuing service to Gainesville and Fort Worth, Texas (Figure 2.15). Ridership trends by fiscal year since 2000 are given in Table 2.24.

Table 2.24 Amtrak Heartland Flyer Ridership

Fiscal Year	Ridership	Percent Change Since 2000
2000	65,529	-
2001	57,799	(11.8%)
2002	52,584	(19.7%)
2003	46,592	(28.9%)
2004	54,223	(17.2%)

Source: Rail Programs Division, Oklahoma Department of Transportation (ODOT), August 2004

Although strong, ridership declined from 2000 to 2003 by almost 29 percent. Fortunately this past year has seen ridership increase by 11.7 percent without a change in service level. Though 2003 ridership was down 28.9 percent compared to the first full calendar year of operation, available statistics do not reveal whether the decline is more pronounced in Oklahoma or Texas. Ridership by station stop since service inception in June 1999 is summarized in Table 2.25.

Table 2.25 Amtrak Heartland Flyer Station Activity

Station Location	Total Station Activity	Percent of Total
Oklahoma City	155,477	29.5%
Norman	43,452	8.2%
Purcell	10,144	2.0%
Paul's Valley	27,496	5.2%
Ardmore	37,730	7.2%
Gainesville	59,879	11.4%
Fort Worth	192,603	36.5%
Total	526,781	100%

Source: Rail Programs Division, ODOT, August 2004

The station activity data include all station boardings and alightings since service inception. Activity at the five Oklahoma stations accounts for 52 percent, whereas the two Texas stations

account for the remaining 48 percent. This pattern suggests a strong link to North Texas, and the Dallas – Fort Worth area.

2.1.2.3 Bicycle and Pedestrian

Extensive bicycle and pedestrian trail systems are under development in Oklahoma's two major metropolitan areas—Oklahoma City and Tulsa—as well as a statewide Rails-to-Trails program. Oklahoma City has a 78-mile system of paved, multipurpose trails and other park trails in various stages of development, including trails currently existing, under construction, or planned within the next five years. The Tulsa metropolitan area has 36 miles of existing bicycle and pedestrian trails, plus 24 miles of trails under development (not including the Osage Trail, part of the Rails-to-Trails program). In addition, the Tulsa metro area has 19 miles of existing on-street bikeways and 191 miles of proposed bikeways. The state's Rails to Trails system includes six trails totaling 70 miles and the planned 35-mile Osage Trail.

2.1.2.4 Highways

Major Highway Corridors

The extent and usage of Oklahoma's State Highway System has grown since 1999. Lane miles have increased by approximately 1.2 percent (Table 2.26). Daily vehicle miles of travel (VMT) on the State Highway System increased 3.6 percent from calendar year 2000 to 2003 (a four-year period). Major highway corridors are shown in Figure 2.16, with National High Priority Corridors and Oklahoma Transportation Improvement Corridors shown in Figure 2.17.

Table 2.26 Oklahoma Highway System: Mileage and Vehicle Miles of Travel (VMT)

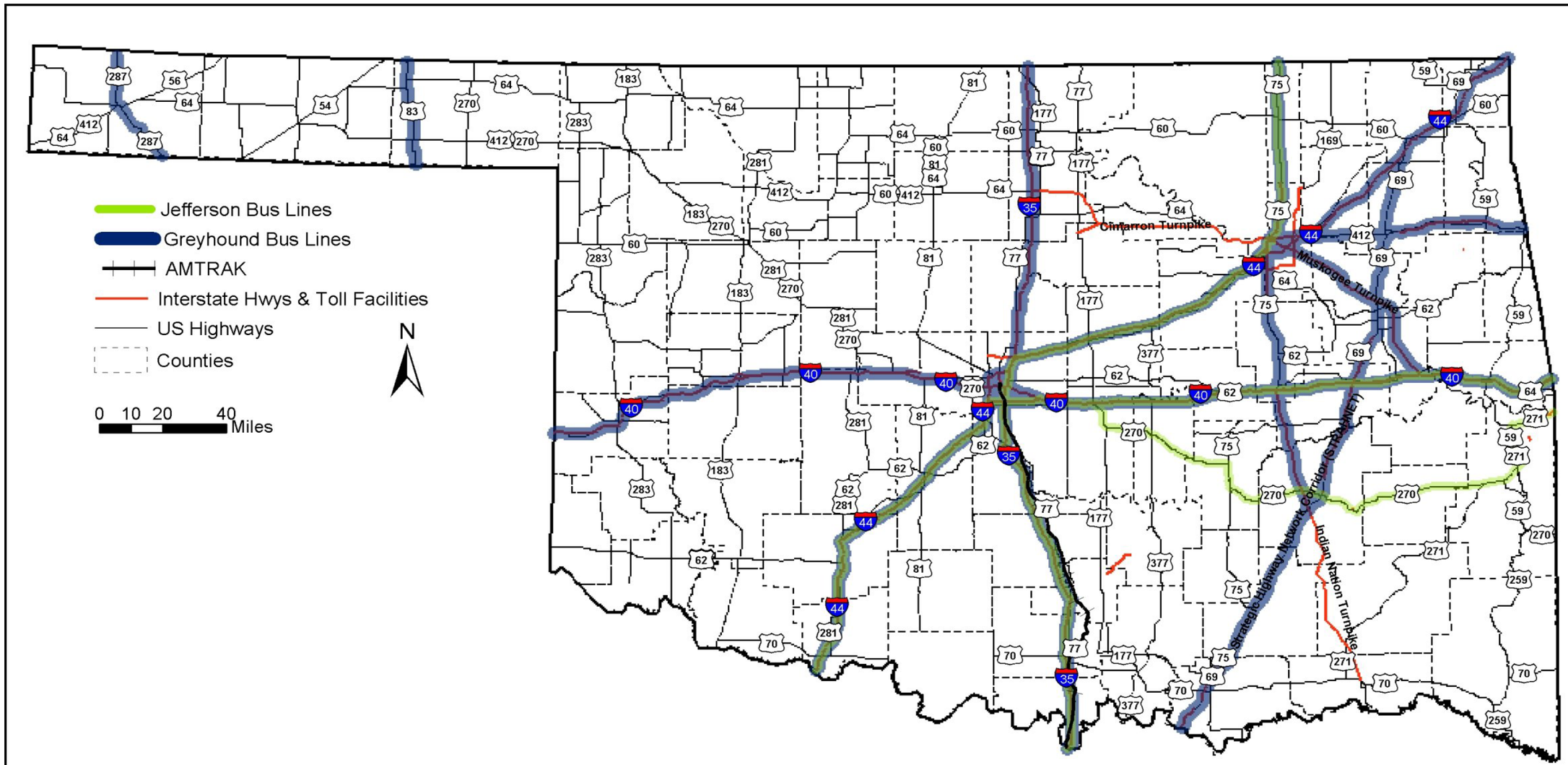
Calendar Year	System Miles	Lane Miles	Daily VMT
2000	12,270.19	29,209.57	62,876,060
2001	12,271.11	29,225.89	62,657,650
2002	12,265.90	29,494.75	65,872,810
2003	12,266.89	29,578.61	65,222,940

Source: Oklahoma Department of Transportation, Planning and Research Division, 2004

An analysis of annual average daily traffic (AADT) figures developed by ODOT shows that the highest traffic volumes occur within the largest metropolitan areas: Oklahoma City, Tulsa and Lawton. Interstates and a few other major highways carry the majority of the rural traffic.

Among the major metropolitan areas, Oklahoma City has numerous highway systems with 50,000 to 122,000 AADT, including portions of I-35, I-44, I-40, State Highway (SH) 3, SH 74, and SH 77. In addition, the John Kilpatrick Turnpike carries a large volume of traffic. Tulsa also has numerous highway systems with 50,000 to 111,000 AADT, including I-44, I-244, SH 412, US 169, US 75, US 64, and SH 51. Lawton has no highways with over 50,000 AADT, but does have highways with 12,000 to 25,000 AADT, including I-44, US 62, US 281 Business, and SH 7.

Figure 2.15 Intercity Transit Routes (Bus & Rail)



INTERCITY TRANSIT ROUTES OF OKLAHOMA
(BUS & RAIL)

Figure 2.16 Major Oklahoma Highways

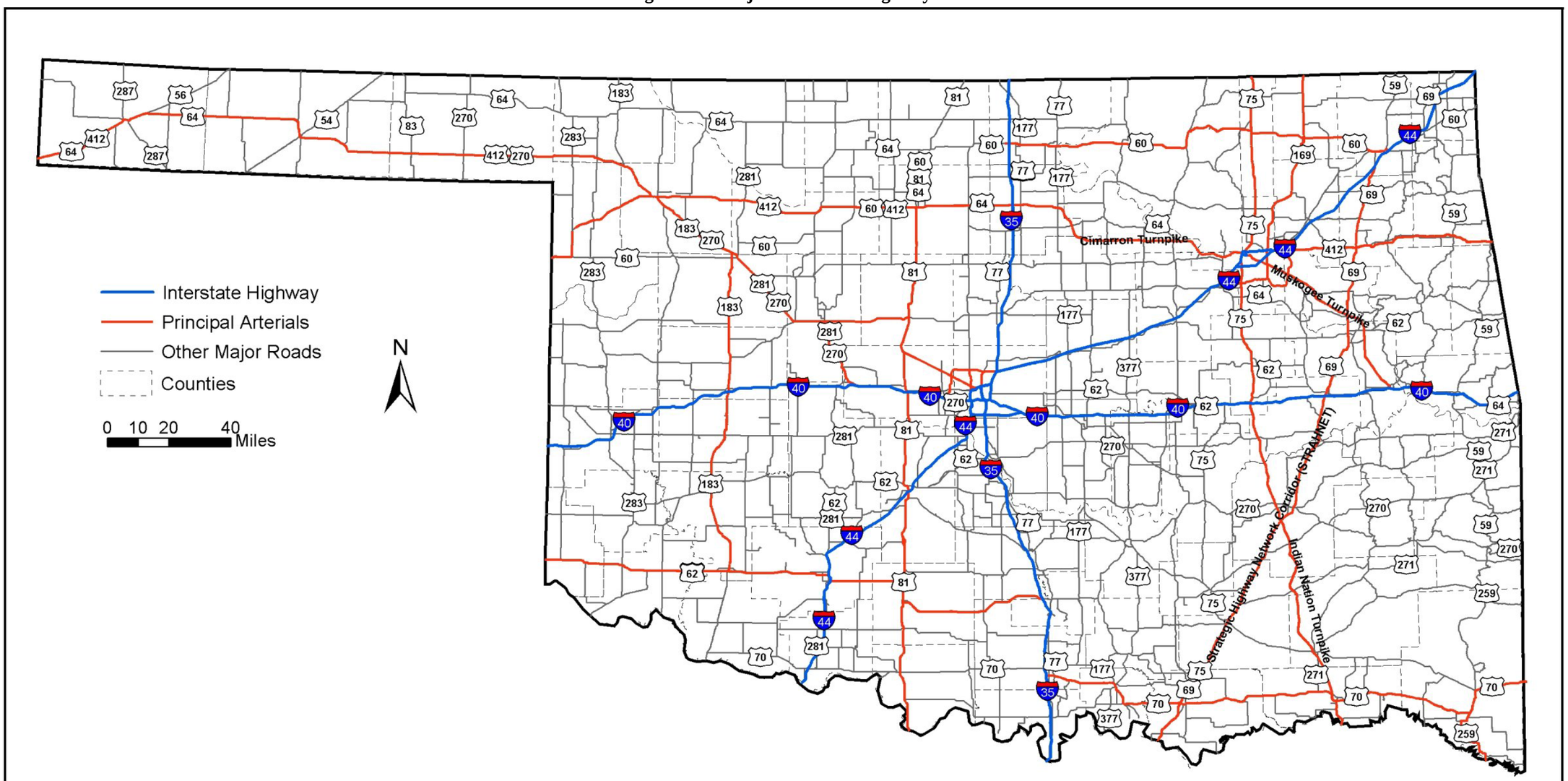
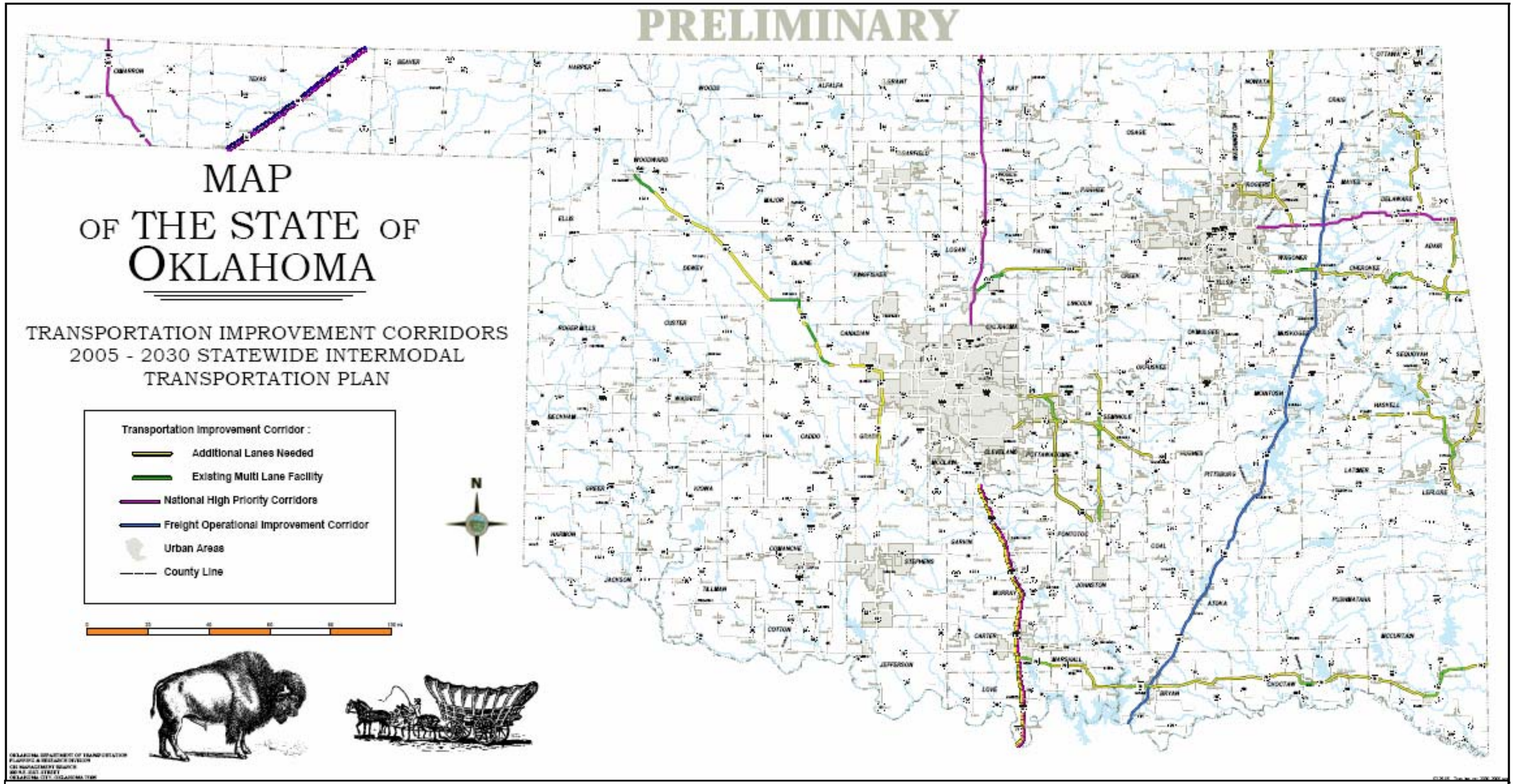


Figure 2.17 High Priority & Transportation Improvement Corridors



HIGH PRIORITY & TRANSPORTATION IMPROVEMENT CORRIDORS

Outside the metropolitan areas, the AADT volumes reduce significantly. However, I-35 from Oklahoma City to Guthrie is approximately 35,000 AADT. I-35 from Guthrie north to the Kansas state line ranges from about 15,000 to 22,000 AADT. I-35 south of SH 9 in Norman to the Texas state line ranges from approximately 28,000 to 36,000 AADT.

I-40 west of Oklahoma City ranges from about 45,000 to 65,000 AADT from Oklahoma City to El Reno, and from approximately 18,000 to 28,000 AADT from El Reno to the Texas State Line. I-40 east of Oklahoma City is approximately 45,000 AADT from Oklahoma City to Shawnee, and ranges from about 14,000 to 28,000 from Shawnee to the Arkansas state line.

I-44 is generally a toll road except within the three major metropolitan areas. However, this is a high-volume facility.

US 69 from Big Cabin, along I-44, through Muskogee to the Texas state line, and US 75 from Kansas though Tulsa to the Texas state line, are major freight corridors with high volumes of truck traffic traveling from Dallas to Tulsa, Muskogee, and the Port of Catoosa. US 69 and US 75 are four-lane divided highways and follow the same alignment from Atoka to the Texas state line. US 69/US 75 carries about 12,000 to 25,000 AADT.

There are a few other major highway corridors in Oklahoma. However, the above listed highways are the only ones which consistently carry over 12,000 AADT, except when in close proximity to one of the major metropolitan areas. Opportunities for intermodal connections would likely be in close proximity to one of these highly traveled corridors, whether for freight or passengers.

Turnpikes

The state of Oklahoma currently has 587.4 miles of turnpikes, administered by the Oklahoma Transportation Authority (OTA). Approximately 40 percent of the toll revenues collected on OTA turnpikes comes from out-of-state motorists. If tolls were eliminated, the state would have to spend at least $60 to $70 million per year from gasoline taxes to maintain existing turnpikes, necessitating a tax increase. Currently, there are ten operating turnpikes in the Oklahoma (see figure 2.18). Total vehicle miles traveled (VMT) on Oklahoma's turnpike system in 2003 was 725,401,423. Turnpike system miles increased by 42.3 miles from calendar year 2000 to 2003 (a four-year period), and daily VMT showed an increase of 2,082,450 (38.8 percent) over a four-year span (Table 2.27). The various turnpikes' toll schedules are shown in Table 2.28. The "Toll Ratio" column indicates how many times higher the toll is for the largest vehicle class (double semi-trailers) compared to the smallest class (cars, pickup trucks, vans, etc.).

Figure 2.18 Turnpikes in Oklahoma

Table 2.27 Oklahoma Turnpike System: Mileage and Vehicle Miles of Travel (VMT)

Calendar Year	System Miles	Lane Miles	Daily VMT
2000	558.97	2,201.18	5,369,910
2001	572.76	2,256.34	5,619,400
2002	600.65	2,369.92	7,349,070
2003	601.27	2,370.96	7,452,360

Source: Oklahoma Department of Transportation, Planning and Research Division, 2004

Table 2.28 Oklahoma Turnpike Toll Schedules

Turnpike Facility	2-axle	3-axle	4-axle	5-axle	6-axle	Toll Ratio: 6-axle / 2-axle
Turner -86 mi Entry OKC, Exit Tulsa	$3.50	$5.75	$8.50	$14.25	$17.25	4.9
H.E. Bailey – 86 mi Entry OKC, Exit Wichita Falls, Tx	$4.00	$5.50	$7.75	$12.50	$15.50	3.9
Muskogee – 53 mi Entry Tulsa, Exit Webbers Falls	$2.50	$3.50	$5.00	$8.00	$9.00	3.6
Cimarron – 59 mi Entry Tulsa, Exit IH-35	$2.50	$3.50	$6.00	$10.00	$12.00	4.8
Chickasaw – 17 mi Entry SH-1 Roff, Exit SH-7	$.55	$.75	$1.25	$2.25	$2.25	4.1
Will Rogers – 88 mi Entry Tulsa, Exit State Line	$3.50	$5.75	$8.50	$14.25	$17.25	4.9
Indian Nation – 105 mi Entry Henryetta, Exit Hugo	$4.75	$8.00	$9.50	$16.00	$19.50	4.1
Kilpatrick – 25 mi Entry I-35, Exit I-40	$2.00	$2.75	$4.00	$6.80	$8.20	4.1
Cherokee – 33 mi Entry Flint Creek, Exit US-69	$2.25	$3.25	$4.50	$7.50	$9.00	4.0
Creek – 33 mi Entry US 412, Exit US-66	$2.45	$3.65	$4.65	$7.80	$9.90	4.0

Source: Oklahoma Turnpike Authority – Pikepass website

2.2 Stakeholder Views of the Current System

An extensive survey of transportation stakeholders across the state was conducted as part of this study. A series of questions were asked concerning the existing system, future needs and the degree to which the system supports the state economy. Appendices B, C and D provide the survey methodology, the questionnaires used, the list of mailed recipients and the list of stakeholders selected for face-to-face interviews. The survey and interview responses relating to views on the current transportation system are provided in this section.

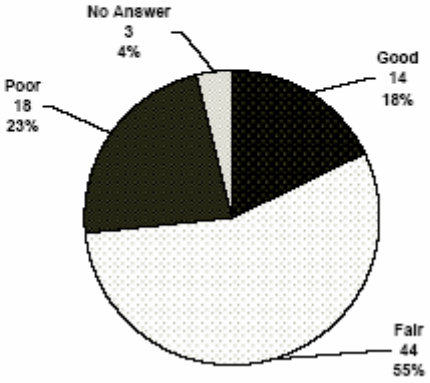
2.2.1 Mailed Survey Responses

Overall Perceptions of the Existing System

For survey question 1 regarding the quality of Oklahoma's statewide transportation system (see Chart for question 1), 55 percent ranked the quality of the system as Fair. In question 2, a plurality (45 percent) ranked the efficiency of the state system as Fair, while another 42 percent ranked the efficiency as Good (see Chart for question 2).

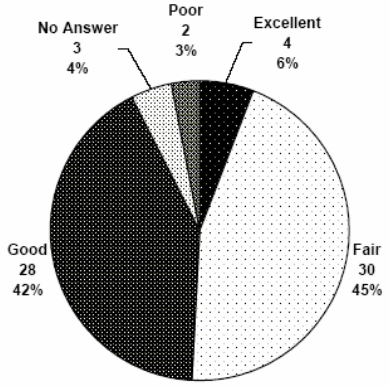
1 - How would you rate the quality of Oklahoma's transportation system, for the state as a whole?

Good	14
Fair	44
Poor	18
No Answer	3



2 - How would you rate the efficiency of Oklahoma's transportation system, for the state as a whole?

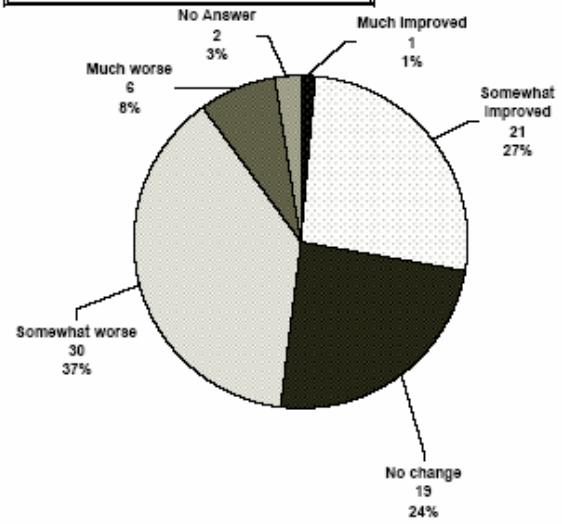
Excellent	4
Fair	30
Good	28
No Answer	3
Poor	2



There is always room for improvement, as results from question 3 have shown. When asked if the state's transportation system was improving, staying the same, or worsening (see Chart for question 3), 37 percent responded that Oklahoma's transportation system had become Somewhat Worse and 8 percent considered the system Much Worse. Nearly a quarter surveyed (24 percent) said that there had been No Change, and 27 percent said that it was Somewhat Improved with only 1 percent indicating the system was Much Improved.

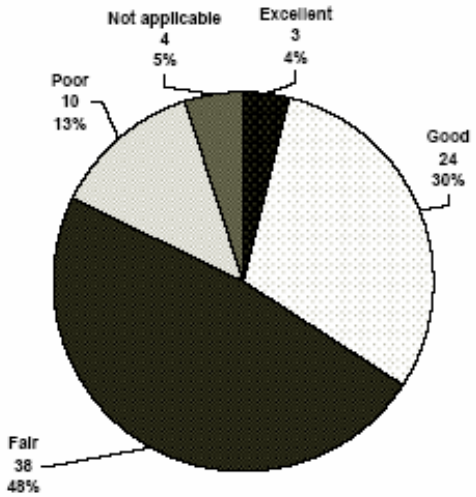
3 - Is Oklahoma's transportation system improving, staying the same, or worsening, for the state as a whole?

Much improved	1
Somewhat improved	21
No change	19
Somewhat worse	30
Much worse	6
No Answer	2



4 - How would you rate the quality of the transportation system serving your area/region?

Excellent	3
Good	24
Fair	38
Poor	10
Not applicable	4



The quality of local and regional transportation systems (see Chart for question 4) was rated Fair (48 percent) to Good (30 percent) in quality (a total of 78 percent of those surveyed, slightly

higher than the rating for the state system). While 13 percent rate the quality of the area/regional transportation system as Poor, 4 percent rate it as Excellent.

Impediments to Current Passenger Movement

Money was the primary impediment currently inhibiting passenger movement in Oklahoma (Survey Question 10), according to a majority of survey respondents (44 respondents, or 59 percent of those responding to this question). [Five respondents (6 percent) declined to list any impediments to passenger movement.] Respondents from many different sectors cited "financial" issues (i.e. funding; financing; not enough funding; lack of sufficient, permanent funding; adequate funding to maintain current system; money for improvements and maintenance; short of funds for new roads; state and federal financial support; limited funding sources; financial support for roads and runways; limited financial support for public transit; financial-legislative discord on refunding; diversion of fuel taxes to other government needs, etc.) as an impediment. Among respondents who cited financing (or the lack thereof) were respondents from intercity passenger providers, a major public transit system, smaller transit systems, smaller/municipal airports, a major air cargo company, major freight using corporations, a trade association/interest group, cities, counties, Indian nations, government associations and agencies, economic/industrial development groups, and chambers of commerce. Clearly, some respondents were more interested in funding for one mode or another, and some were more focused on the cause of funding shortfalls. One respondent asked, "Where does the US highway tax on trucks go?" Another protested a "funding bias that favors roads only." Funding/financing was the first thing that most respondents listed in their lists of three impediments; a few were so emphatic about financing as a principal current impediment to passenger movement that they listed it more than once on their lists.

Infrastructure (i.e. inadequate infrastructure, lack of infrastructure, failing infrastructure, etc.) -- without a specific reference to financing -- was the second most listed impediment. Twenty-five (25) respondents[1] (34 percent) listed infrastructure as among the greatest current impediment to passenger movement. Additional respondents cited specific aspects of infrastructure, such as bridges, roads, highways, supporting structures, the secondary road system, and public transportation infrastructure (total of 8 responses). Still others cited specific, infrastructure-related impediments; six responses specifically addressed roadway capacity (insufficient lanes; narrow substandard roads, 2-lane roads with high traffic counts, 4-lane highways with shoulders, etc.). Other infrastructure-related impediments listed included "lack of highway miles," "width of lanes," "interconnecting 4 lanes," "state highways through little towns and cities," and "bad intersections in small cities." For many of those respondents infrastructure was the second impediment that they listed, often right after funding. Again, some respondents listed infrastructure (or infrastructure-specific impediments) more than once among their lists of three -- for emphasis. Infrastructure was cited by respondents from major public transit systems, smaller transit systems, a major air cargo company and a major port user, other major freight using corporations, a trade/industry/other association, cities, counties, Indian nations, chambers

[1] Questions such as #10 provided for up to three responses from each person. Thus, from a total of 79 survey respondents, it was theoretically possible to receive 237 responses to a question. When the word "respondents" is used and a percentage of totals are provided, it refers to the number of surveys that mentioned the topic (at least once). In all other cases, references are to the number of "responses" that mentioned the topic.

of commerce, economic/industrial development groups, smaller transit systems and smaller/municipal airports.

Others specifically cited the condition and maintenance of infrastructure among the greatest impediments (14 respondents, or 19 percent). These impediments were listed as "maintenance," "inadequate maintenance of existing infrastructure," "condition of infrastructure," "road conditions," "deteriorated surface," "deteriorated bridges," "rail lines track repair," etc. Respondents who listed maintenance among the greatest impediments included a public port/waterway and a major port user, a major air cargo user and another major freight using corporation, a military installation, cities, economic/industrial development groups and a chamber of commerce, and smaller transit systems.

Eliciting equal attention as a current impediment to passenger movement was a lack of non-automobile/mass passenger transportation services (14 respondents, 19 percent). Impediments listed included "lack of passenger rail service," "inadequate transit service," "lack of viable mass transit," "lack of bus transportation services," "poor bus connections," "limited public transit options," "lack of transportation choices-private auto only in too many corridors," "no/limited service in rural areas," "convenient access to places statewide," "interconnectivity of different systems," "lack of coordination," "no easy passenger service between Oklahoma City and Tulsa airports," "passenger service connections from smaller cities to Oklahoma City and Tulsa airports," and "must own a car." Not surprisingly, smaller transit operators and an intercity passenger provider were among the respondents who listed these impediments, along with cities, a government association, a trade/industry/other association, a chamber of commerce, a major airport authority, a major freight using corporation, and a trucking/logistics/freight forwarder.

A fifth category of current impediments to passenger movement is a lack of air service (5 respondents, or 7 percent). This is expressed as "lack of direct flights to/from Oklahoma City," "lack of direct air flights to major cities," "inadequate air service to coastal cities," "lack of airline hub and feeder connections to small cities," "regional aviation schedules," and "intrastate (air) access." One respondent traces that impediment to Oklahoma's population distribution that results in neither Oklahoma City nor Tulsa having the density to support direct air service to some destinations. These impediments were cited by a major airport authority, cities, a major freight using corporation, an economic/industrial development group and a trade/industry/other association.

Five respondents (7 percent) – including a major public transit system, a major freight using corporation, a county, an Indian nation, and two smaller/municipal airports – all cited "regulatory," "regulatory and policy barriers," or "restrictions and engineering cost" among current barriers to passenger movement. Another respondent specifically cited "zoning policies favoring expensive sprawl."

Five respondents (7 percent) cited "operations" or "operational" as among the greatest impediments to passenger movement. It was not clear exactly what type of operations caused the impediment, and the respondents represented several different types of interests, businesses, and governments or government agencies. An additional respondent specified "operations which are held up by road construction."

Five respondents (7 percent) also mentioned tolls or toll roads in one context or another: "perceived cost of tolls by trucking companies," "toll roads," "tolls," and "high cost of toll roads." Three respondents listed "congestion" or "traffic delays in urban areas." And two respondents mentioned trucks: "trucks are too many for 4 lane roads" and "truck traffic (state of Oregon handles best)."

Table 2.29 below summarizes the survey responses by most frequent cited current impediments to passenger movement.

Table 2.29: Frequently Cited Current Impediments to Passenger Movement

Impediment	Number of Survey Respondents Who Listed this Impediment*	Percent of Survey Respondents Who Listed this Impediment*
Financial	44	59%
Infrastructure (in general)	25	34%
Maintenance/Condition of Infrastructure	14	19%
Lack of Automobile Alternatives/Public Transportation	14	19%
Inadequate air service	5	7%
Regulatory	5	7%
Operational	5	7%
Tolls	5	7%

*Impediments listed by fewer than five respondents are not included in this summary. Survey respondents could list up to three impediments; therefore, the numbers listed in the second column total to more than the total number of respondents and the percentages listed in the third column total to more than 100 percent.

Impediments to Current Goods (Freight) Movement

These questions elicited fewer responses. Only 60 respondents listed any impediments to freight movement. Of the 24 percent of those who did not respond to these questions, some explained "none that I know of," "unsure," or "not in a position to know."

Infrastructure was most frequently listed as among the greatest impediments that currently inhibit goods movement (34 respondents, or 57 percent of those responding to Question 12), and respondents who cited infrastructure were more clear – in general – that they were addressing a lack of infrastructure, a need for bigger/wider or more infrastructure, and greater capacity, rather than the condition/maintenance of infrastructure. In addition to "infrastructure" or "lack of infrastructure" as a whole, respondents specifically cited "woefully inadequate bridges," "width of lanes," "need more 4-lane highways," "major interstate corridors lack adequate capacity," "lack of adequate roads to rural communities," "convenient access with super 2- or 4-lanes," "lack of a 4-lane highway in Northwest Oklahoma to connect to Interstate," "not enough

interstate quality corridors to Northwest and Southeast Oklahoma," "intercity truck lanes," "lack of adequate interchanges at major trucking hubs," "rail access," "poor railroad infrastructure," "limited land and sea ports," "barge system not deep or wide enough," "intermodal facilities," and "intermodal connections," among other system impediments (and needs). In a separate category would be responses that cited "bridges," "low-rated (or low-weight) bridges," and "age of bridges and load limits" (6 responses) because the problem of Oklahoma's aged bridges is one that relates both to long-deferred maintenance and the fact that their original design standards do not accommodate current heavy truck needs; thus, to address such an impediment would in most cases necessitate going beyond maintenance/repair to rebuilding/replacement.

Infrastructure and/or bridges were listed among the greatest impediments to current goods movement by an intercity passenger provider, a major public transit system, smaller transit systems, a major port user, a major rail freight user, other major freight using corporations, a trade/industry/other association, cities, counties, government association, economic/industrial development groups, chambers of commerce, and smaller/municipal airports.

Financing gathered the second highest number of responses (from 17 respondents, or 28 percent). In addition to "financing" and "financial," respondents specifically cited the "ability to fund new roadways to potential plant and distribution locations," and some funding-related policy issues – "use of fuel tax for non-transportation needs" and "funding bias for roads only" – among other current impediments to goods movement. Financing was cited as among the greatest impediments by a major public transit system, smaller public transit systems, a major air cargo company, a major freight using corporation, a trade/industry/other association, cities, counties, Indian nations, a government association, an economic/industrial development group, and a smaller/municipal airport.

The "deteriorating" condition of infrastructure and the need for maintenance were listed by 13 respondents (22 percent). Among other problems, respondents specifically cited "road conditions," "rail conditions," "poor condition of Interstates," "poor pavement conditions," and "infrastructure conditions in rural areas." Infrastructure conditions and maintenance were cited by other major freight using corporations, a trade/industry/other association, cities, a county, and smaller public transit systems.

A mix of 14 different management, operational and policy impediments to goods movement were listed by 11 respondents (18 percent), many more than had been seen with impediments to passenger movement. These included:

- Lack of adequate traffic enforcement
- Non-recurring congestion/incidents
- Highway congestion in heavy truck lanes
- Not enough use of waterways
- Lack of rail service to many communities
- Congested rail service
- Poor service levels from Class I and Class III rail providers
- Rail company management
- Better cooperation among railroads
- Moving heavy loads via rail to prevent damage to highways

- Trucking driver shortage

It was not clear whether "lack of designated truck routes" was an impediment that could be addressed through designation or if it required new infrastructure. Similarly, "insufficient access to intermodal freight networks" could be a problem solely of railroad disinterest and operational/management barriers, or it may require new infrastructure.

These operational/management impediments were cited by a public/port waterway, a freight railroad, other major freight using corporations, a trucking/logistics/freight forwarder, a trade/industry/other association, cities, a government association, economic/industrial development groups, a smaller/municipal airport, and a smaller public transit system.

Regulations as an impediment to goods movement also were listed far more frequently by survey respondents (9, or 15 percent) than that subject elicited in relationship to passenger movement. Regulations were cited by a major public transit system, a major freight using corporation, a city, an Indian nation, a chamber of commerce, and smaller public transit systems.

Fuel costs and rising energy costs were cited by 4 respondents as among the greatest current impediments to goods movement. Toll roads were listed by three respondents.

Table 2.30 summarizes survey responses for the most frequently cited current impediments to goods movement in the state.

Table 2.30: Frequently Cited Current Impediments to Goods Movement

Impediment	Number of Survey Respondents Who Listed this Impediment*	Percent of Survey Respondents Who Listed this Impediment*
Infrastructure	34	57%
Financing	17	28%
Condition of Infrastructure/ Maintenance	13	22%
Management/Operational/Policy	11	18%
Regulations	9	15%
Fuel/Energy Costs	4	7%
Toll Roads	3	5%

*Impediments listed by fewer than three respondents are not included in this summary. Survey respondents could list up to three impediments; therefore, the numbers listed in the second column total to more than the total number of respondents and the percentages listed in the third column total to more than 100 percent.

2.2.2 Interview Responses

National and local businesses dependent on goods movement were interviewed and asked about similar subjects as those asked of survey respondents. The interview format provided for more in-depth responses and follow-through questions and clarifications. The subjects of Interview responses tended to cluster by mode and facilities: intermodal facilities, distribution centers and logistics centers/transportation hubs.

Existing Roads and Bridges

For a large manufacturer and for an agricultural storage and distribution company, roadways are the primary mode for product movement, although both transport some of their products via truck to port terminals. The agricultural storage and distribution company also transports some product via truck to two Oklahoma rail terminals, and distributes via truck within the state.

Oklahoma road quality and bridges are in need of improvement. Chambers of commerce and economic development groups interviewed reiterated the impediment to mobility represented by obsolete bridges and roadways, particularly interstate facilities, in Oklahoma. It was suggested that the first priority would be interstate bridges, and then state highway bridges.

Bridges conditions have required rerouting of truck traffic, lengthening shipping distances and time. For one company, some truck trips have increased 47 percent in length (from 92 miles to 135 miles). A chamber of commerce cited a rock quarry that requires a 20 mile out-of-the-way route because of deficient bridges.

Air Passenger Service and Goods Movement

Direct air service between Oklahoma airports and coastal cities (including Seattle, Los Angeles, Washington D.C.) was identified as an impediment to Oklahoma's economic growth and development by more than one interviewee. A major airport authority concurred, but noted that passenger demand does not justify the greater cost of non-stop flights. (Non-stop service for the same price as one- or two-stop service is unrealistic.)

Interviews with a chamber of commerce and an industrial park both suggested a potential role for improving smaller airports; small, private airports near Oklahoma's major cities might provide relief/augmentation to major city airports in meeting air cargo and business passenger needs. Air access is a criterion for location/site selection by some businesses. Commuter air service from communities with 5000-foot runways was suggested to serve the Ardmore, Ada, McAlester and Durant areas to connect with DFW air service.

Transit service for passengers and employees to/from the airports is an important intermodal element. Trolley service to/from downtown Oklahoma City connects directly with the airport service, but does require a transfer to reach the airport. There is direct bus service from downtown Tulsa to Tulsa International Airport.

Intermodal Ports

Additional use of ports would enhance the Oklahoma economy, according to a chamber of commerce. Inland waterway ports can play a key role in goods movement for a large

manufacturer, as an intermodal center that ties together the waterway with good road and rail connections. Port access is vital for a shipper that specializes in liquid bulk materials. That shipper also needs space at the port for on-site blending/operations, but this is not an impediment as the port has adequate space, including space for expansion. The ports are multimodal and essentially intermodal now, with rail and highway transport available or potentially available, and frequently pipelines and conveyor systems for liquids and grains.

Other Modes

Lack of sidewalks in urban areas is an impediment not only to pedestrian movements but also to transit use, notes a public transit provider.

Provision for bicycles on buses, as proposed by METRO in Oklahoma City, helps to facilitate mobility and use of both modes.

Improved urban taxi service was also cited as a need to improve passenger mobility by facilitating use of non-auto dependent modes.

Many existing hubs that depend on employee access are not well served by transit. In the Oklahoma City area, these include the Hobby Lobby facility at SW 44th and S. Council Rd. with over 2,000 employees and no service, Tinker-Midwest City, and the Northwest Oklahoma City/Medical Center area (all in Oklahoma City).

2.3 Current System Strengths & Weaknesses

This section identifies current and potential future intermodal restrictions and challenges for the state of Oklahoma. The report discusses each mode of transportation and the constraints they are faced with. Transportation modes discussed in this report include the state highway system as it relates to commercial vehicle operations, Oklahoma's turnpike system, the freight railroads, airports, inland waterways and public transportation.

2.3.1 State Highway System/Commercial Vehicle Operations

Oklahoma's State Highway system is vital to the state economy and the flow of goods carried by commercial vehicle operations (CVO). The inability to maintain and/or improve the State Highway system can create a number of transportation problems and obstacles for CVO in Oklahoma. This section discusses problems and obstacles associated with existing roadway surface conditions; bridge deficiencies and load postings; and level of service concerns.

2.3.1.1 Roadway Surface Conditions

The 2003 ODOT Needs Study and Sufficiency Rating Report revealed that over two-thirds of the roads in the State Highway System will need surface replacement by 2008 (Figure 2.19: 2003 Highway Needs Study Years to Next Surface Replacement). The Needs Study examined highway surface conditions as of July 2002. The roads were classified as either being in poor condition (surface replacement needed now), fair condition (surface replacement needed within five years), or good condition (surface replacement needed in six or more years).

Drivers on highways classified as being in poor surface condition are likely to notice they are driving on a rougher surface. These roads may have cracked or broken pavement and often show significant signs of pavement wear and deterioration. Some of the roads may have significant damage to their underlying foundations and require total reconstruction to correct problems in the underlying road deck. Highways classified as being in fair surface condition may show some signs of deterioration and may be noticeably inferior to those of new pavements (Source: *Bumpy Roads Ahead: Cities with the Roughest Rides and Strategies to Make our Roads Smoother*. April 2004. Road Information Program - www.tripnet.org). Table 2.31 shows the number of highway miles and their conditions as reported by ODOT Division.

Table 2.31 State Highway Miles And Their Surface Conditions As Reported By ODOT Division

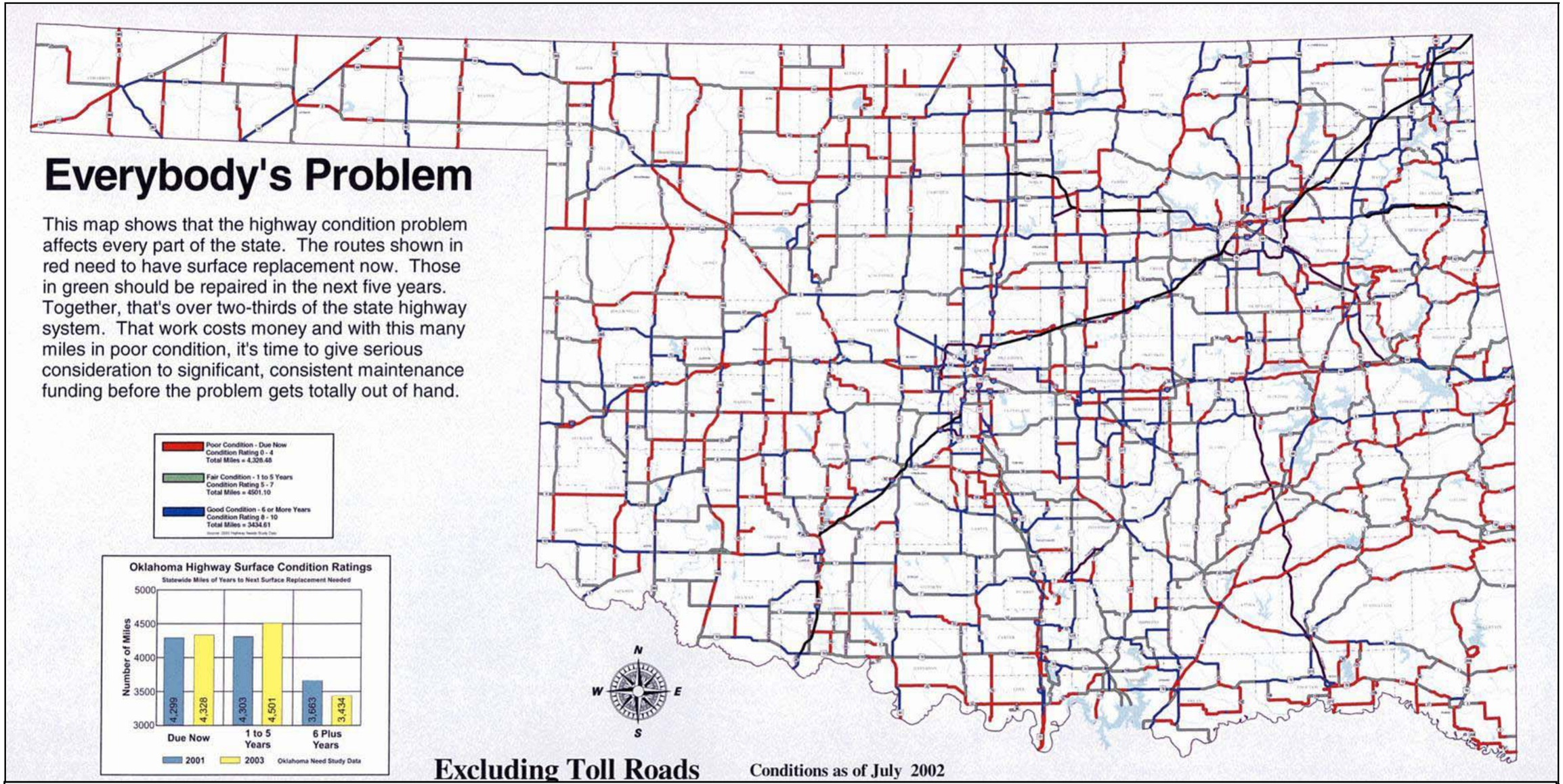
Division	Condition[1]						Total Miles
	Poor[2]		Fair[3]		Good[4]		
	Miles	Percent of Total Miles	Miles	Percent of Total Miles	Miles	Percent of Total Miles	
1	505.36	45.5	338.56	30.5	266.41	24.0	1,110.33
2	792.91	47.9	648.56	39.2	213.48	12.9	1,654.95
3	452.35	25.0	784.36	43.4	571.61	31.6	1,808.32
4	449.19	31.5	403.17	28.2	575.83	40.3	1,428.19
5	555.22	33.1	710.07	42.4	410.42	24.5	1,675.71
6	693.39	46.0	558.14	37.0	256.12	17.0	1,507.65
7	450.18	31.8	607.92	43.0	355.63	25.2	1,413.73
8	429.88	25.8	450.32	27.0	785.11	47.2	1,665.31
All Divisions	**4,328.48**	**35.3**	**4,501.1**	**36.7**	**3,434.61**	**28.0**	**12,264.19**

Source: ODOT, http://www.okladot.state.ok.us/public-info/civic/highways/index.htm
[1] As of July 2002
[2] Poor Condition: Surface replacement needed now.
[3] Fair Condition: Surface replacement needed within five years.
[4] Good Condition: Surface replacement needed in six or more years.

As shown in Table 2.31, less than 20 percent of highway miles were classified as being in good surface condition within Divisions 2 and 6, which encompass the southeast and northwest portions of the state, respectively. For all Divisions combined, 4,328.48 miles (35.3 percent) of highways were classified as being in poor surface condition and 4,501.10 miles (36.7 percent) of highways were classified as being in fair surface condition. Only 3,434.61 miles (28.0 percent) were classified as being in good surface condition. As shown in Figure 2.19, many of the major roadways leading into the state's two largest metropolitan areas, Oklahoma City and Tulsa, have poor surface conditions.

Roads in poor surface condition accelerate the depreciation of vehicles and the need for repairs because the stress on the vehicle increases in proportion to the level of roughness of the pavement surface. Tire wear and fuel consumption also increase because there is less efficient transfer of power to the drive train and additional friction between the road and the tires (Source: *Bumpy Roads Ahead: Cities with the Roughest Rides and Strategies to Make our Roads Smoother*. April 2004. Road Information Program - www.tripnet.org). Roads in poor surface condition may also result in slower driving speeds and increased traffic congestion, which increases travel time and associated labor costs.

Figure 2.19 2003 Highway Needs Study Years to Next Surface Replacement



2003 HIGHWAY NEEDS STUDY YEARS TO NEXT SURFACE REPLACEMENT

2.3.1.2 Structurally Deficient and Functionally Obsolete Bridges

A bridge is classified as structurally deficient if there is significant deterioration of the bridge deck, supports, or other major components. This does not necessarily imply that the bridge is unsafe. Bridges that are structurally deficient are often posted to only carry lower weight vehicles or are closed if they are unsafe. A bridge is classified as functionally obsolete if it no longer meets current highway design standards such as narrow lanes, inadequate under clearances, or poor alignment, all of which reduce highway safety.

According to an analysis of the 2002 Federal Highway Administration (FHWA) National Bridge Inventory, Oklahoma leads the nation in the percentage of its bridges rated structurally deficient. The number and percentage of structurally deficient and functionally obsolete on- and off-system bridges for the state of Oklahoma is shown in Table 2.32 as follows:

Table 2.32 Structurally Deficient And Functionally Obsolete On-System And Off-System Bridges In Oklahoma

System	Total Bridges	Structurally Deficient Bridges	Percent of Total Bridges	Functionally Obsolete Bridges	Percent of Total Bridges	Total Deficient and Obsolete Bridges	Percent of Total Bridges
On-System[1]	2,683	1,082	40.3	547	20.4	1,629	60.7
Off-System[2]	20,566	7,226	35.1	1,241	6.1	8,467	41.2

[1] As of October 2004, ODOT
[2] As of December 2003, National Bridge Inventory, U.S. Department of Transportation Federal Highways Administration, http://www.fhwa.dot.gov/bridge/deficient.htm

As shown in Table 2.32, 60.7 percent of on-system bridges are either structurally deficient or functionally obsolete. Of these bridges, 40.3 percent are structurally deficient and 20.4 percent are functionally obsolete. Of the off-system bridges, 41.2 percent are either structurally deficient or functionally obsolete with 35.1 percent classified as structurally deficient and 6.1 percent as functionally obsolete.

ODOT has reported that as of October 2004, 1,082 structurally deficient and 547 functionally obsolete on-system bridges exist throughout the state (Figure 2.19: Structurally Deficient / Functionally Obsolete Bridges). Table 2.33 shows a breakdown of the structurally deficient and functionally obsolete bridges by Division.

Table 2.33 Structurally Deficient And Functionally Obsolete Bridges By ODOT Division

Division	Structurally Deficient	Functionally Obsolete	Total
1	124	72	196
2	73	59	132
3	275	65	340
4	200	85	285
5	82	38	120
6	99	5	104
7	77	77	154
8	152	146	298
All Divisions	**1,082**	**547**	**1,629**

Source: ODOT, http://www.okladot.state.ok.us/public-info/civic/bridges/index.htm

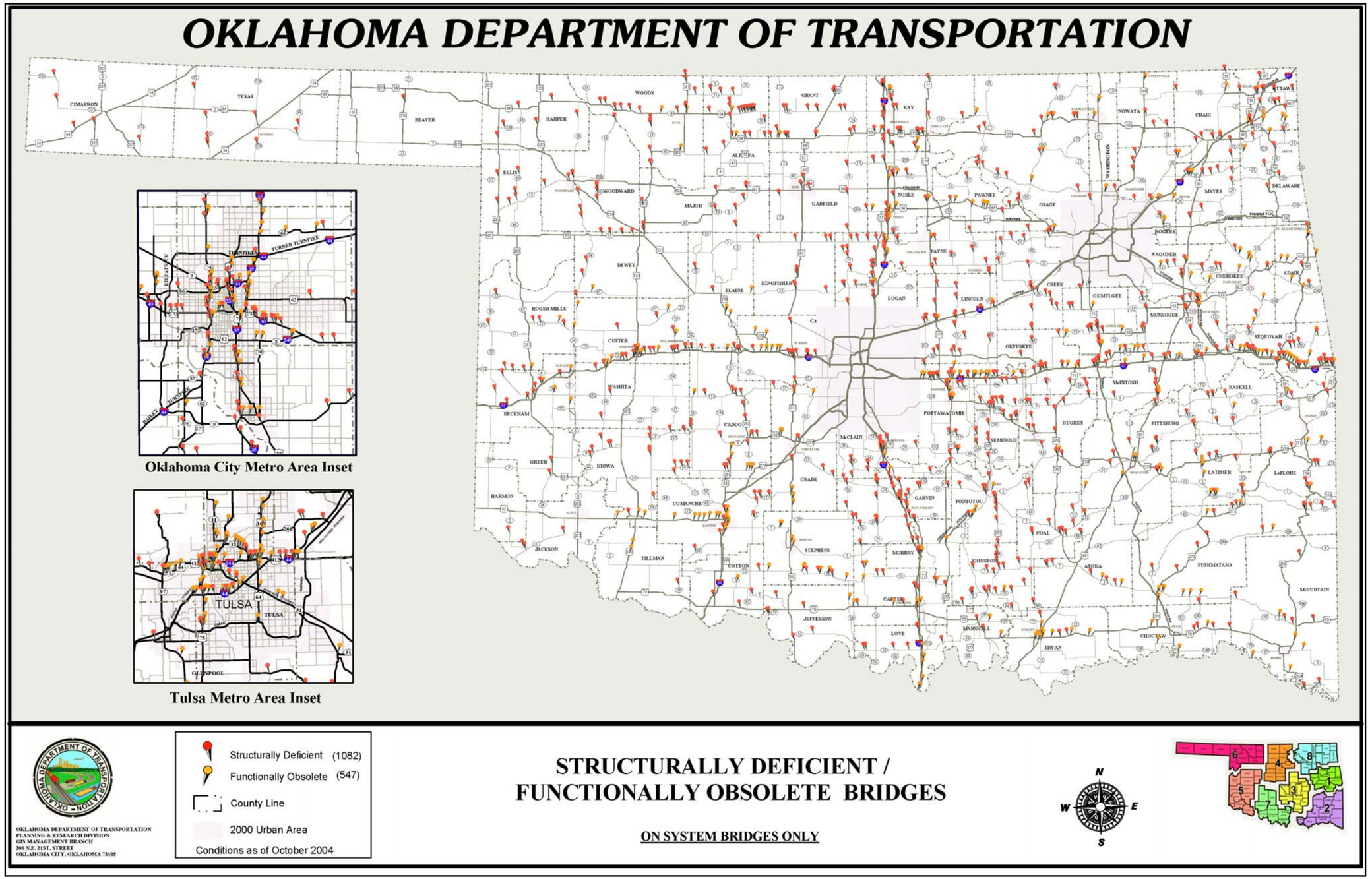
As shown in Figure 2.19, all of the major roadways leading into Oklahoma City and Tulsa contain structurally deficient and functionally obsolete bridges. ODOT Divisions 3, 4, and 8 have the greatest number of structurally deficient and functionally obsolete bridges. Divisions 3, 4, and 8 encompass the central, north central, and northeast portions of the state, respectively. Also note the large number of structurally deficient and functionally obsolete bridges along Interstate 35 and Interstate 40. These highways serve as major north-south and east-west routes across the entire state of Oklahoma, and are heavily used by trucks and other commercial vehicles.

ODOT also reports that of the 1,629 structurally deficient and functionally obsolete on-system bridges in the state, over 100 are within the Oklahoma City Metro Area and over 70 are within the City of Tulsa Metro Area. Oklahoma City and Tulsa are regional freight distribution centers within Oklahoma.

As previously stated, structurally deficient bridges are often posted to only carry lower weight vehicles. As a result, heavy trucks are forced to use alternate routes or detours to bypass these bridges. This may slow the delivery of freight and increase fuel and labor costs. Load posted bridges are discussed in detail in the next section of the report.

Functionally obsolete bridges no longer meet current highway design standards and reduce traffic safety. Narrow roadways make it difficult for drivers to safely maneuver in emergency and non-emergency situations because there is not enough room. Collisions with bridge ends are infrequent, but often severe. Such crashes usually occur when the width of the bridge is less than that of the approaching travel lanes and shoulders. As a result, vehicles strike the ends of the bridges, guardrails, curbing, or vehicles traveling in the opposite direction. Vehicles are therefore forced to slow down as they approach bridges with narrow roadways, inadequate vertical clearances, or poor alignment. This may result in increased congestion and longer travel times.

Figure 2.20 Structurally Deficient / Functionally Obsolete Bridges



2.3.1.3 Load Posted Bridges

Load posting is often required for structures that do not have the structural capacity to safely carry the State Legal Loads. Many older bridges were designed at a time when the design truck for a particular stretch of roadway had a gross truck load of 20,000 to 30,000 pounds. State of Oklahoma House Bill 1415 sets the load and weight limits for private commercial vehicles as follows:

- No single axle weight shall exceed 20,000 pounds.
- The total gross weight in pounds imposed by a vehicle or combination of vehicles shall not exceed the value given in Table 2.34 corresponding to the distance in feet between the extreme axles of the group measured longitudinally to the nearest foot.
- Except as to gross limits, Table 2.34 shall not apply to a truck-tractor and dump semi-trailer when used as a combination unit.
- In no event shall the maximum load in pounds carried by any set of tandem axles exceed 34,000 pounds for vehicles exempt from the table; however, any vehicle operating with split tandem axles or tri-axles shall adhere to the table.
- Special permits may be issued for divisible loads for vehicle configurations in excess of six axles. The permits may not exceed the Table "B" federal weights formula imposed by Title 23, U.S. Code, Section 127. Vehicles moving under the permits shall not traverse H-15 bridges (gross truck load of 30,000 pounds) or less without the express approval of the Secretary of Transportation.

Table 2.34 State Legal Loads

Distance in Feet Between the Extremes of Any Group of Two or More Consecutive Axles	Maximum Load in Pounds Carried on Any Group of Two or More Consecutive Axles				
	2 Axles	3 Axles	4 Axles	5 Axles	6 Axles
4	34,000	--------	--------	--------	--------
5	34,000	--------	--------	--------	--------
6	34,000	--------	--------	--------	--------
7	34,000	--------	--------	--------	--------
8	34,000	42,000	--------	--------	--------
9	39,000	42,500	--------	--------	--------
10	40,000	43,500	--------	--------	--------
11	--------	44,000	--------	--------	--------
12	--------	45,000	50,000	--------	--------
13	--------	45,500	50,500	--------	--------
14	--------	46,500	51,500	--------	--------
15	--------	47,000	52,000	--------	--------
16	--------	48,000	52,500	58,000	--------
17	--------	48,500	53,500	58,500	--------
18	--------	49,500	54,000	59,000	--------
19	--------	50,000	54,500	60,000	--------
20	--------	51,000	55,500	60,500	66,000
21	--------	51,500	56,000	61,000	66,500
22	--------	52,500	56,500	61,500	67,000
23	--------	53,000	57,500	62,500	68,000
24	--------	54,000	58,000	63,000	68,500
25	--------	54,500	58,500	63,500	69,000
26	--------	56,000	59,500	64,000	69,500
27	--------	57,500	60,000	65,000	70,000
28	--------	59,000	60,500	65,500	71,000
29	--------	60,500	61,500	66,000	71,500
30	--------	62,000	62,000	66,500	72,000
31	--------	63,500	63,500	67,000	72,500
32	--------	64,000	64,000	68,000	73,500
33	--------	--------	64,500	68,500	74,000
34	--------	--------	65,000	69,000	74,500
35	--------	--------	66,000	70,000	75,000
36	--------	--------	68,000	70,500	75,500
37	--------	--------	68,000	71,000	76,000
38	--------	--------	69,000	72,000	77,000
39	--------	--------	70,000	72,500	77,500
40	--------	--------	71,000	73,000	78,000
41	--------	--------	72,000	73,500	78,500
42	--------	--------	73,000	74,000	79,000
43	--------	--------	73,280	75,000	80,000
44	--------	--------	73,280	75,500	80,500
45	--------	--------	73,280	76,000	81,000
46	--------	--------	73,280	76,500	81,500
47	--------	--------	73,500	77,500	82,000
48	--------	--------	74,000	78,000	83,000
49	--------	--------	74,500	78,500	83,500
50	--------	--------	75,500	79,000	84,000
51	--------	--------	76,000	80,000	84,500
52	--------	--------	76,500	80,500	85,000
53	--------	--------	77,500	81,000	86,000
54	--------	--------	78,000	81,500	86,500
55	--------	--------	78,500	82,500	87,000
56	--------	--------	79,500	83,000	87,500
57	--------	--------	80,000	83,500	88,000
58	--------	--------	--------	84,000	89,000
59	--------	--------	--------	85,000	89,500
60	--------	--------	--------	85,500	90,000

Source: ODOT 2004

Many of the structurally deficient bridges in Oklahoma are load posted. According to ODOT, there are 151 load posted bridges for trucks and other vehicles on state, US, and interstate highways within Oklahoma. Table 2.35 shows the number of load posted bridges by highway.

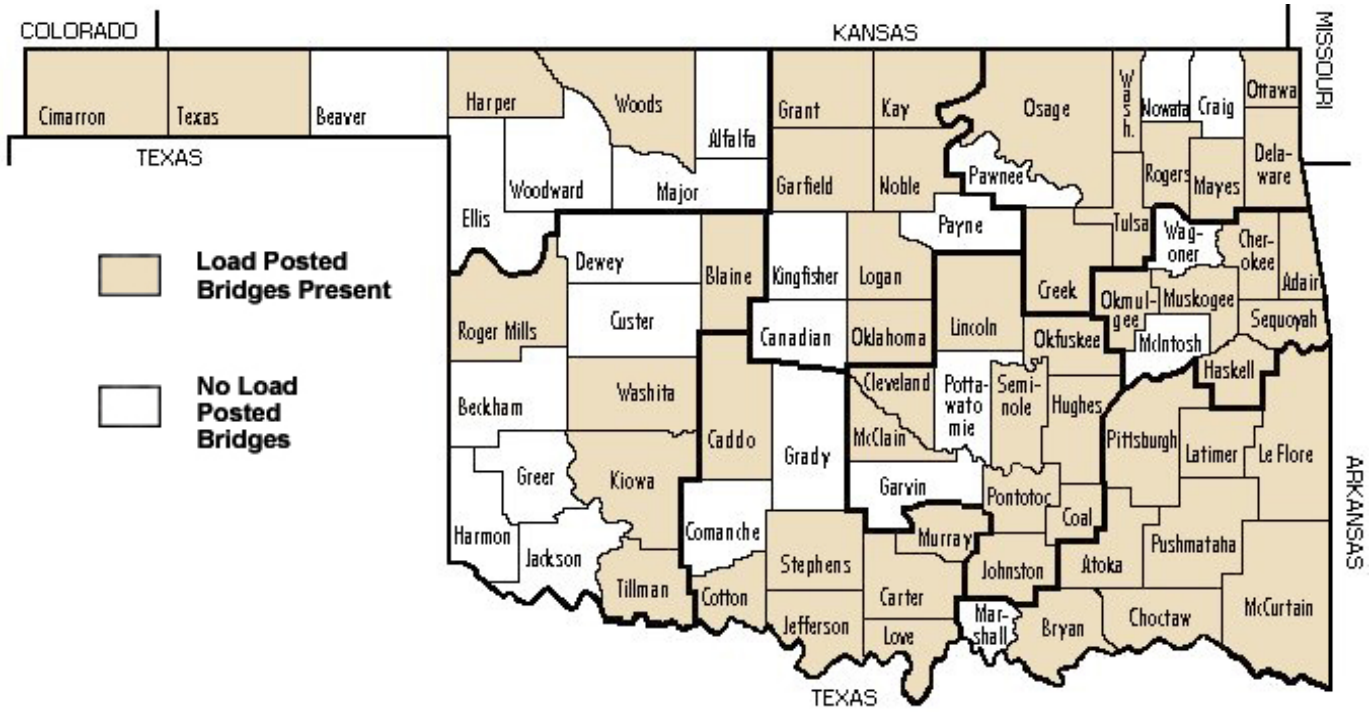
Table 2.35 State, US, and Interstate Highways With Load Posted Bridges for Trucks and Other Vehicles

Highway	Number of Load Posted Bridges	Highway	Number of Load Posted Bridges
SH 1	3	SH 74C	1
SH 2	1	SH 77	2
SH 5	4	SH 77D	1
SH 7	2	SH 82	4
SH 8	1	SH 87	1
SH 9	4	SH 88	3
SH 9A	2	SH 95	2
SH 10	3	SH 97	1
SH 11	1	SH 99	2
SH 15	1	SH 99A	1
SH 16	1	SH 101	4
SH 19	1	SH 104	1
SH 20	1	SH 127	1
SH 24	1	SH 128	6
SH 27	1	SH 131	2
SH 28	1	SH 132	1
SH 31	5	SH 141	1
SH 32	2	SH 144	2
SH 33	5	SH 147	1
SH 35 Osage Hills	1	SH 171	1
SH 36	1	SH 199	1
SH 44	2	SH 325	2
SH 47	2	US 59	2
SH 48	4	US 60	2
SH 53	1	US 62	1
SH 54	4	US 64	5
SH 55	1	US 70	1
SH 56	5	US 75A	2
SH 58A	1	US 77	11
SH 63	2	US 177	4
SH 66	1	US 266	1
SH 66 Business	2	US 271	7
SH 71	1	US 281	1
SH 74	4	US 283	1

Source: ODOT, http://www.okladot.state.ok.us/ /hqdiv/p-r-div/nhs/index.htm

As shown in Table 2.35, SH 31, SH 33, SH 56, SH 128, US 64, US 271, and US 77 have at least five load posted bridges. Figure 2.20 is a map showing the 53 counties that contain load posted bridges.

Figure 2.21 Counties Containing Load posted Bridges



Source: ODOT 2004

As shown in Figure 2.20, only 24 of the 77 counties within Oklahoma do not contain load posted bridges and these counties are predominately in the western portion of the state.

As a result of load posted bridges, trucking companies must determine the axle configuration and maximum truck weight before a route can be planned for a specific destination. Multiple destinations compound the process. This may slow the delivery of freight as vehicles make detours around load posted bridges or take alternate and less direct routes. This results in inefficiency and higher fuel, vehicle maintenance, and labor costs. As more and more bridges become structurally deficient, more and more of them will become load posted. The cost of freight movement on the roadways within the state will increase accordingly.

2.3.1.4 Traffic Congestion

Level of Service (LOS) is a way to describe traffic congestion. It is a qualitative measure describing the operating conditions within a traffic stream based on service measures such as speed, travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. This quantitative measure ranges from LOS A to LOS F with the former being the best and the latter being the worst traffic condition. LOS A represents free flow operations at the highest posted speeds where there is ample freedom to maneuver and localized incidents do not affect traffic flows. LOS B implies that free flow speeds are maintained with slight restrictions. The general driving comfort level is still high and localized incidents have little or no effect on traffic flows. LOS C provides for free flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. More driver care and vigilance are required and localized traffic flow deterioration and queues begin to occur. At LOS D, speeds begin to decline, driver psychological and physical comfort levels deteriorate, freedom to maneuver is noticeably

limited, and minor incidents create queues. LOS E describes the condition when roadway capacity has been reached, volatile operations occur, maneuverability is extremely limited, and minor incidents create traffic breakdowns. LOS F represents complete breakdown in traffic flows with large queues and where the capacity of a facility can be temporarily reduced by the in-flow of traffic.

Statewide LOS

The ODOT 2005–2030 Statewide Intermodal Transportation Plan has identified 17 preliminary Transportation Improvement Corridors and Congress has designated four National High Priority Corridors in the state. ODOT developed the 17 preliminary corridors by taking the current Needs Study Traffic and using historical growth factors to update the projected traffic to 2030. This result is described in more detail in Chapter 3 – Future of the Intermodal System.

Oklahoma City LOS

The Texas Transportation Institute (TTI) 2004 Urban Mobility Report presented details on the trends, findings, and solutions that can be used to address the nation's growing transportation problems. Trend data from 1982 through 2002 for 85 urban areas was analyzed to provide a local and national perspective on the growth and extent of traffic congestion.

Oklahoma City was classified in the Report as a large urban area – over 1,000,000 and less than 3,000,000 in population. According to the Report, the annual delay per traveler in 1992 for Oklahoma City was seven hours and the travel time index was 1.04. In 2002, the annual delay per traveler was 14 hours and the travel time index was 1.11. This represents a 100 percent increase in annual delay per traveler and a 6.7 percent increase in the travel time index over the 1992 values. Annual delay per traveler is defined as the extra travel time for peak period travel during the year divided by the number of travelers who begin a trip during the peak period (6 to 9 a.m. and 4 to 7 p.m.). Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as the comparison threshold. Travel time index is defined as the ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.35 indicates a 20-minute free-flow trip takes 27 minutes in the peak. The annual travel delay in 2002 hours for the total urban area of Oklahoma City is 8,090,000 hours, the excess fuel consumed was 14,000,000 gallons, and the congestion cost was $143,000,000. Excess fuel consumed is defined as the increased fuel consumption due to travel in congested conditions rather than free-flow conditions. Congestion cost is defined as the value of travel time delay (estimated at $13.45 per hour of person travel and $71.05 per hour of truck time) and excess fuel consumption (estimated using state average cost per gallon).

Tulsa LOS

According to the Texas Transportation Institute (TTI) 2004 Urban Mobility Report, the annual delay per traveler in 1992 for the City of Tulsa was six hours and the travel time index was 1.05. In 2002, the annual delay per traveler was 14 hours and the travel time index was 1.11. This represents a 133 percent increase in annual delay per traveler and a 5.7 percent increase in the travel time index over the 1992 values. The annual travel delay in 2002 hours for the total urban area of Tulsa is 5,976,000 hours, the excess fuel consumed was 10,000,000 gallons, and the congestion cost was $105,000,000.

2.3.1.5 Summary

This section has described existing roadway (excluding toll roads) conditions and problems associated with roadway surface conditions, bridge deficiencies and load postings and level of service concerns.

Roads in poor surface condition increase the depreciation of vehicles, the need for repairs, tire wear, and fuel consumption. Roads in poor surface condition may also result in slower driving speeds and increased traffic congestion, which increases travel time and associated labor costs. Without adequate funding, the roadways and bridges in Oklahoma will continue to deteriorate faster than they can be repaired. There is not enough funding to catch up with the road maintenance backlog.

More than 60 percent of on-system bridges and 40 percent of off-system bridges in Oklahoma are either structurally deficient or functionally obsolete. Many of the bridges are at least 80 years old and the rate of bridges aging significantly exceeds the rate of replacement. There are a large number of structurally deficient and functionally obsolete bridges along Interstate 35 and Interstate 40. These highways serve as major north-south and east-west routes across the entire state of Oklahoma. Over 100 structurally deficient and functionally obsolete are within the Oklahoma City Metro Area and over 70 are within the City of Tulsa Metro Area. These cities are regional freight distribution centers within Oklahoma. Structurally deficient bridges are often posted to only carry lower weight vehicles. As a result, trucking companies must determine the axle configuration and maximum truck weight before a route can be planned for a specific destination. Multiple destinations compound the process. This may slow the delivery of freight as vehicles make detours around load posted bridges or take alternate and less direct routes. This results in inefficiency and higher fuel costs, vehicle maintenance, and labor costs, which eventually leads to higher costs to the consumer. Functionally obsolete bridges no longer meet current highway design standards and reduce traffic safety. As vehicles slow down as they approach bridges with narrow roadways, inadequate under clearances, or poor alignment, increased traffic congestion and longer travel times may be the result.

ODOT has identified 17 transportation improvement corridors and Congress has designated four national high priority corridors within the state. The funding to improve capacity of the roadway segments within these corridors have priority which will improve the statewide level of service. In Oklahoma City, the annual delay per traveler in 1992 was seven hours. In 2002, the annual delay per traveler was 14 hours. This represents a 100 percent increase over the 1992 values. In Tulsa, the annual delay per traveler in 1992 was six hours. In 2002 the annual delay per traveler caught up to Oklahoma City at 14 hours, representing an increase of 133 percent.

Plans and other key initiatives addressing many of the above issues are described in the next chapter 3 – Future of the Intermodal System.

2.3.2 Oklahoma Turnpike System

Within the state, the Oklahoma Transportation Authority (OTA) operates and maintains 10 Turnpikes traversing over 600 miles as shown on Figure 2.21. During calendar year 2003 (the latest available data), daily vehicle miles of travel was approximately 7.5 million. This represents 11.5 percent of the vehicle miles traveled on the Oklahoma state road network. Possible constraints discussed below include 1) the existing roadway conditions, 2) existing and projected level of service and 3) toll booth operations.

Figure 2.22 Turnpikes in Oklahoma

2.3.2.1 Existing Roadway Conditions

The OTA actively maintains the turnpike system and at present cites few, if any, road surface or bridge condition issues. This may in part be because the average system age is 30 years with the oldest facility – the Turner Turnpike being 51 years old and the newest facility – the Creek Turnpike being 12 years old. Vehicle weight and size restrictions similar to ODOT's are enforced although permits can be issued for larger vehicles after engineering review and working with the applicant. There are no restrictions placed on farm equipment although they are encouraged to obtain a "pikepass" if the vehicle or trailer being towed is 12 feet wide or wider because the "pikepass" lanes are wider than standard tollbooth lanes. The OTA has also been able to keep up with maintenance and upkeep because of strong revenue generation. The adopted 2005 OTA budget has $250 million in programmed expenditures over the 2005 to 2009 period according to information obtained from the OTA Deputy Director.

All but two of the turnpike facilities have bridge clearances of 15.5 feet. The Turner Turnpike has clearances of 14.5 feet and the Will Rogers Turnpike has clearances of 15 feet. These variations are not anticipated to be a constraint to goods movement.

2.3.2.2 Existing Level of Service (LOS)

The level of service or degree of congestion experienced by users is vital to keeping a strong customer base. Based on information from the OTA Deputy Director, the existing network operates at a high level of service with "unimpeded flow" (LOS A or B) during off peak periods and only occasional reductions (LOS C) in that condition during peak periods.

2.3.2.3 Toll Booth Operations

The OTA currently has "non stop" tolling at all toll booth locations. This is possible through the "pikepass" program which allows electronic toll collection. At about 50 percent of the locations geometric restrictions require that traffic slow to 30 mph. The remaining locations offer open road tolling whereby drivers do not have to slow down as long as they have valid and readable windshield tag and transponder and are in the correct lanes. Plenty of advanced signing is provided to alert customers of lane options ahead of toll booths.

2.3.2.4 Summary

The State Turnpike system offers good levels of service and road conditions with few if any problems presently. Although some survey respondents expressed some frustration with delays at toll booths, the option of open road tolling offers substantial relief. The OTA network of turnpikes does not present any major constraints to the ongoing operation of the surface transportation system. It should be noted that as the use of tolling increases as a means to expand the State system, the customer's tolerance for extra fees may become a factor in reducing truck based commerce. Trucking companies interviewed indicated that increases in toll payments were cutting into their ability to make profits.

2.3.3. Freight Rail System

Currently, 21 freight railroads operate in Oklahoma: three Class I railroads, one regional railroad, 12 local line, and five switching and terminal lines. The State of Oklahoma supports rail transportation with ownership of several railroad rights-of-way encompassing approximately 900 miles of track. Most of these facilities are leased to railroad companies although a few are not in operation. State-owned railroad rights-of-way include trackage leased by: Union Pacific; Stillwater Central; Farmrail; Arkansas-Oklahoma; Wichita, Tillman & Jackson; Austin, Todd & Ladd; and South Kansas & Oklahoma.

Class I railroads operating in the state include the BNSF Railway Company (BNSF), Union Pacific (UP), and Kansas City Southern (KCS). BNSF shares trackage with Amtrak passenger rail services between Oklahoma City and Fort Worth, Texas.

BNSF's rail network in Oklahoma consists of four different operating divisions within the BNSF system. BNSF operates 1,475 route miles within the state. Its primary customers include General Motors, Nestle Purina, Continental Carbon, Budweiser, Valero Refinery, Williams Refinery, and Georgia Gulf. The primary commodities transported by the BNSF in Oklahoma with either origins or destinations in the state are non-metallic minerals, chemicals, and grain. Coal bound for Texas electric utilities is a major commodity of BNSF's interstate traffic through Oklahoma.

Oklahoma is part of UP's north-south corridor linking the Midwest with the Gulf Coast. The railroad operates 921 miles of track in the state. Commodities shipped by UP originating in Oklahoma include wheat, cement, and aggregates. UP customers include Oklahoma Gas & Electric, Grand River Dam Authority and Great Lakes Carbon, Dolese Brothers, Lone Star Industries and Farmland Industries.

KCS operates primarily north-south in the eastern portion of Oklahoma, providing the shortest route between Kansas City and the Gulf of Mexico. KCS achieved its goal of creating the "NAFTA Railway," connecting the heartland of the United States to central Mexico. KCS operates 139 route miles in Oklahoma. The majority of the KCS traffic in Oklahoma is interstate traffic, having neither an origin nor destination within the state.

2.3.3.1 Rail Intermodal Facilities

There has been much discussion regarding the desire to add rail intermodal facilities in Oklahoma and increase freight activity to support existing and new business. There are two major existing intermodal facilities in the region one just north of Fort Worth and west of Alliance airport and a second at the Argentine yard in Kansas City. Typically such facilities are designed to serve an area within a 250 mile radius. As Figure 2.22 shows, the Oklahoma market is covered quite well with these two existing facilities. The lack of such a major intermodal facility in Oklahoma is therefore not a constraint. The prospect of having such a facility in the state is very slim given current operations.

Figure 2.23 Coverage Area of Major Intermodal Facilities Serving Oklahoma

*Source: PB, NationalAtlas.gov

Coverage Area of Major Intermodal Facilities Serving Oklahoma

Legend

Existing Kansas City Intermodal Facility

Existing Alliance Intermodal Facility

2.3.3.2 Network Connectivity

Most of the major rail freight flows in and through Oklahoma are north to south. An exception is the BNSF's "Transcon" line between California and Chicago crossing the northwestern portion of the State. There isn't much demand for west to east rail traffic in Oklahoma and as such, west to east rail lines are not as readily available; especially in the southern part of the state. The existing Class One rail network is sufficiently established as far as any State connectivity needs are concerned now and into the future.

2.3.3.3 Short Line Railroads

Class One Railroads encourage Oklahoma's continued support of Short Line railroads within the state to enhance the service to Oklahoma's rail customers. The ability of Short Lines to upgrade their infrastructure to accommodate 286,000 pound rail cars is very important because of the increased use of such rail cars.

2.3.3.4 Railroad Operations & Geometrics

A lack of double track on the Class One mainlines will restrict future capacity of through train movements not only in Oklahoma but throughout the country. The BNSF's north to south line from Wichita to Fort Worth through Oklahoma City is approaching capacity for a single track railroad and will need to have some double track construction occur if rail freight traffic is to increase on this line. Although not in Oklahoma, congestion on the Class One railroads in the vicinity of the Port of Houston can have some impact on goods moving from Oklahoma to the Houston area. The Houston capacity issues are being addressed by others. Similar issues with the east-west transcontinental route outside of Oklahoma are also being addressed.

Overhead clearance restrictions have an impact on the ability to move "double-stack" intermodal traffic; but such restrictions are not presently an issue in Oklahoma.

2.3.3.5 Summary

Oklahoma has a lack of rail intermodal or transload facilities, yet this is primarily a result of adjacent facilities in North Texas and Kansas City which adequately serve the needs of the state. There are also adequate north/south and east/west Class One rail lines available to the state's rail customers. Oklahoma should continue its support of the Short Line railroads and support infrastructure upgrades for the ever expanding use of the larger 286,000 pound railcars. Another potential constraint to rail traffic that must be monitored is the BNSF north/south line that operates through Oklahoma City as it is approaching capacity.

2.3.4. Airports

Two major international airports serve Oklahoma—Will Rogers World Airport, in Oklahoma City, and Tulsa International Airport, in Tulsa. Three regional airports located in Enid (Woodring Regional Airport), Lawton (Lawton-Fort Sill Regional Airport), and Ponca City (Ponca City Regional Airport) serve as commercial passenger links in their respective regions. In addition to these five commercial airports, 122 general aviation airports located around the state serve public and private aircraft. The Oklahoma City and Tulsa airports serve the vast majority of state passenger traffic and all cargo activity.

The state also has a considerable military/Air Force presence including Tinker Air Force base/Oklahoma City air logistics center; Altus Air Force base in Altus, Oklahoma; Vance Air Force base, Enid, Oklahoma; and US Air National Guard, Tulsa, Oklahoma. The opportunities for military logistics centers are discussed in Chapter 5.

Will Rogers World Airport is located in the southwest corner of Oklahoma City. With two main runways (both 9,800 feet) and a crosswind runway (7,800 feet), the airport presently serves commercial passenger, cargo, general aviation, and Air National Guard customers. Airlines that serve the airport include: American, American Eagle, Atlantic Southeast, Champion Air, COMAIR, Continental, Delta, Delta Connection, Frontier, Great Plains, Northwest, Northwest Airlink, Southwest, and United. In 2003 Will Rogers served approximately 3,260,000 passengers.

Will Rogers Airport is connected to the highway system through an official National Highway System Intermodal Connector (Meridian Ave. & SH 152). The airport is located near Interstate Highways I-44, I-35, and I-40, providing considerable automobile access for air travelers, but is not located near the only existing passenger rail service, Amtrak's Heartland Flyer which originates in downtown Oklahoma City. In addition from downtown there is no direct bus service to the airport. From the new COTPA intermodal center (not connected to the Amtrak station) a trolley bus route connects to the Meridian Avenue hotel district. Travelers must transfer to a second bus to the airport. The recurring congestion noted on the Oklahoma freeway system should be addressed to allow continued reliable airport auto access.

Passenger traffic through Will Rogers Airport has declined slightly from 2000 to 2003. Will Rogers served approximately 3,260,000 passengers in 2003. The decline is principally the result of September 11 and is slowly building again.

Tulsa International Airport is located on a 4,000-acre tract on the north edge of Tulsa, with 1,000 acres available for development. The airport has two main runways (10,000 feet and 7,400 feet) with a 6,100-foot crosswind runway, and serves commercial passenger, cargo, general aviation, and Air National Guard customers. Airlines serving the airport include: American, Atlantic Southeast, Champion Air, Chautauqua, COMAIR, Continental, Delta, Northwest, Skywest, Southwest, and United. American operates a major aircraft maintenance center at Tulsa International. In 2003 the Tulsa airport served approximately 2,747,200 passengers.

Tulsa International, which is also connected by an official National Highway System Intermodal Connector (SH 11), has direct access to I-44 and I-244 facilitating automobile access for air travelers. Tulsa Transit operates a bus route from downtown to the airport from 5:30 am to 5:30 pm with 90 minute headways. The trip from downtown is about 40 minutes.

2.3.4.2 Air Cargo

Air freight services at Will Rogers include Emery, Federal Express, United Parcel Service, Airborne, and Burlington. The airport is also designated as a Foreign Trade Zone, with the availability of general purpose warehouses and a U.S. Customs Port of Entry office. Its location near Interstate Highways I-44, I-35, and I-40, provides considerable access for truck freight transport. It is also located near rail services in Oklahoma City and is approximately 90 miles from the Port of Catoosa in Tulsa.

Will Rogers Airport handled approximately 35,571 tons of cargo and mail in 2003, with total tonnage projected to decrease by approximately 1,000 to 34,556 tons in 2004. As noted in section 2.1, the amount of cargo and mail passing through the airport declined from 2000 to 2003.

Air freight services at Tulsa International include Airborne Express, American Airline Cargo, Continental, Delta Dash, Menlo/Emery, Federal Express, Southwest, United Parcel Service, and the U.S. Postal Service. American operates a major aircraft maintenance center at Tulsa International. The airport is also designated as a Foreign Trade Zone, with the availability of general purpose warehouses and a U. S. Customs Port of Entry office. Tulsa International has access to I-44 through SH 11 (a designated NHS intermodal connector), providing easy access for truck freight transport. It is also located near rail services in Tulsa and is only minutes from the Tulsa Port of Catoosa.

Tulsa International Airport handled approximately 53,302 tons of cargo and mail in 2003 as noted earlier in section 2.1. The amount of cargo passing through the airport fluctuated slightly from 2000 to 2003 and is expected to increase by approximately 2,000 tons in 2004, but mail shipments have declined sharply since 2000 (69 percent) and have remained relatively stable the last three years.

Oklahoma's international airports remain important intermodal links in the state's transportation system. However, recent freight trends as measured in total freight tonnage seem to indicate a decline in activity for this transportation mode. The decline in cargo shipments at Will Rogers World Airport can be largely explained by changes in the aircraft being used by the airlines. Several commercial airlines flying into Will Rogers have shifted to using more "regional" size jets that do not have the capacity to carry cargo. These jets typically carry 70 to 90 passengers and only have cargo capacity for passengers' luggage. In addition, increased security since 2001 has also inhibited carrying cargo on passenger jets.

2.3.4.3 Summary

The shift to more regional carriers at Oklahoma's major airports will inhibit the growth of the air cargo business because of the cargo limitations of the type of aircraft being used. Oklahoma will either have to attract more national/international carriers, which will also increase air passenger traffic or establish a new regional/national cargo hub to take advantage of its airport capacity and attractive geographic location. The outsize air cargo market is growing and is international in scope. Geographically Oklahoma is well positioned for this market; however, the runways at the two main airports need to be at least 12,000 feet in length to satisfy the required cargo aircraft. Runways at both airports would have to be extended to take advantage of this opportunity.

2.3.5. Inland Waterways

The McClellan-Kerr Arkansas River Navigation System is 445 miles long and begins at the Mississippi River in Rosedale, Mississippi, and ends at the Port of Catoosa in Tulsa. Every year, 13 million tons of cargo are transported on the McClellan-Kerr waterway by barge. Commodities range from sand and rock to fertilizer, wheat, raw steel, refined petroleum products, and sophisticated petrochemical processing equipment.

There are two public port facilities that serve Oklahoma: the Port of Muskogee, located in Muskogee, and the Tulsa Port of Catoosa, located in Tulsa. Both are administered by city-county port authorities. In addition, private port facilities are located in or near Inola, Waggoner, Webbers Falls, and Sallisaw. Five locks are located in Oklahoma, at Spiro, Sallisaw, Gore, Porter, and Inola. All lock chambers are 110 feet wide by 600 feet long.

2.3.5.1 Roadway Access

A list of projects identified to enhance access to the port system was recently presented by the Waterways Branch of ODOT. The estimates are grouped into three geographical areas. The first area is around and serving the Port of Catoosa. The second area serves Johnston's Port 33 and a potential new facility at Lock and Dam #18. The third area is the Port of Muskogee. Cost estimates have been developed for each project within each geographic area. At this time no final actions have been taken regarding these projects. They do represent needs to keep road access to the port system at competitive levels.

Area 1 Port of Catoosa

- Four-Lane SH 167 from I-44 to the port entrance. - $15,000,000
- Four-Lane SH 266 from the port entrance to I-44 (Will Rogers Turnpike) - $23,000,000
- Four-Lane SH 266 from the port entrance to US 69 with capacity upgrades - $20,000,000

Area 2 Johnston's Port 33 and potential new facility at Lock & Dam 18

- Improvements to SH 412P (2-lanes with 12' shoulders) - $7,500,000
- Interchange at US 412 / SH 412P junction - $6,000,000
- Improvements to Coweta Road from US 412 to Muskogee Turnpike - $29,000,000
- Improve interchange and provide access at Coweta Road and Muskogee Turnpike - $7,000,000
- Bridge at Lock & Dam #18 - $20,000,000
- Improvements to roadway from Coweta Road to new bridge - $15,000,000

Area 3 Port of Muskogee

- Four-lane bridge over SH 165 / Muskogee Turnpike - $5,000,000
- Various roadway improvements east of bridge over turnpike / SH 165 - $2,000,000
- Emergency access through west rail yard - $1,000,000

2.3.5.2 Rail Access

Each of the public port facilities has rail access through various short line railroads which also connect to either UP or BNSF mainlines. This can facilitate container on barge operations in the future. Railroad access to the public ports is not a constraint at this time.

2.3.5.3 The Channel, Locks & Dams

The Oklahoma inland waterways, locks and dams are the responsibility of the US Army Corps of Engineers (ACOE). All dredging in the waterway channels has to be permitted, justified, paid for and executed by the ACOE, and Oklahoma ports are dependent on them to move this work forward. ODOT is working with the ACOE to help them assign a higher priority to removing the high spots in the channels to allow deeper (11.5 foot) draft barges through the system and to widen the channel to 300 feet between Muskogee and Catoosa (the Verdigris section) to allow two-way operation. In addition adding tow haulage equipment to the locks will allow barge strings to move through the locks without a tow boat and increase throughput and reduce towing costs. The issue here is really federal funding and congressional action – the federal government collects user fees on diesel fuel for the tow boats, but the money is accumulating in the treasury because it is not being authorized for spending by Congress. So, ODOT has to encourage their legislative delegation to help push through authority to allow ACOE to spend these funds for what they were intended.

The lack of funding noted above is largest issue today with the inland waterway system. Much of the fixed infrastructure (locks, dams and bridges over waterways) are over 50 years old, worn out and close to failure. ACOE has been pleading for well over a decade for more money to rebuild, but unsuccessfully. Further, they are spending heavily on maintenance to keep everything operating well beyond its useful design life, which saps their already strained budgets. This issue has not been a national priority in spite of the massive economic benefits, but will become so when, because of neglect, one lock on the system fails and shuts down commerce to an entire region of the country.

2.3.5.4 Summary

Access needs to the Oklahoma waterway system of ports, primarily from the roadway perspective appear to be a priority. Significant improvements are still needed to the waterway channel and the system of locks and dams. These facilities are under the jurisdiction of the ACOE and funding has been a consistent problem for years. Many of the commodities moving in and out of Oklahoma have historically moved on the waterway. Because of scheduling unpredictability, the commodities shifted to truck when fuel prices were lower and incremental cost increases for truck were rather nominal. The transport cost balance is tipping again in favor of barge service. If the waterway ports and barge service operators can better guarantee delivery schedules, more goods will shift back to the waterway system. Paramount to guarantees of schedule is an infusion of federal money to improve the existing waterway channel and its locks and dams.

2.3.6. Public Transportation

This section discusses Oklahoma's existing public transportation system and current opportunities/constraints for taking a larger role in further developing Oklahoma's economy. Comparison of ridership and service levels to other urban public transportation systems around the nation with similar population size to the two largest Oklahoma systems is provided, plus intermodal opportunities for public transit in the three largest Oklahoma urban areas. In addition, opportunities/constraints for the variety of services offered through ODOT's rural transit program are discussed along with those services provided by national intercity bus carriers and by Amtrak.

2.3.6.1 Urban Transit

There are four transit systems operating in Oklahoma classified as urban: the Central Oklahoma Transportation and Parking Authority (COTPA), Norman (CART), Tulsa Transit, and the Lawton Area Transit System (LATS). Summaries of service and ridership statistics between 2000 and 2002 were provided earlier. The information includes all fixed route, circulator and paratransit services.

Although total urban system revenue miles have increased by 33 percent between 2000 and 2002, total passenger trips have begun to level off even with the addition of service in Lawton (although small in comparison). Total passenger miles have been slowly increasing and are up 10 percent since 2000.

To measure Oklahoma's urban public transit successes several other cities (peer cities) around the US with similar population size were compared to the amount of urban public transit service offered in the state per population. From this data an average was calculated and analyzed against the statistics for both Oklahoma City and Tulsa.

The US Department of Transportation's National Transit Database (NTD) reports annually on service statistics for transit systems by urbanized area. From this data the comparison of Oklahoma City and Tulsa to 12 other cities within the 2000 NTD with similar population size is summarized for each city in Tables 2.36 and 2.37 respectively.

Table 2.36 Public Transportation Statistics Comparison for Oklahoma City, OK. (2000)

City , State	Population	Vehicle Revenue Miles (Millions)	Passenger Miles (Millions)	Operating Expense (Millions)	*Recovery Ratio
Jacksonville, FL	882,295	14.6	59.9	$48.1	27.9%
Louisville, KY-IN	863,582	11.1	57.6	$48.0	13.3%
Hartford, CT	851,535	11.3	88.7	$42.3	13.1%
Richmond, VA	818,836	6.9	51.2	$29.0	30.7%
Charlotte, NC-SC	758,927	10.1	74.4	$34.6	17.7%
Nashville-Davidson, TN	749,935	4.9	35.6	$24.7	27.0%
Oklahoma City, OK	**747,003**	**4.2**	**19.2**	**$15.6**	**20.2%**
Tucson, AZ	720,425	8.6	68.1	$37.5	20.0%
Dayton, OH	703,444	9.3	51.8	$51.7	13.0%
Rochester, NY	694,396	6.6	39.4	$39.0	39.6%
El Paso, TX-NM	674,801	8.0	68.8	$31.9	19.4%
Birmingham, AL	663,615	2.4	13.5	$14.0	18.3%
Omaha, NE-IA	626,623	4.0	15.0	$15.6	25.7%
Total Average	**750,416**	**7.8**	**49.5**	**$33.2**	**21.9%**

Sources: US DOT National Transit Database
* Recovery ratio = Fare revenues per operating funds expended

In 2000 Oklahoma City's transit system serviced 61 percent (or 30.3 million) passenger miles less than the average transit system serving a population of approximately 750,000 and 46 percent (or 3.6 million) vehicle revenue miles less than the same average population. However, recovery ratios are near the national average for a population of 750,000 of almost 22 percent thus suggesting that the existing system in Oklahoma City operates as efficiently as its peers and is supported by the public.

Table 2.37 Public Transportation Statistics Comparison for Tulsa, OK . (2002)

City , State	Population	Vehicle Revenue Miles (Millions)	Passenger Miles (Millions)	Operating Expense (Millions)	*Recovery Ratio
Albuquerque, NM	598,191	6.4	27.7	$25.2	14.1%
Allentown-Bethlehem, PA-NJ	576,408	5.0	21.5	$15.8	21.7%
Springfield, MA-CT	573,610	8.5	33.4	$25.9	17.5%
Akron, OH	570,215	6.9	22.8	$30.2	12.5%
Sarasota-Bradenton, FL	559,229	4.6	16.1	$12.6	8.9%
Albany, NY	558,947	7.2	43.1	$38.4	27.1%
Tulsa, OK	**558,329**	**5.0**	**18.4**	**$15.5**	**17.4%**
Fresno, CA	554,923	4.8	47.0	$25.9	25.5%
Concord, CA	552,624	5.0	20.8	$23.3	N/A
Raleigh, NC	541,527	3.4	19.7	$13.0	21.0%
Grand Rapids, MI	539,080	6.4	19.7	$21.2	13.3%
McAllen, TX	523,144	0.4	1.0	$1.4	12.8%
Toledo, OH-MI	503,008	4.4	23.0	20.6	22.5%
Total Average	**554,557**	**5.2**	**24.2**	**$20.7**	**16.5%**

Sources: US DOT National Transit Database.
* Recovery ratio = Fare revenues per operating funds expended.

Also in 2000 Tulsa's public transportation system serviced 24 percent (or 5.8 million) passenger miles less than the average transit system serving a population of approximately 555,000 and 4 percent (or 0.2 million) vehicle revenue miles less than the same average population. The recovery ratio is slightly above the national average for a population of 555,000 of just over 16 percent thus suggesting that the existing system in Tulsa is also operating as efficient as its peers and supported by the public.

By providing 24 percent to 61 percent less public transportation service to urban populations such as Oklahoma City and Tulsa, affects can be felt beyond issues of transportation. A lack of public transportation coverage can be directly connected to economic growth of a city and/or region. Businesses and corporations, as well as residents, often value a good public transit system and see it as an asset to locating their business or home in a particular place or city. Employers want their employees to be able to get to work and time is money for employers as well as employees. Having an accessible and convenient public transportation system that works can attract and "seal the deal" for business owners when looking to expand and/or locate to a new city. Just as critical is the lack of public transportation and that this void of transit can at times send potential economic opportunities looking for more attractive options/locations elsewhere.

2.3.6.2 Urban Transit Intermodal Connections

Currently COTPA operates 27 fixed routes in the Oklahoma Metro area, three of which provide express service. Tulsa Transit operates 15 fixed routes including two express routes. The Norman system (CART) has five routes and LATS also has five routes. The LATS system has one downtown transfer center where all routes converge to allow transferring. LATS also has one route serving Fort Sill – a major military base just north of downtown Lawton. Ten percent of the LATS ridership comes from Fort Sill.

COTPA has 15 park-and-ride locations operating informally at various churches, grocery stores, and retail store locations and Tulsa Transit's two express routes are each fed from an informal park-and-ride lot at similar type locations. The addition of formal park-and-ride networks within urban and suburban areas of Oklahoma City, Tulsa, Lawton, etc., may invite and encourage more riders with other choices to make public transportation their preferred commuting vehicle.

Facilities such as dedicated and formal park-and-ride locations can also help attract businesses and help grow the area economy due to the ease of access and security a formal park-and-ride network can provide. Such facilities breed opportunity at and around the park-and-ride station location for retail and mixed use development or can help with revitalization to a depressed area. Not only will opportunities grow at the park-and-ride stations but also along and at the destination point of the transit routes. Other benefits include opportunities to provide intermodal connections at park-and-ride facilities by combining transportation modes such as: bus and future rail stops, bus and van pool pickups, bus and passenger rail stations, etc. Ease of access, transferability and convenience are key ingredients to any successful public transportation system.

2.3.6.3 Rural Transit

As of FY 2004 there are 20 rural transit systems in operation across the State, as described in section 2.1. All systems provide a demand responsive service and in some cases offer route deviation. Ridership and service characteristics for each system were summarized earlier for FY 2003. During that year, over 1.9 million passenger trips were provided, with approximately 30 percent of those trips provided for elderly and disabled riders. A total of 10.4 million revenue miles were provided along with 18.1 million passenger miles. System wide, the average trip length per passenger was 9.2 miles, suggesting intercity and/or rural-to-city trip making.

Although there have been increases since FY 2000 in revenue miles (8.5 percent) and passenger miles (11 percent), these indicators have been in decline since FY 2001, as have total passenger trips.

It is worth noting that current total ridership is slightly above FY 2000 levels, disabled ridership is up 19 percent, and ridership for those classified as both elderly and disabled is up 20 percent. Two more systems started operation in FY 2004, one serves Oklahoma State University and the Stillwater community, and the second serves Bartlesville. Data for these new systems are not available at this time.

Many of the rural systems individually link together numerous communities and have extensive service areas. This explains the high average trip length of 9.2 miles. There are connections offered between the rural systems and the intercity bus and rail network. These existing

connections and rural links provide an excellent opportunity to implement a statewide transit network.

Table 2.38 shows increases in elderly and disabled trips for each fiscal year for rural transit systems. Yet, despite all the successes of these rural public transportation programs they have become limited due to a lack of funding. These systems are not expanding or enhancing there services as reflected by static annual revenue miles and passenger miles since 2001.

Table 2.38 Rural System Statistics by Federal Fiscal Year

Fiscal Year	Revenue Miles	Passenger Miles	All Passenger Trips	Elderly Trips	Disabled Trips	Elderly & Disabled Trips
2000	9,573,774	16,318,812	1,952,473	381,149	198,996	105,478
2001	10,686,490	19,871,507	2,039,139	373,063	208,541	111,993
2002	10,495,496	19,172,676	2,052,546	389,103	229,783	117,668
2003	10,411,000	18,194,621	1,983,854	350,948	236,681	126,323

Source: Transit Programs Division, Oklahoma Department of Transportation, August 2004

In addition, ODOT is no longer entertaining the development of new systems which imperils existing rural connections and limits connections between the rural areas and the metropolitan areas. This situation makes rural areas more auto dependent and potentially more isolated not only from a transportation stand point but also more isolated economically.

2.3.6.4 Intercity Bus Transit

Currently there are three intercity bus companies providing service in and through Oklahoma: Greyhound Lines, Jefferson Lines, and the T.N.M. & O. The primary market for such service is for interstate and intrastate travel. The bus companies offer routes that principally use the major roadways linking the larger urban areas where they can generate the most ridership. Their success is largely dependent on a well maintained and reasonably congestion free roadway system. At this time Greyhound Lines and its subsidiary, T.N.M. & O. are not experiencing difficulty with the road network. They also often provide intermodal facilities with urban public transit systems in large markets which when done correctly serve as development catalysts to the immediate area. At this time there is not enough demand in the Tulsa or Oklahoma City market to warrant any such intermodal facilities according to Greyhound.

2.3.6.5 Intercity Rail Transit

Since June of 1999 intercity rail – the Heartland Flyer – has been in service through Amtrak and the State of Oklahoma. Two trains operate per day, one in each direction along the BNSF rail line between Oklahoma City and Ardmore, with continuing service to Gainesville and Fort Worth, Texas as described in section 2.1. Ridership trends by fiscal year since 2000 are given in Table 2.39.

Table 2.39 Amtrak Heartland Flyer Ridership

Fiscal Year	Ridership	Percent Change Since 2000
2000	65,529	-
2001	57,799	(11.8%)
2002	52,584	(19.7%)
2003	46,592	(28.9%)
2004	54,223	(17.2%)

Source: Rail Programs Division, Oklahoma Department of Transportation (ODOT), August 2004

Although strong, ridership declined from 2000 to 2003 by almost 29 percent, fortunately this past year has seen ridership increase by 11.7 percent without a change in service level. Though 2003 ridership was down 28.9 percent compared to the first full calendar year of operation, available statistics do not reveal whether the decline is more pronounced in Oklahoma or Texas.

Ridership is also summarized by station and was presented earlier. The station activity data include all station boardings and alighting since service inception. Activity at the five Oklahoma stations accounts for 52 percent, whereas the two Texas stations account for the remaining 48 percent. This pattern suggests a strong link to North Texas, the Dallas – Fort Worth area, and the Fort Worth station, given connecting rail service east, west and south.

Opportunities to increase existing service ridership need to be explored and could include adding another train per day to entice more ridership to Oklahoma instead of just to Texas and more marketing campaigns for special events including college football games, Indian festivals and the Winstar casino. There is apparent interest on the part of the Winstar casino to build another Amtrak station for the Heartland Flyer. Teaming with local hotels and businesses should be encouraged to promote travel packages for such special events to help excite new ridership, share marketing costs and transportation costs from the closest station and the event. All parties would benefit from this type of marketing strategy resulting in: ridership increases for Amtrak, tourism for Oklahoma, the service and retail industries and the local economy in general.

Beyond the existing Heartland Flyer route, other ideas expressed to increase ridership and tourism include a Northern extension of the route to Kansas with a branch to Tulsa and creating a new Newton Kansas to Albuquerque route through Oklahoma which would double the ridership catchment area over the existing route. In the long term, studies show the designated San Antonio/Austin/Dallas-Fort Worth/Oklahoma City/Tulsa high speed rail route would attract additional ridership and significantly increase Heartland Flyer ridership.

2.3.6.6 Public Transit Summary

In conclusion Oklahoma's public transit systems need more funding and support from local and state officials to prevent stagnation of the transit systems and state and local economies. Federal transportation dollars can be won to help grow existing rural and urban systems. Oklahoma's urban transit systems have a level of service significantly lower than most US urban centers of similar population size. They lack formal park-and-ride networks as well as dedicated connections with rural transit providers. This lack of service coverage and funding is limiting the success of public transit in the state and limiting Oklahoma's economy and growth. Increase in ridership from rural transit operators and from passenger rail suggests that Oklahoma has potential to be a leading transit and intermodal state. With careful planning and marketing these opportunities for growth can be captured and the positive impacts will be felt not just by the transit providers but by the public and state and local economies.

3.0 FUTURE OF THE INTERMODAL SYSTEM

This chapter describes key attributes of the future Intermodal system. The highway system is emphasized in this chapter. The Intermodal transportation initiatives provided in Chapter 5 cover all modes based on material from all previous task reports. Chapter 3 includes future levels of service, degree of needed highway system repair, and state and local initiatives identified to respond to the needs and views of the future system from stakeholder surveys and interviews.

3.1 Expected Future Highway System Levels of Service (LOS)

3.1.1 Statewide LOS

The ODOT 2005–2030 Statewide Intermodal Transportation Plan has identified 17 preliminary Transportation Improvement Corridors and Congress has designated four National High Priority Corridors in the state (Figure 3.1: Transportation Improvement Corridors, 2005-2030 Statewide Intermodal Transportation Plan). ODOT developed the 17 preliminary corridors by taking the Needs Study Traffic and using historical growth factors to update the projected traffic to 2030. Then ODOT established capacity at LOS C with varying capacities based upon terrain types; thus, LOS C has a volume/capacity ratio of 1.0. Anything beyond a volume/capacity ratio of 1.0 was considered a candidate for a Transportation Improvement Corridor. All of the 2030 traffic was assigned to the State Highway System by control sections. The resulting map had a number of discreet segments. These segments were consolidated into logical termini sections. Segments that were confined to very small areas and which would be amenable to spot improvements rather than long corridor capacity upgrades between logical termini were eliminated. Figure 3.1 is the result although it is still preliminary.

3.1.2 Oklahoma City LOS

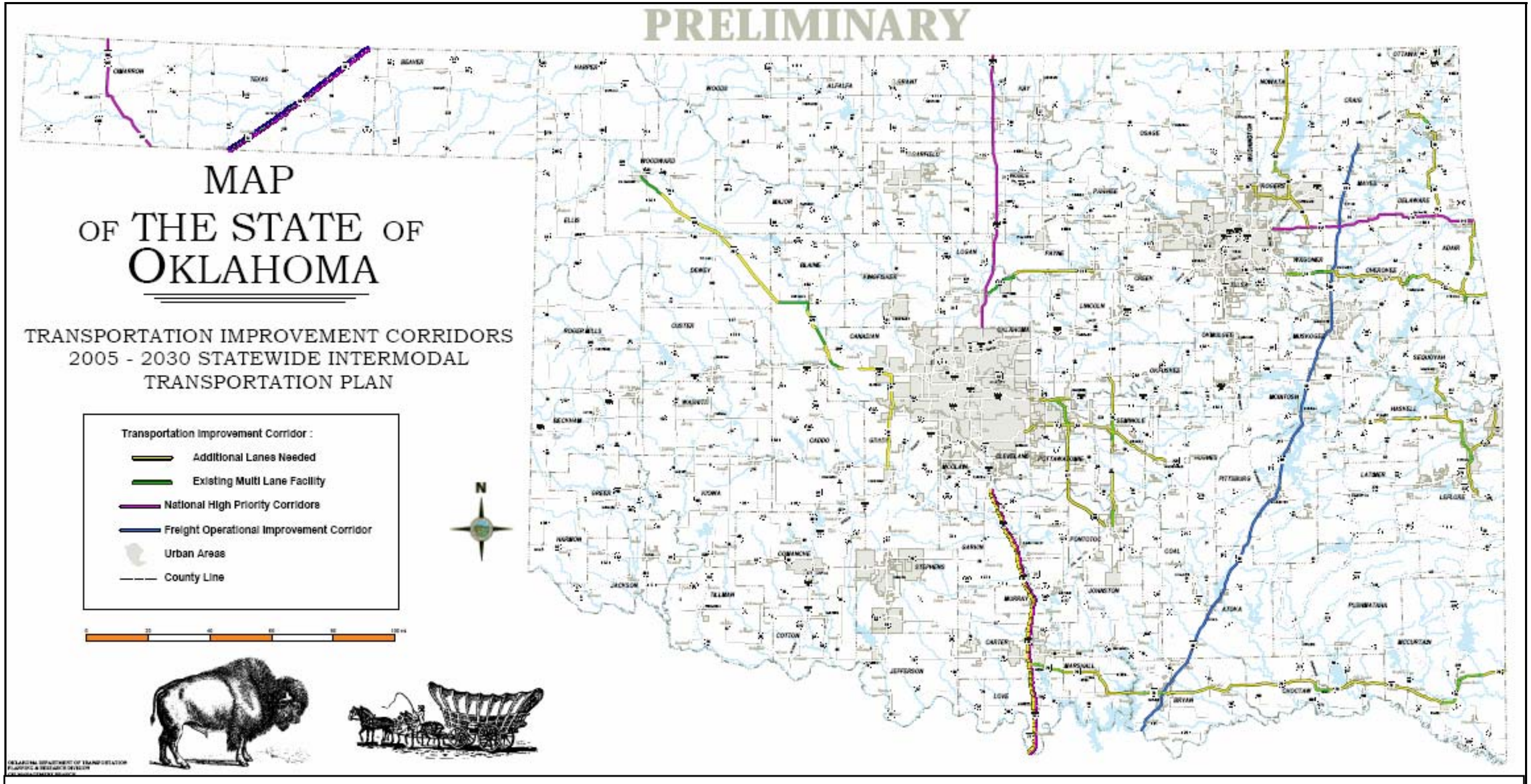
The Association of Central Oklahoma Governments (ACOG) conducted a regional transportation study for the Oklahoma City area in 2000 (Figure 3.2: 2000 Oklahoma City Area Regional Transportation Study Area). The result of the study was the 2025 Oklahoma City Area Regional Transportation Study (OCARTS) Plan. This plan addressed methods for improving mobility and accessibility using a multimodal approach to moving people and goods and improving the connections between modes. The 2025 OCARTS Plan was developed in accordance with the federal planning requirements established by TEA-21. The Plan must address transportation problems at least 20 years into the future and is based on past trends, population and employment. Figure 3.3: 2025 OCARTS Plan Network shows the roadways predicted to be congested in 2025. As shown in Figure 3.3, all of the Interstate Highways and some of the US and State Highways leading into Oklahoma City will be moderately to seriously congested by 2025.

3.1.3 Tulsa LOS

The Indian Nations Council of Governments (INCOG) is in the process of developing the 2030 Long Range Transportation Plan Update for the Tulsa Metropolitan Area - Destination 2030. The Long Range Transportation Plan is a 25 year vision plan that anticipates the future transportation needs for the whole region and identifies various modes such as roadways,

bicycle, pedestrian, public transportation, and freight systems and how they interrelate with each other. Consequently, LOS information is not available at this time.

Figure 3.1 Transportation Improvement Corridors, 2005-2030 Statewide Intermodal Transportation Plan



2005-2030 TRANSPORTATION IMPROVEMENT CORRIDORS

Figure 3.2 2000 Oklahoma City Area Regional Transportation Study Area

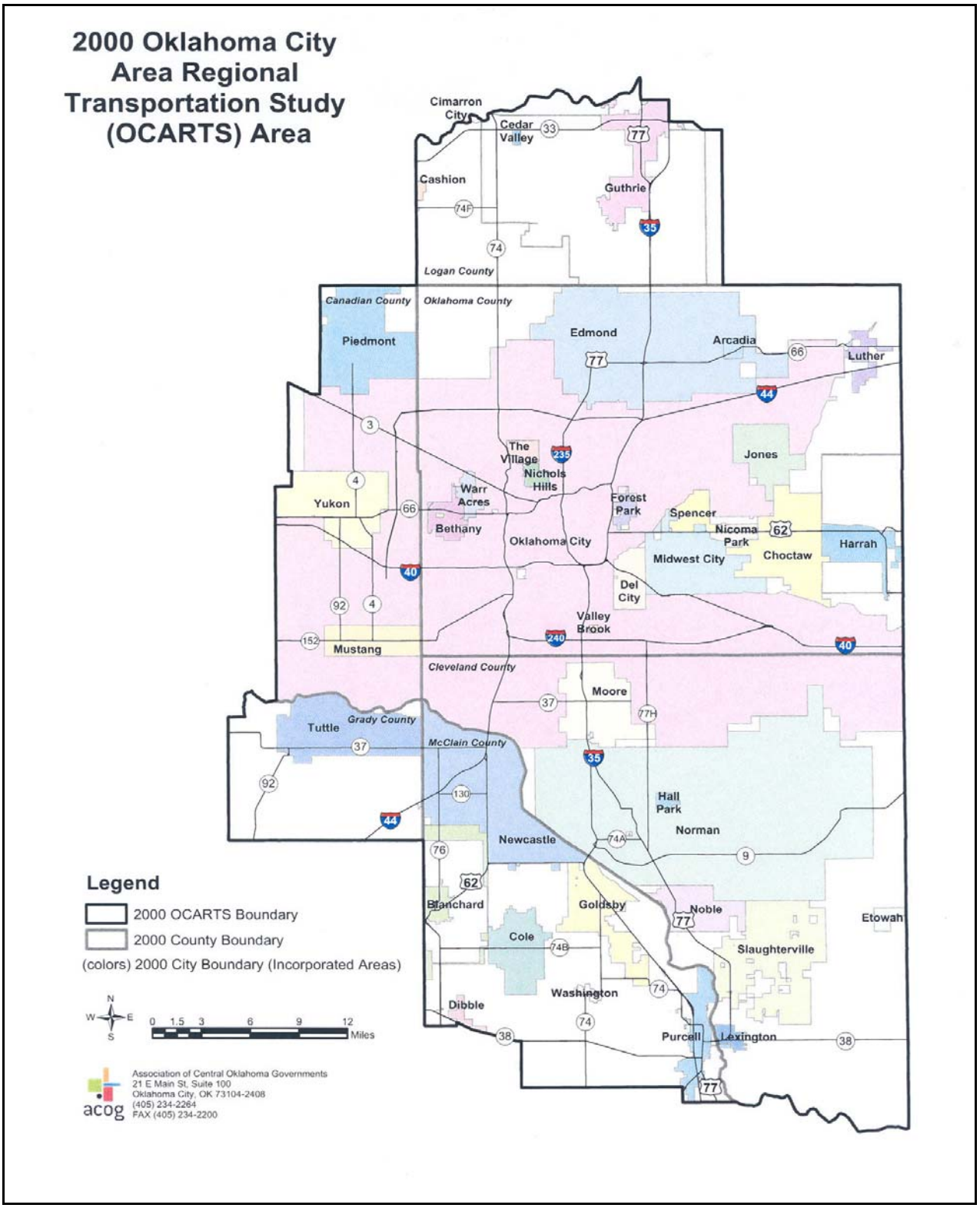
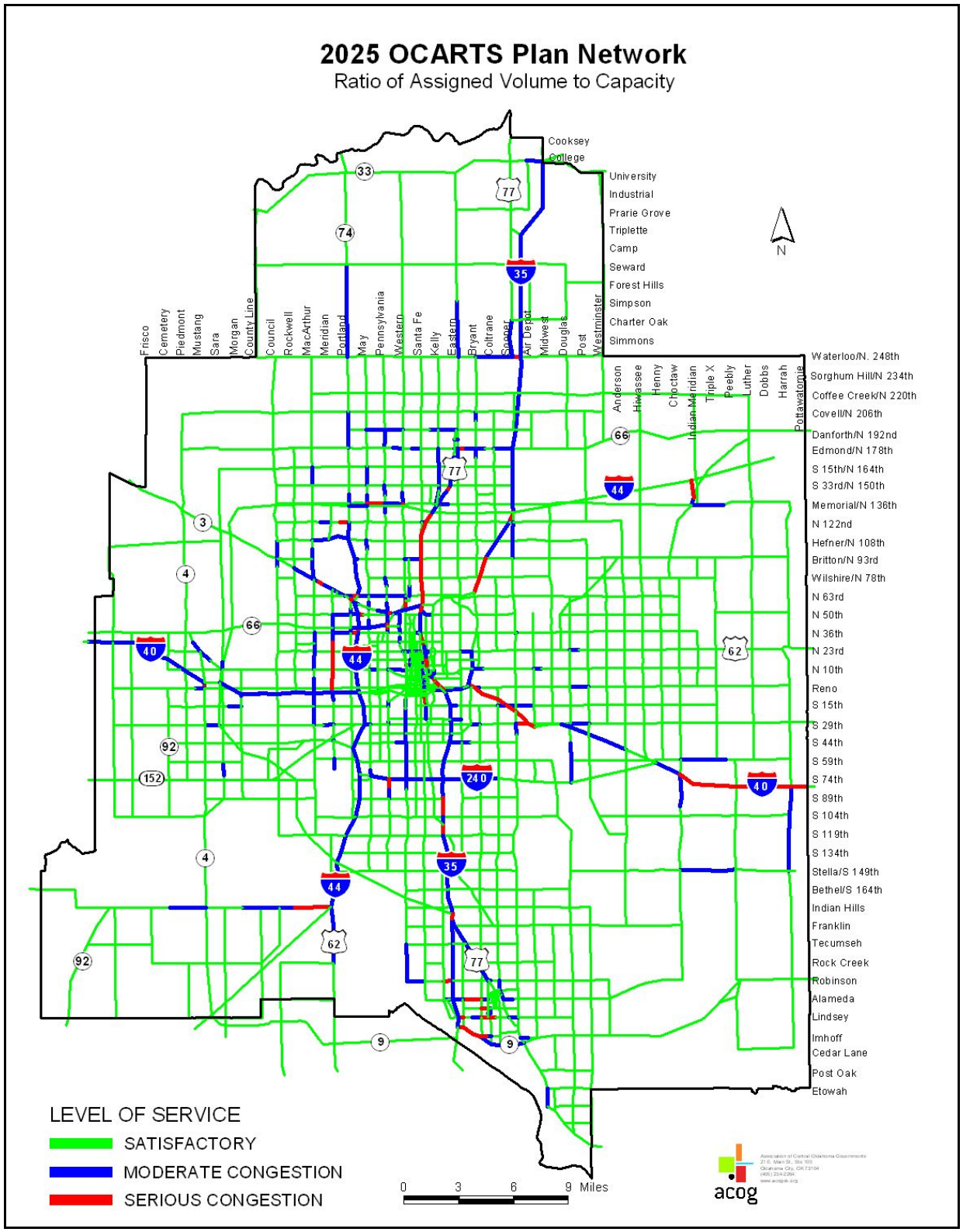


Figure 3.3 2025 OCARTS Plan Network



3.2 Expected Future Levels of Highway System Repair

3.2.1 State Highway Road Surface Conditions

Without adequate funding, roadways and bridges in Oklahoma will continue to deteriorate faster than they can be repaired. The estimated highway infrastructure replacement cost is $35 billion, which is almost seven times the annual state budget (Source: *Oklahoma Road and Bridges Still in Need of Help*. May 5, 2004. Oklahoma Trucking Association. www.oktrucking.org). According to Gary Ridley, ODOT's Director, there is not enough funding to catch up with the road maintenance backlog. Since 1985, ODOT's appropriation from state fuel taxes has dropped 6.4 percent, from $209.3 million in 1985 to $195.9 million in 2004. During the same time period, traffic volumes have increased 25 to 30 percent (Source: ibid).

3.2.2 Bridge Deficiencies (Structurally Deficient, Functionally Obsolete, and Load Posted)

Bridge deficiencies can be attributed to aging structures and the rate at which they are replaced. As shown in Figure 3.4, it is projected under Oklahoma's current program that 26 of the 162 bridges 80 years or older would be replaced in 2005. In the program year for 2010, 137 bridge replacements would occur but the number of aging bridges increases to 513. By 2014, the number of aging bridges will have increased to 1,143 but only 324 would be replaced. Thus the rate of bridges aging significantly exceeds the rate of replacement and will only exacerbate the existing problem.

A bridge is classified as structurally deficient if there is significant deterioration of the bridge deck, supports, or other major components. This does not necessarily imply that the bridge is unsafe. Bridges that are structurally deficient are often posted to only carry lower weight vehicles or are closed if they are unsafe. A bridge is classified as functionally obsolete if it no longer meets current highway design standards such as narrow lanes, inadequate under clearances, or poor alignment, all of which reduce highway safety.

Many of the structurally deficient bridges in Oklahoma are load posted. Load posting is often required for structures that do not have the structural capacity to safely carry the State Legal Loads. Many older bridges were designed at a time when the design truck for a particular stretch of roadway had a gross truck load of 20,000 to 30,000 pounds. As more and more bridges become structurally deficient, more and more of them will become load posted.

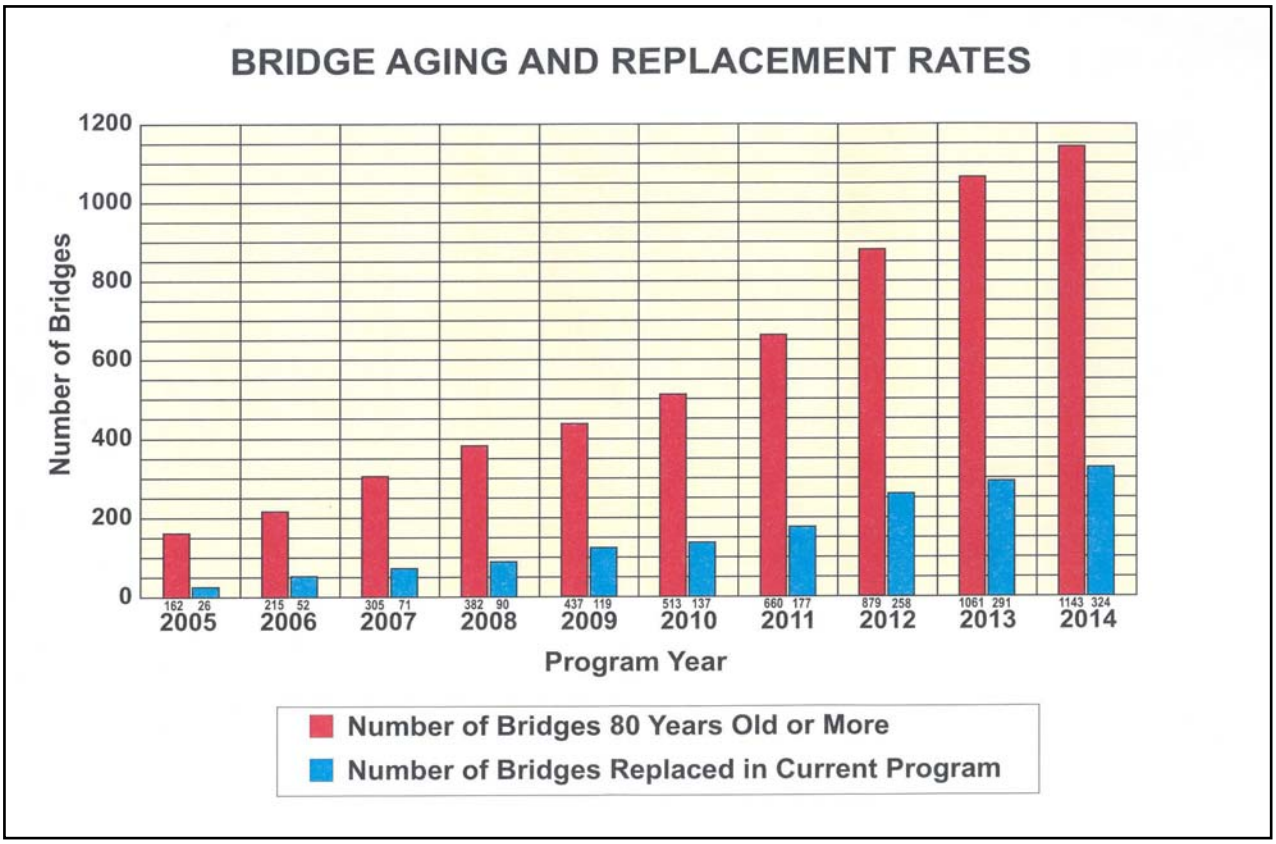


Figure 3.4 Bridge Aging and Replacement Rates

3.3 Major ODOT and Local Transportation Initiatives

3.3.1 ODOT Initiatives

Transportation Improvement Corridors and National Priority Corridors

The ODOT 2005–2030 Statewide Intermodal Transportation Plan has identified 17 preliminary Transportation Improvement Corridors and Congress has designated four National High Priority Corridors in the state (Figure 3.1: Transportation Improvement Corridors, 2005-2030 Statewide Intermodal Transportation Plan). ODOT developed the 17 preliminary corridors by taking the Needs Study Traffic and using historical growth factors to update the projected traffic to 2030. Then ODOT established capacity at LOS C with varying capacities based upon terrain types; thus, LOS C has a volume/capacity ratio of 1.0. Anything beyond a volume/capacity ratio of 1.0 was considered a candidate for a Transportation Improvement Corridor. All of the 2030 traffic was assigned to the State Highway System by control sections. The resulting map had a number of discreet segments. These segments were consolidated into logical termini sections. Segments that were confined to very small areas and which would be amenable to spot improvements rather than long corridor capacity upgrades between logical termini were eliminated.

The preliminary Transportation Improvement Corridors shown in Figure 3.1 are further identified by locations where additional lanes are needed. Another unique aspect of the designated Transportation Improvement Corridors is the inclusion of a Freight Operational

Improvement Corridor. This unique corridor follows US 69 from the border with Texas to I-44 northeast of Tulsa through the eastern part of the state.

Trucking One-Stop Shop Act

One obstacle to the movement of commerce in Oklahoma was that commercial trucks, especially those involved in interstate commerce, were required to obtain various documents and credentials from as many as three state agencies in order to operate. The agencies and their functions are listed as follows:

- Oklahoma Corporation Commission (OCC) Transportation Division: Requirements Department (authority licensing, registration, certification, renewals), Safety Administration Department (USDOT numbers, safety inspections, hazardous waste permits, compliance workshops), Administrative Support Department (enforcement citations and warnings records, docketing and tracking, complaints tracking), Enforcement Department (oversight, investigations, inspections).
- Oklahoma Tax Commission (OTC): Motor Carrier Enforcement (apportioned tags, fuel tax permits, trip permits, weigh stations), International Fuel Tax Agreement (taxes – miles based, IFTA Stickers, CAB Cards, quarterly reports, receive and audit IFTA quarterly report), and International Registration Plan (fees – mileage based).
- Oklahoma Department of Public Safety (DPS) Size and Weights Permits Division: Permits/Licenses (overweight, oversize, load limits), Escort Vehicles (training, certification).

Obtaining all of the necessary credentials, documents, licenses and paying the required fees was frequently a confusing and time-consuming process that increased the cost of moving commerce in Oklahoma.

On July 1, 2004, the first component of Senate Bill 141, now known as the Trucking One-Stop Shop Act went into effect. The purpose of the Trucking One-Stop Shop Act is to consolidate operations of state agencies relating to the trucking industry. The new law transferred the personnel, property and computer systems of the OTC to the OCC. The consolidation of enforcement and cross training of enforcement personnel will allow for greater enforcement coverage, increased safety compliance, and less down time for vehicles stopped by OCC enforcement. The second component of Senate Bill 141 will go into effect on July 1, 2005 and will transfer the personnel, property and computer systems of the International Registration Plan (IRP), International Fuel Tax Agreement (IFTA), and IRP/IFTA Audit Sections from the OTC to the OCC. This part of the Act will create the "One Stop Trucking Shop". Registrants no longer have to bounce between state agencies to meet their regulatory obligations. It is the goal of the OCC to create a single integrated database for all motor carrier regulatory processing. When developed, identifying information will be entered once into a single transportation database. This system will allow for web-based credentialing, electronic file exchange, and electronic payment options. In addition, the new law includes an increase in fines for overweight violations and for various other offenses related to vehicle registration. It also provides funding to maintain and improve the state's weigh stations.

The advantages of the One-Stop Shop Trucking are coordination of agency functions, elimination of duplication, and ease of compliance for the trucking industry. Two other states, Texas and Virginia, use a "one-stop" concept for trucking.

3.4 Stakeholder Views of the Future Intermodal System

Responses from the mailed surveys and the stakeholder interviews suggested a series of future concerns which are summarized below.

3.4.1 Bridges

A clear signal from the surveys and interviews, across a range of institutions and interest groups, is that deteriorated and substandard (from current standards) bridges are impeding the state economy and potentially inhibiting economic development. Were this to become a focused program effort, an important component would be setting criteria for determining which bridges are attended to first. And among the key criteria might be locations with existing or future economic development potential, particularly where intermodal connections (e.g., rail, port) might be facilitated.

3.4.2 Roadway Expansion

While roadway and bridge maintenance, particularly on major interstate routes, is the highest priority issue, there is substantial call for expanding Oklahoma's roadway capacity and statewide access to facilitate passenger and goods movement. Additional capacity in interstate corridors, particularly I-35 and I-44 to Lawton and the Texas state line; upgrading capacity on US 69, US 75 and US 70 and developing interstate quality corridors to/from Northwest and Southeast Oklahoma; truck lanes and truck roads and adequate interchanges at major trucking hubs, and connection roads to major potential/proposed plant sites were among the suggested improvements. Given funding shortfalls, expansion would seem to take a back seat to maintaining the current system. Still, if Oklahoma strives to pursue a concerted transportation and economic development strategy, focused highway improvements clearly must be part of that strategy – and funding for highway expansion will be a key component of whether or not any expansion is possible.

Within this general category, a focused program of key **grade separations** would address safety issues as well as impediments to both highway and rail and both passenger and freight movement. An example cited for particular attention because of congestion is on US 69 at the railroad spur south of 69A.

Another subcategory of highway infrastructure improvements might be those where investment in **technology**, such as Intelligent Transportation System (ITS) technologies, might be used to get more, at low cost, out of the existing system (congestion management, incident management, traffic enforcement, variable message signing, truck toll collection, etc.). ITS technologies specifically can be used to facilitate truck movement in Oklahoma (e.g., open road tolling); a key component of such application might also be tied to funding, cost allocation and revenue collection.

3.4.3 Multimodal/Intermodal Facilities

Truck-to-rail and rail-to-truck intermodal improvements, transloading/transshipment facilities, and a major rail yard/off-loading facility and rail hub -- as well as rail/highway/air facilities with on-site warehousing and processing/distribution -- were among the many recommended improvements to address impediments to goods movement in Oklahoma. These appear to cover a range of sizes and costs, and the locations recommended were equally wide ranging, including

the cities of Oklahoma City and Tulsa or midway between them, the major Oklahoma City and Tulsa airports, and the Port of Catoosa, among others. But all are tied directly to existing and future needs of Oklahoma businesses (their direct demands on the transportation system). As such, they offer a challenge and opportunity for ODOT and ODOC to work in partnership with private sector businesses and the railroads (starting with the short line railroads with which the State is already in partnership) in determining locations, specific design issues/needs, estimating potential demands, developing alternative funding sources, programming – and working with the short line and Class I railroads to bring some of these to fruition. [An important function for ODOT/ODOC would be simply to facilitate discussions between potential users/businesses and the railroads because they may be willing to share information with each other that, primarily for competitive reasons, they may not be willing to share directly with State government.]

3.4.4 Public Transportation Services

A significant number of comments regarded the lack of, and/or the lack of coordination of, public transportation services. This was frequently expressed in terms of providing mobility choices for Oklahomans. The impediments and needs cited were so broad-based, and across all interest and geographic sectors (urban, rural, statewide access, interconnectivity, airport access, etc.), that there would appear to be an important role for ODOT in coordinating the State's response. However, several focused proposals emerged from the surveys and interviews which could be addressed by ODOT, in partnerships with others. These included extension of the Heartland Flyer to the north to link with other Amtrak services, providing space for tour buses at the Oklahoma City station, and assuring better public transit connections to/from the station to meet incoming trains.

3.4.5 Regulatory/Administrative Improvements

In the face of a funding shortfall, it behooves Oklahoma to do everything it can prudently to remove regulatory and administrative impediments to potential passenger and goods movement improvements. A significant number of survey respondents and interviewees mentioned regulatory and administrative changes that might be considered, and a focused effort to cut red tape would no doubt unearth far more. Among the varied actions recommended were: tying infrastructure investments to specific land use and economic development goals and plans; developing a better system and process for prioritizing needs and projects that would be defensible and could stand on its own independent from the political process; strengthening ties to Oklahoma's educational institutions, and reconsidering Oklahoma's workers compensation law and process in light of its effect on goods movement and the state's economy. Together with some of the needs described under Funding above, much of what is needed here may not cost much relative to the cost of infrastructure improvements, but addressing regulatory and administrative barriers can take more effort and time than building new infrastructure. Undertaking such an effort would have the added benefit of demonstrating Oklahoma's commitment to (and marketing of itself as focused on) cutting red tape to facilitate economic development.

4.0 OKLAHOMA'S INTERMODAL SYSTEM & THE STATE ECONOMY

This chapter provides the connection between the Oklahoma economy and the Intermodal system. It includes a summary of the state economy, stakeholder views of transportation and the state economy, detailed freight flow information, and an identification of the key economic sectors and clusters that rely on the Intermodal system.

4.1 Background Statewide Economic Information

This section summarizes key aspects of the current and projected Oklahoma economy. The data included in this section are not intended to provide a comprehensive economic portrait of Oklahoma, but rather to give a selective portrayal of information most relevant to the identification of intermodal logistics opportunities and challenges, and freight and passenger transportation requirements in general.

4.1.1 Employment

Table 4.1 below portrays Oklahoma employment trends in the aggregate, focusing in particular on major industry groupings that are "transportation intensive" – i.e., sectors for which movement of goods is a significant share of the cost structure of the industries which comprise the sector.

As reported by the US Bureau of Labor Statistics (BLS), total non-farm employment (i.e., "covered employment") in Oklahoma increased 9% between 1995 and 2003. This time period is comprised of two distinct trend patterns: 1) substantial growth between 1995 and 2000, and; 2) post September 11th, 2001 job losses. This trend pattern approximates overall national employment patterns. However, the 2000-2003 job losses in Oklahoma have been somewhat steeper than for the nation as a whole. For the United States, non-farm employment fell 1.4% during the post September 11th period. By contrast, Oklahoma employment fell by 3.7%. Recession-related employment losses in Oklahoma have been concentrated in some transportation-intensive sectors, particularly in manufacturing. Overall, employment losses in goods producing sectors constituted 56% of the total 2000-2003 job losses. There is some indication that Oklahoma is experiencing a more rapid and robust overall economic recovery than the nation: beginning in the third quarter of 2003, state non-farm wage and salary payrolls have expanded 1.7 percent, versus 1.3 percent for the nation.[2]

[2] Oklahoma State University, 2005 Economic Outlook. See http://economy.okstate.edu/oputlook/2005/oklahoma.asp

Table 4.1 Non-Farm Employment in Oklahoma (000s)

Total Non-Farm	1995	1996	1997	1998	1999	2000	2001	2002	2003
	1326	1362	1412	1450	1467	1501	1499	1478	1446
-goods producing	242	245	252	262	263	266	265	245	235
-manufacturing	162	163	169	176	177	178	170	152	143
-warehousing & transportation	44	47	48	50	48	47	47	45	43
- natural resources & mining	30	30	31	30	27	27	29	28	29
-retail trade	159	163	167	172	175	179	175	172	169

Source: US Bureau of Labor Statistics

Farm employment is not reported as part of the standard BLS employment series. However, the Bureau of Economic Analysis (BEA) reports farm employment of approximately 100,000 in 2000, with another 20,000 in agricultural services, forestry, fishing and related activities. Thus, farm and farm-related employment represents about 7.5 percent of combined total farm and non-farm employment in the State.

Although manufacturing employment has fallen over the past several years in Oklahoma, the data suggest that Oklahoma has good potential for stability and possibly even growth in manufacturing, once overall economic recovery is solidified. At the height of the economic peak of 2001, manufacturing employment represented 11.3 percent of total non-farm employment in Oklahoma; nationally, manufacturing employment represented 12 percent of total non-farm employment in 2001. Until the 2001 recession, Oklahoma experienced manufacturing employment increases (1995-2001) of 16,000 jobs, or nearly 10 percent. Nationally, by contrast, manufacturing employment *fell* by 4.6 percent over the same period. As a "right to work" state, Oklahoma may be better able to control labor costs than without such legislation.[3] (Most other states in the region, including Texas, Kansas, and Arkansas, have similar right to work laws, although unionization may be more entrenched in these states than in Oklahoma.)

[3] Okla. Const. art. 23, § 1A. In 2001, Oklahoma became the nation's 22nd Right to Work state after voters approved State Question 695, a constitutional amendment making it illegal for union officials to force workers to join a union or pay any union dues as a condition of employment.

4.1.2 Industry Clusters

While the aggregate data above are revealing of basic trends, a more detailed look at industry groupings and target industry clusters within the Oklahoma economy can provide further insight, and assist in identifying intermodal needs, opportunities and challenges.

Oil and Gas

The traditional economic sectors in Oklahoma have been energy, agriculture, and mining. The energy sector – primarily oil and gas production and related services – represents (together with agriculture) the historical foundation of the Oklahoma economy. Historical "boom periods" in the oil industry, beginning in the 1920s, have historically driven economic growth in Oklahoma. At the same time, because of its "boom and bust" cycle, heavy reliance on oil and gas production has tended to result in a more cyclical economic pattern than might be desired. Petroleum and gas are found in almost every county, but the areas around Tulsa, Seminole, Oklahoma City, Healdton, Kingfisher, and Osage County have the best pools.

Presently, natural gas production has superceded crude oil as the principal fossil fuel industry in Oklahoma. Oklahoma is the second largest producer of natural gas among the fifty states, with an output of 1.7 trillion cubic feet (TCF) in 2002. However, Oklahoma's gas production has fallen from 2.25 TCF in 1990 and Oklahoma's share of the US natural gas market has dropped from more than 11 percent in 1990 to 8.35 percent in 2003.

In terms of future recoverable gas reserves, Oklahoma has two of the top 10 basins in the lower 48 states. The Anadarko Basin (northwestern Oklahoma) with 14.2 trillion cubic feet of potential gas reserves and the Arkoma Basin (southeastern Oklahoma) with 2.5 TCF, represent nearly 9 percent of the total lower 48 reserves. To fully exploit these reserves, Oklahoma will require increased investment in deep drilling below 15,000'. Deep drilling is substantially more expensive than drilling closer to the surface.

As the Oklahoma economy has become more diversified, particularly in the services and financial sectors, oil and gas has become less dominant in the state's economy, thus dampening the "bust" effects which occur when energy prices fall. Currently, natural gas prices have been fairly stable, creating less upward pressure on gas production. Oil prices are currently very high by historical standards, but Oklahoma reserves are expensive to retrieve. Major expansion in the state's oil industry cannot be anticipated.

Oil and gas production places special demands on the transportation system in Oklahoma. Most natural gas and some of the crude oil mined in Oklahoma are transported via pipeline. Numerous oil and gas pipelines cross the state. Many of these are gathering lines run to producing fields; some carry oil and gas to other states. Petroleum, petroleum refining products, and liquefied gases also are transported from Oklahoma by truck, rail and water. In 1998, 1.1 million tons of liquefied gases, coal or petroleum and 1.6 million tons of petroleum refining products were exported by Oklahoma by these modes. Petroleum refining products were shipped from Oklahoma via all three surface modes (51 percent by truck, 36 percent by rail and 13 percent by water).

Transport of drilling equipment to the fields of western and eastern Oklahoma frequently involves oversized loads. These loads may be transported by truck, but special permitting is required, and clearance and other highway restrictions can limit routing choices and reduce speed, thus raising transport costs for this industry. Transport of oversized drilling equipment (and oversized loads in general) by barge, via the inland waterway system is not subject to such restriction, but field locations must be relatively close to the waterway in order to be efficiently served by barge. [4]

Agriculture

Agriculture has also been a pillar of the Oklahoma economy, although boom conditions do not typify this sector as much. Of total agriculture-related employment (both direct and indirect), more than 26 percent (40,000 jobs) are in agricultural processing.[5] Agricultural production and processing comprises 4.5 percent of Gross State Product.[6] Basic agricultural production has increased 38 percent since the mid-1980s, while agricultural processing, which adds value, has increased by over 80 percent since the mid-1980s.

There are approximately 83,000 farms in Oklahoma.[7] While 90 % of these continue to fall within the USDA's definition of small farms,[8] agriculture has shifted focus from independent farming to corporate-based farming, including major increases in high volume, industrialized livestock production.[9] Major agribusiness companies such as Seaboard Farms and Tyson Foods operate extensive hog farming operations, centered around the Oklahoma Panhandle (e.g., in the Guymon area) and in western and parts of central Oklahoma, around Holdenville. In addition to the directly owned and operated agribusiness enterprises, numerous small farms operate under contract with the large agribusiness firms, and may thus be considered virtual extensions of these enterprises. Overall, poultry and hog product production has risen more rapidly than any other commodity within the Oklahoma agricultural economy.

Agricultural output also comprises a major export for the State. In 2002, the State's cash (i.e., non subsidy) farm receipts totaled $3.7 billion, of which $540 million were from foreign export. Oklahoma's top five agricultural exports are wheat, animals and meat, poultry and poultry products, animal feed, and feed grains.[10] Texas County is the largest agricultural producer in the state, measured by value.

Farm products, and food/kindred products, were among the top five commodities shipped to/from/within Oklahoma in 1998, and are projected to remain in the top five as of 2020.

[4] Other oversized loads in Oklahoma currently or will include transport of aircraft components (e.g., wings for the Boeing 7E7 plan, and windmill turbines).
[5] BEA estimates put farm employment at 90,000 in 2000.
[6] US Department of Commerce, Bureau of Economic Analysis, Regional Economic Analysis Division
[7] 2002 Census of Agriculture Oklahoma State Profile, National Agricultural Statistics Service, USDA
[8] The USDA defines a "small farm" as having less than $250,000 in sales per year. USDA, Economic Research Service, "Oklahoma State Fact Sheet", http://www.ers.usda.gov/StateFacts/OK.htm
[9] Nationally, less than 2 percent of all farms account for nearly 40 percent of the value of US farm output. Source: Arthur Capper Cooperative Center, Kansas State University, "Value Added: Opportunities and Strategies", June, 2000.
[10] USDA, Foreign Agricultural Service, "Trade and Agriculture: What's at Stake for Oklahoma". Sept. 2003.

Food/kindred products are projected to become the top commodity shipped to/from/within Oklahoma by value as of 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 were carried by rail and 10 percent by water. While grain was exported to all domestic regions, the primary destinations were south Texas and the southeastern region of the US.

Value added food processing is an opportunity area where the intermodal transport system will have an important impact on the long term viability of the sector. Value added food processing entails the manufacture of higher value added products from raw agriculture products. Examples include production of ethanol from grain, meat processing and packaging, or manufacture of canola or other edible oils from raw home grown seeds. For some time, most of the value added products from Oklahoma farm produce have been processed outside of the state. While the major livestock agribusiness enterprises, such as Seaboard Farms, now operate vertically integrated operations on site, including meat packing and processing, value added post-processing for much of Oklahoma's agricultural output continues to be done elsewhere. Oklahoma should greatly benefit from the expanded development of a local economy in value added food processing. A switch to higher value added and/or perishable processed foods will necessitate a greater shift toward fast and reliable transport. Increasingly efficient supply chain systems, including efficient truck distribution systems and in some cases even air cargo transport of highly perishable or high cost specialty food items should come more to the fore.

Because of changing demand and deregulation, many rural areas in the United States, especially for those dependent on agriculture, have lost inter-city bus service for individual mobility, and local rural transit systems are limited by funding, thus limiting the availability of employment opportunities.

Minerals Mining

Oklahoma's mining economy (not including oil and gas) has been in decline, but remains important to selected parts of the state. In total, mined minerals account for only about 2,000 jobs in direct mining activities, according to the Bureau of Labor Statistics. Mined minerals include coal, gypsum, granite, limestone, aggregates, crushed stone, cement, sand and gravel, clay, glass sand, salt, feldspar, iodine, lime, pumice, and Tripoli (used as an abrasive). Non-metallic minerals (coal included) constitute the largest commodity group shipped to/from/within Oklahoma by weight (63 million tons in 1998, projected to grow to 83 million tons by 2020), and the largest commodity group shipped by rail.

The coal mining industry in Oklahoma, once fairly robust, is much reduced. Since 1980, coal output has fallen by 50 percent. In fact, while Oklahoma has substantial coal reserves covering much of east central portions of Oklahoma[11], the state is overwhelmingly a net importer of coal, primarily to operate its power plants. Most imported coal is brought in by rail from Wyoming via Colorado.

About 1.6 billion short tons of bituminous coal reserves remain in Oklahoma, which contains the most significant deposits of bituminous coal west of the Mississippi River and east of the Rocky

[11] Coal is located along within the Northeast Oklahoma Shelf and parts of the Arkoma Basin, which covers 19 counties.

Mountains. There is potential for these coal resources to provide a basis for some economic growth and commodity export, and much of this could be moved by rail and via the inland waterway system. However, this would require large capital investments by sophisticated mining companies. Production, regulatory, and market issues affect whether or not most coal reserves will be economical to mine. Moreover, current coal importation in large volumes by rail from efficient out of state mines may be a less costly alternative for the state's power producers than mining and transporting coal within the state.

In addition to coal, minerals or mineral compounds such as limestone, aggregates, crushed stone, sand and gravel, and cement are important in parts of southern Oklahoma – for example, in and around Ardmore and Durant.

Oklahoma exported 2.7 million tons of broken stone and 2.3 million tons of Portland cement in 1998, with north Texas as the primary destination (32 percent of the exports) followed by the Midwestern US. Rail carried nearly 100 percent of the broken stone and 24 percent of the Portland cement; 76 percent of the Portland cement was carried by trucks. Indeed, transport of mined minerals (like agricultural products) is most efficient by rail, provided distances are sufficiently great (e.g., greater than 300-500 miles), and access to rail facilities is good.

However, where rail services are not adequate or distances are relatively short, truck becomes the preferred routing. Among Oklahoma's other major exports by weight were potassium or sodium compounds (1.5 million tons), 77 percent of which was carried by trucks. Thus, where rail cannot be used to transport these materials, truck traffic can become intense. In some locations, such as in southern Oklahoma, heavy truck traffic to transport cement, aggregates, and other mined minerals is cited by local economic development and public officials as a major transportation bottleneck and environmental threat.

Aviation/Aerospace

Beyond the three traditional sectors above, Oklahoma has developed a considerable specialization in a number of key industry clusters. Aviation and aerospace industries now comprise the largest industry cluster in Oklahoma: currently, there are some 500 aerospace companies in the State, which account for 143,000 (direct and indirect) employees. Major industry representatives include Boeing, which has sizeable manufacturing plants in Tulsa and McAlester, and American Airlines, which maintains a large Maintenance, Repair and Overhaul (MRO) facility in Tulsa. The Tulsa Boeing plant employs about 1,000 workers; Boeing announced last November that it would bring 500 more jobs to Tulsa for work on wing components for the company's new 7E7 airplane. Oklahoma City is home to the Federal Aviation Administration Logistics Center, which employs 558 full time employees, and 120 contract employees.

Warehousing and Distribution/Logistic

As of 2003, warehousing and distribution – the principal "logistics" enterprises – comprise 3 percent of the total employment base of the state. The Ardmore and Durant areas have become particularly successful sites for the location of warehousing and distribution facilities, including several major discount retailer chains.

Nearly 100 percent of the transportation of goods to and from warehouse-distribution centers is by truck. An important transportation issue there is the need for improved service to bring employees to the warehousing and distribution work sites which have begun to favor the southern Oklahoma location.

Military

Oklahoma is the home of a number of major military facilities of particular, and in some cases unique, significance to the nation's defense. Several of these are major employment centers not only for military personnel, but also for contractors' employees and the civilian populations in their vicinities.

The largest Air Force and military air defense-related facilities are Tinker Air Force Base and the associated Oklahoma City Air Logistics Center (OC-ALC), which is part of the Tinker command. Tinker employs about 24,000 civilian and military personnel. The OC-ALC is one of five depot repair centers in the Air Force Materiel Command. The center manages an inventory of 2,261 aircraft and nearly 23,000 jet engines, and also provides worldwide logistics support for a variety of weapons systems. In 1999, OC-ALC was awarded the largest engine repair contract in history ($10.2 billion over 15 years).

The numerous Air Force and air defense-related operational units within 350 miles of Tinker AFB (the approximate spatial centroid of the state) include:

- Altus Air Force Base, Altus
- Vance Air Force Base, Enid
- US Air National Guard, Tulsa
- Dyess Air Force Base, Abilene, TX
- Barksdale Air Force Base, Bossier City, LA
- Army and Air Force Exchange Service, Dallas, TX
- Ebbing Air National Guard Base, Fort Smith, AR
- Naval Air Station Joint Reserve Base, Fort Worth, TX
- Whiteman Air Force Base, Johnson County, MO
- Little Rock Air Force Base, Little Rock, AR
- Rosecrans Memorial Airport Air National Guard Station, St. Joseph, MO
- Forbes Field Air National Guard Station, Topeka, KS (and Kansas Air National Guard)
- McConnell Air Force Base, Wichita, KS
- Sheppard Air Force Base, Wichita Falls, TX

Gaming

Gaming comprises a major growth industry within the Native American economy. There are 34 gaming establishments listed by the National Indian Gaming Association in Oklahoma. The largest and most visited of these is the Winstar Casino in Thackerville. Winstar, a growing destination site, is located at I-35, Exit 1, just north of the Texas-Oklahoma border. Other major casinos are located in Catoosa, Tulsa, Norman, and Lawton.

In some areas of the US, such as New Jersey, with heavy concentrations of gaming establishments, public and charter transportation – typically longer distance bus services – are

important to the client base of elderly and lower income patrons. An Amtrak station serving the Winstar Casino has been under discussion, although private financing would probably be required.

Other Clusters

Other Oklahoma Department of Commerce (ODOC) defined industry clusters include:

- wind energy
- weather research and tracking
- biomedical research and technology
- tourism

Some of these sectors are also of interest for this study. Wind energy, for example, is a nascent industry with good growth capacity, particularly in the longer run as petroleum and other fossil fuel prices rise and existing reserves become more expensive to extract. The Edmond-based Oklahoma Municipal Power Authority's (OMPA) wind turbines, at the Oklahoma Wind Energy Center northeast of Woodward, provide power for the OMPA electric grid. Bergey Wind Power, in Norman, is the world's leading supplier of small wind turbines. Oklahoma is rated 8th among the fifty states in wind generating potential.[12] Virtually the entire western half of Oklahoma – i.e., west of I-35 – has the potential for substantial wind generating capacity in the future, with the greatest potential just east of the Panhandle. The rural character of the state also provides a positive factor for development of wind energy resources. Wind energy may have important implications for transportation in Oklahoma, as economical wind turbines will be very large. Some modern wind turbines are 72 meters tall and have rotor blades that are about 25 m long. Future windmills may reach higher than 100 m, and their rotor blades may measure 50 m long. Transport of turbine parts, such as towers and blades, will probably require transport of overweight and oversized loads, an important capacity issue facing the Oklahoma highway network.

4.1.3 The Economic Geography of Oklahoma

Metropolitan Areas

Oklahoma City and Tulsa are the principal metropolitan areas and major economic engines in the State. Both metropolitan areas exhibit diverse economies. Together, Oklahoma City and Tulsa comprise about 63 percent of all employment in the State.

Oklahoma City and Tulsa employment trends, by major transportation consuming sectors, are summarized in Table 4.2 below. While employment trends in these two metropolitan areas reflect statewide employment trends, there are some differences, both overall and on a sector basis. Since 2001, total employment in Oklahoma City fell by 3 percent, slightly less than the statewide decline. By contrast, total employment in Tulsa fell by over 6 percent. At the same time, Oklahoma City lost nearly 27 percent of its *manufacturing* employment since 2001, substantially more than the state as a whole. Manufacturing employment in Tulsa fell by 16

[12] Source: *An Assessment of the Available Windy Land Area and Wind Energy Potential in the Contiguous United States*, Pacific Northwest Laboratory, 1991.

percent, a less severe drop than for the state as a whole. Tulsa's manufacturing sector thus appears to have been – if only marginally – more resistant to the effects of the recession than Oklahoma City.

Overall, goods producing activities comprise a greater share of total employment in Tulsa than in Oklahoma City. More than anything else, this reflects the somewhat more rapid diversification of the Oklahoma City economy, which has increasing concentrations of employment in public sector, health care, and business and financial services. In both metropolitan areas, however, service and financial sectors have taken up much of the slack left behind by the recent losses in manufacturing and other goods producing industries.

Table 4.2 Non-Farm Employment in Major Metropolitan Areas (000s)

Oklahoma City	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Total Non-Farm	476.8	492.1	499.8	515.2	528.7	540.2	547.4	540.1	531.7
-goods producing	72.9	73.9	74.7	77.8	79.5	79.8	77.5	69.2	67.1
-manufacturing	49.0	49.3	49.5	52.1	53.1	51.7	48.0	40.9	38.0
-warehousing & transportation	12.9	14.8	15.0	16.0	14.1	14.2	14.1	13.2	12.5
- natural resources & mining	5.7	5.9	6.4	5.8	5.0	5.7	6.5	6.5	6.9
-retail trade	55.7	57.3	58.1	58.9	61.1	63.1	62.1	61.9	60.8
Tulsa									
Total Non-Farm	349.8	360.6	373.7	391.9	395.1	403.5	406.4	397.3	381.4
-goods producing	73.2	73.9	76.8	81.2	80.2	79.7	79.5	74.4	69.3
-manufacturing	51.4	51.8	54.0	56.6	54.6	54.1	53.6	49.4	45.9
-warehousing & transportation	16.2	17.4	17.8	18.7	18.5	18.6	18.4	18.0	17.2
- natural resources & mining	7.7	7.5	7.6	7.7	7.1	6.4	5.3	4.9	4.2
- retail trade	41.2	42.1	43.3	45.5	46.1	47.3	45.4	44.6	43.1

Source: US Bureau of Labor Statistics

Major individual employers in Oklahoma City include General Motors, Tinker AFB, Will Rogers International Airport, the Federal Aviation Administration Logistics Center (Mike Monroney Center) adjacent to the Will Rogers International Airport, United Parcel, and Dayton Tire. The FAA Logistics Center generates economic activity substantially beyond its permanent employment numbers, as aviation personnel from across the United States are regular visitors to the facility for training and other purposes.

Major Tulsa employers include Boeing, American Airlines (MRO facility), the Port of Catoosa, and Whirlpool. Both cities also have substantial and growing clusters in higher education, health care services, and financial and business services. Tulsa's economy, as noted, is substantially

oriented toward air and aerospace production and management. There are an estimated 300 aviation and aerospace-related enterprises in Tulsa, employing an estimated 8 percent of the workforce.[13]

Other regional metropolitan centers with aggressive and productive economic development programs include Norman, Lawton, Ardmore, Durant, Stillwater, Ardmore, Durant, and Ponca City.

The Rural Economy

Most of Oklahoma's area is rural. The Oklahoma rural economy, as with all Midwestern rural economies, relies on the production of bulk commodities, such as grains and livestock, and in the case of Oklahoma, natural gas and mined minerals. These commodities comprise a natural market for rail services, but sufficient transport distances are required in order for rail to be efficient.

Key production sub-regions within the rural economy include:

- the Panhandle, ("high tech" hog production; wheat and other grain production)
- parts of central Oklahoma, around Holdenville (hog production)
- the Anadarko basin, which covers about 19 counties in Western Oklahoma (natural gas)
- the Arkoma basin of eastern and southeastern Oklahoma (natural gas)
- Arkoma basin and northeast Oklahoma Shelf (coal)
- southern Oklahoma (mined minerals, aggregates, etc, cement products)
- southern Oklahoma, especially the Ada area (Portland cement)
- south central Oklahoma - Arbuckle Mountain area; Tulsa area (aggregate mines)
- southeast Oklahoma (timber and wood products)
- north central Oklahoma (wind turbines)
- central and western Oklahoma (wheat and other grains)

As also noted earlier, many rural areas in the United States, especially for those dependent on agriculture, have lost inter-city bus service for personal mobility, and commercial trucking has become the dominant form of freight movement. Oklahoma has done a good job of maintaining its rural freight rail systems, having acquired some 900 miles of track, mainly for short line rail services. However, short line railroads operate on very limited margins, which preclude capital investment. Thus, where state funding for the short line railroads is limited, service and maintenance will be constrained. Oklahoma's rural transit program and its Indian roads program have been well conceived, but here again, they are constrained by lack of funds.

Oklahoma's rural areas, in fact, present opportunities for creative economic development. Due to the lack of congestion and low population densities, intermodal hubs that are *not* dependent on close proximity to populated areas (e.g., air cargo distribution facilities) can thrive in rural areas, where noise, road, and airspace congestion are not issues.

Economic Development Corridors

To a great degree, economic development occurs within particular corridors which are defined by the major transportation facility or facilities within the corridor. For Oklahoma, as in most

[13] Estimated by the Aerospace Alliance of Tulsa: http://www.aerospacealllianceoftulsa.com

states, the economic development corridors follow interstates or other NHS routes, either through or circumferentially around the metropolitan areas.

Section 4.3 describes major freight flows in Oklahoma: the commodities shipped, origins and destinations, and the transportation modes employed. In identifying promising niche markets and sectors and logistics hub opportunities, it is valuable to think in terms of the major economic corridors in Oklahoma as well as the transportation facilities that serve them.

In some respects, of course, these economic corridors are defined by the key transportation facilities. Thus, I-35, the major north-south highway route, is a key component of a major economic corridor that serves both Oklahoma's principal domestic exports, but also its existing and potential international markets as a major NAFTA corridor. Through its connections to other Interstate, US and state highways, I-35 provides connectivity to and serves a large portion of the state and many local economies throughout the state are dependent on it.

In terms of domestic markets, and imports vital to Oklahoma's producers and consumers, the north-south corridor through the state also includes two major rail facilities (the BNSF and UP rail lines between Wichita and Kansas City on the north and Fort Worth/Dallas on the south) and other highways (US 81 and US 69, and, to a lesser extent, the Cimarron and Indian Nations Turnpikes).

Major east-west freight flows are concentrated in an economic corridor centering on I-40, serving Oklahoma-Texas (and the southwestern US), providing connectivity to the west and Oklahoma-Arkansas (and the southeastern US-to the east). The eastern-southeastern portion of this economic corridor is also served by the McClellan-Kerr Arkansas River Navigation System, and, to a lesser extent, the Kansas City Southern railroad line from Kansas City to Louisiana and US 412. The central portion of this east-west corridor is a significant component of intrastate freight movement in Oklahoma, among six central Oklahoma counties and connecting with freight flows in the I-44 corridor to/from Tulsa.

That diagonal economic corridor across Oklahoma, served by I-44, accommodates major intrastate freight flows in the Tulsa and Oklahoma City areas and between those two major metropolitan areas, as well as, to a lesser extent, to/from the Lawton area, but also is Oklahoma's major economic link to the metropolitan areas of Missouri and northeast to the Great Lakes and beyond. Other transportation facilities in that corridor include the aforementioned rail lines to/from Kansas City, the BNSF line from St. Louis to Fort Worth, and US 69 connecting from Texas and eastern Oklahoma to/from I-44.

The other major economic corridor located at least partially within Oklahoma is the nationally important freight corridor that cuts diagonally across the northwestern part of the state. The Chicago to California intermodal rail freight line through Woods, Woodward and Ellis counties, serves not only the domestic economy, but provides a major link for the Midwest and western US through the ports of Los Angeles and Long Beach with Asia. US 54 through the Oklahoma panhandle parallels the rail route to the west; although not as extensive or important nationally, it does connect to Kansas, Missouri and Illinois to the northeast and to Texas and Juarez, Mexico on the southwest.

4.1.4 Costs of Doing Business in Oklahoma

Oklahoma's low cost and tax structure represents an important comparative advantage for maintaining and attracting new business. While other Oklahoma factors, such as density of population and size and complexity of markets are not optimal, low business costs are important, and have been successfully exploited by Oklahoma's public and economic development officials. Recently, Economy.com, a major internet economic forecasting and analysis service, ranked Oklahoma as the third least expensive state in the nation to do business. Within that overall ranking, Economy.com finds that the labor cost index for Oklahoma is fourth lowest in the nation; Oklahoma's tax structure is also low compared with other states. While not a state levy, Oklahoma's property taxes tend to be low, especially compared with neighboring states such as Texas. This is important in particular for the warehousing and distribution sector, which requires large expanses of building and parking area to conduct operations.

4.1.5 Future Economic Trends for Oklahoma and Surrounding Area

Recent rates of population and employment growth for Oklahoma have been trending upward at moderate rates, and it is reasonable to anticipate similar growth rates to continue into the foreseeable future. The Oklahoma Department of Commerce has forecast that the state's population will increase by 17.2 percent between 2005 and 2030 – or less than one percent per year.

In fact, Oklahoma may be said to be an edge state, with some of the growth characteristics of rural states of the middle and upper Midwest and Central Plains regions – but also sharing some of the urban growth dynamics of the South and Southwest.

Oklahoma's demographic and employment trends are placed in the national and regional context in Table 4.3. The table compares population and employment growth rates in Oklahoma with the U.S., as a whole, and with surrounding states – Texas, Kansas, Nebraska, Arkansas, and New Mexico.

As seen in the table, Oklahoma's population has grown at a somewhat slower pace than the US as a whole. Oklahoma's neighboring states of Texas and New Mexico, by contrast, have grown far more rapidly than Oklahoma or the US. Oklahoma's neighbors to the north and east have exhibited growth patterns similar to, or even slightly lower than Oklahoma. These states – i.e., Arkansas, Kansas, and Nebraska, reflect a similar demographic dynamic – small and gradual declines in rural population, tempered by relatively rapid growth rates in the major metropolitan areas. Employment growth patterns are similar – Texas and New Mexico have exhibited the high growth dynamic characteristic of these rapidly developing and urbanizing areas. By contrast, Oklahoma shares the slower employment growth patterns more characteristic of its rural Midwest neighbors to the north and east.

Table 4.3 Oklahoma Population and Employment Trends vs. National and Regional Trends (000s)

	Population 1990	Population estimate 2003	% Change, Population	Employment 1995 (nonfarm)	Employment 2003 (nonfarm)	% Change, Employment
Oklahoma	3,144	3,512	11.7	1,334	1,444	8.2
United States	248,980	290,810	16.8	118,210	130,035	10.0
Texas	16,975	22,119	30.3	8,142	9,379	15.2
Kansas	2,479	2,724	9.9	1,213	1,314	8.3
Nebraska	1,579	1,739	10.1	825	903	9.5
Arkansas	2,350	2,726	16.0	1,080	1,146	6.1
New Mexico	1,515	1,875	23.8	687	782	13.8

More specific trends that are likely to define Oklahoma's economic and demographic future include the following:

- Population – Slow to moderate population growth, fueled primarily by foreign immigration, most notably immigrants of Hispanic origin.
- Rural population – decreasing overall population and reductions in land under cultivation, with the exception of areas such as the Panhandle, where agribusiness activity will increase
- Continued geographic expansion of the major metropolitan areas, with substantial or most growth occurring in the periphery – e.g., Moore, Norman.
- Steady growth in employment and output in services, retailing, FIRE, education, and health care, concentrated in the two principal metropolitan areas.
- Zero or small growth in manufacturing overall, but with some sectors experiencing strong growth due to low cost structure and other comparative advantages; growth clusters include aerospace industries, value added food production, fabricated metals, and possibly automotive related manufacturing.
- Warehousing and distribution – growth as NAFTA trade increases and Oklahoma exploits its locational advantages.
- Agriculture – continued growth in agribusiness farming, some reduction in family-owned farming, increased export demand for livestock products and grain; agricultural sector threats from foreign imports, especially due to the weak dollar and free trade agreements. Some trade agreements, such as the Uruguay Round agreements, may lower foreign trade barriers and increase demand for agricultural exports.
- Fossil fuel production – slow to moderate long term growth in natural gas production, with little or negative growth in oil production. Little likely increase in coal mining. Natural gas production to slow somewhat, as the cost of extracting reserves become more costly relative to world supplies.

4.2 Stakeholder Views of the State Transportation/Economic Relationship

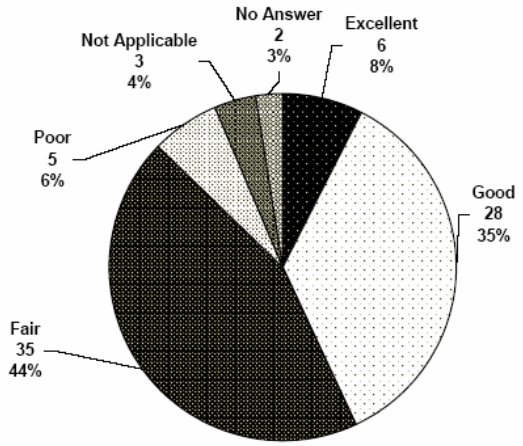
A series of five questions were asked of the mailed survey recipients about the relationship of the State transportation system and the economy. The questions dealt with the efficiency of the transportation system, how well the system supports the economy, how well the system supports the local area/economy of the respondent, what's the best transportation investment to grow the economy and which of five transportation modes best support the current economy and future economic development. A summary of those responses is provided below.

The efficiency of area/regional transportation systems (see Chart for survey question 5) was ranked Fair (44 percent) to Good (35 percent); that total of 79 percent is somewhat below the efficiency rating for the state transportation system as discussed in Chapter 2.

Respondents to survey question 6 said that the state transportation system did a Fair (41 percent) to Good (44 percent) job of supporting Oklahoma's economy (see Chart for survey question 6). In addition, 73 percent of respondents said that local/regional transportation systems did a Fair (35 percent) to Good (38 percent) job of supporting local/regional economies (see Chart for survey question 7). As to what type of transportation investment would best and most efficiently grow the state economy (see Chart for survey question 8), respondents to this question (22 of those surveyed did not respond to this question) were almost evenly divided in their choices between Moving Cargo (35 percent) and Moving People and Passengers (37 percent).

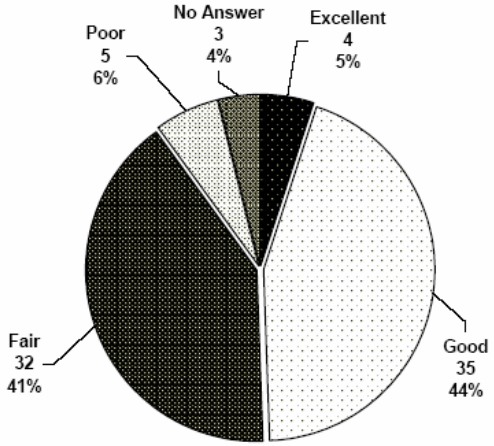
5 - How would you rate the efficiency of the transportation system serving your area/region?

Excellent	6
Good	28
Fair	35
Poor	5
Not Applicable	3
No Answer	2



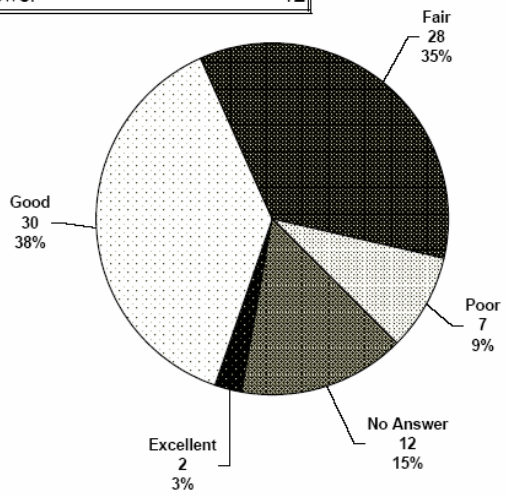
6 - How well does Oklahoma's transportation system support its economy?

Excellent	4
Good	35
Fair	32
Poor	5
No Answer	3



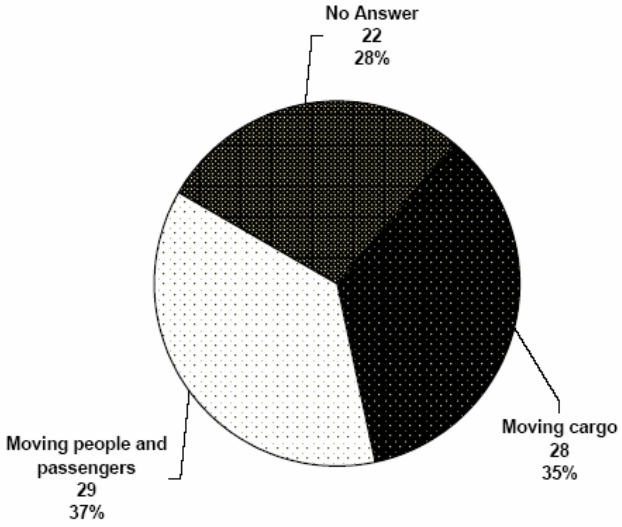
7 - How well does the transportation system serving your area support the local/regional economy?

Excellent	2
Good	30
Fair	28
Poor	7
No Answer	12



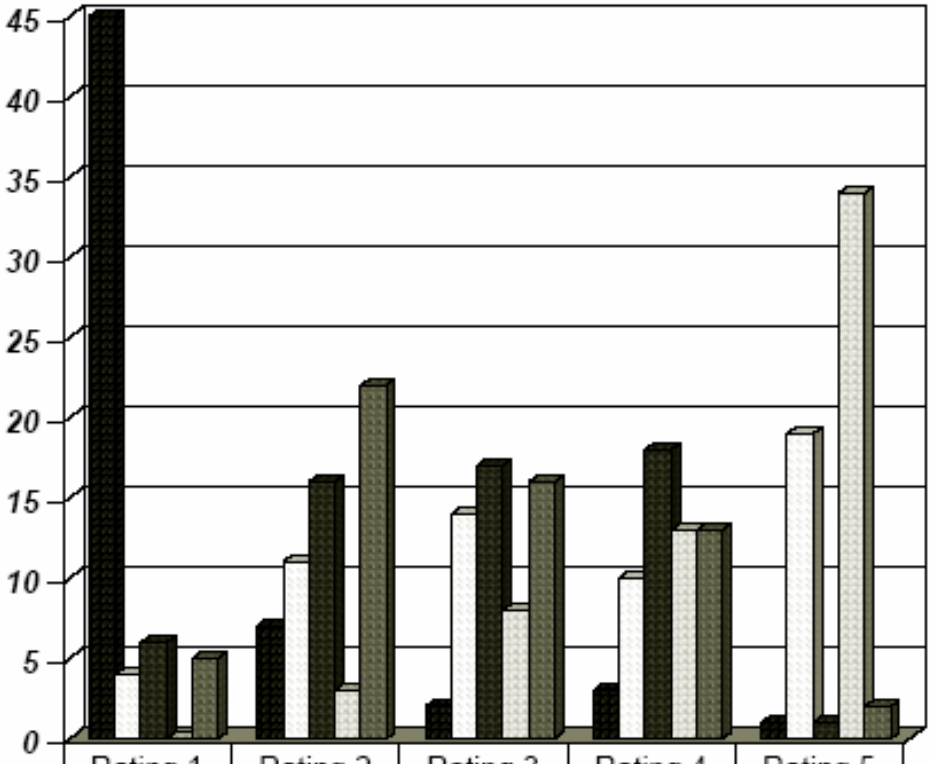
8 - In order to best grow the economy of Oklahoma, which type of transportation investment do you think will give the greatest "bang for the buck"?

Moving cargo	28
Moving people and passengers	29
No Answer	22



Lastly, question 9 asked those surveyed to rank five transportation modes in order of importance to Oklahoma's economy and its future economic development (see the two question 9 bar charts below). A total of 58 survey recipients responded to this question and Highways were ranked the most important type of transportation mode for Oklahoma's economy and future economic development, receiving the highest or "most important" vote by 78 percent of respondents. 90 percent of respondents ranked highways as either "most important" or "second most important" of the five modes. Airports were voted "second most important" by 38 percent of respondents Freight railroads were ranked as "third most important" to the state's economy and future economic development, with a total of 29 percent. The first chart below shows the distribution of votes by rating for each transportation mode and then an overall summary of these results are shown in the second chart with weighted ratings totaled. The weighted results reflect what transportation modes are seen as most vital to the state's economy and growth, and ranks these modes in order of importance to those surveyed.

9 - Please rank each of the following types of transportation with regard to the importance you believe each has on Oklahoma's economy and its future economic development. Please give a 1 to the type that is most important, 2 the second most importance, and so on until you have ranked all five types.

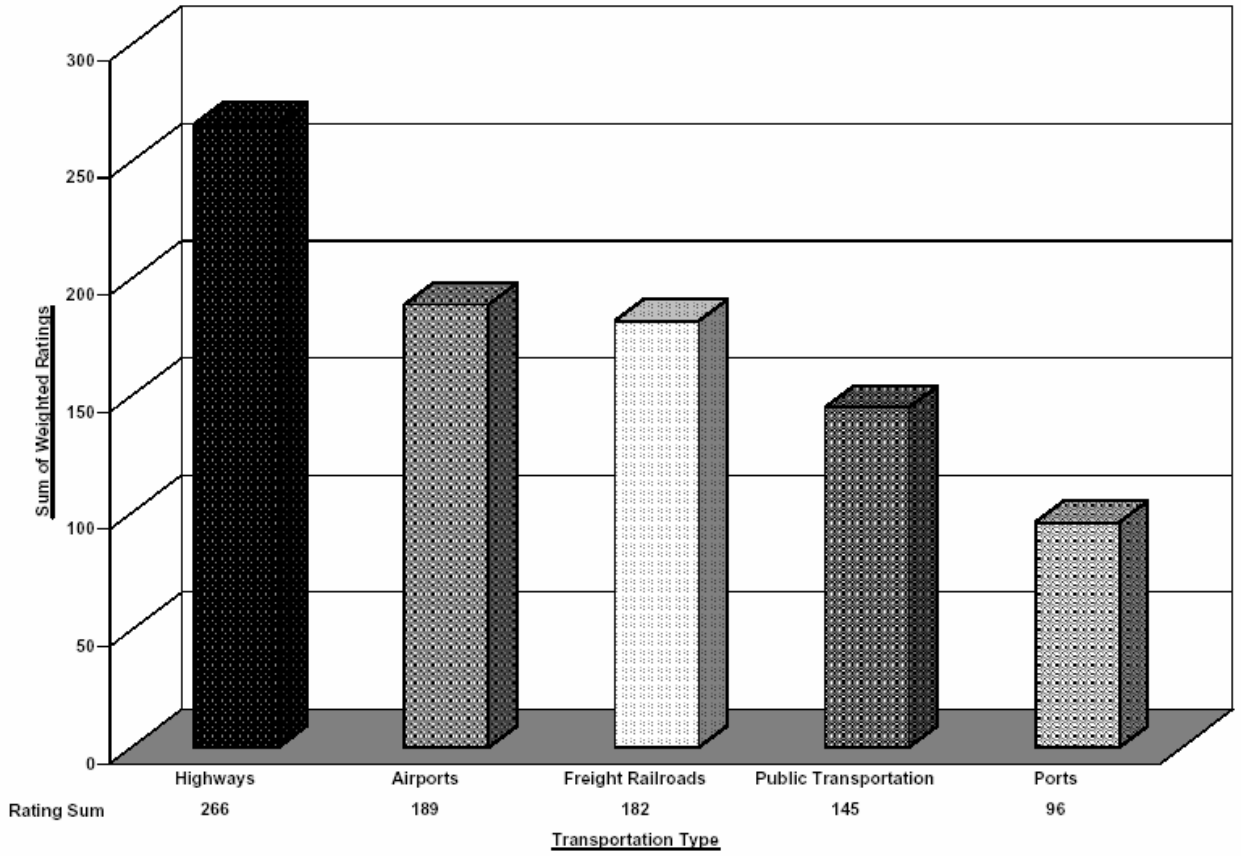


	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
Highways	45	7	2	3	1
Public Transportation	4	11	14	10	19
Freight Railroads	6	16	17	18	1
Ports	0	3	8	13	34
Airports	5	22	16	13	2

Note: No answers were given for question #9 on 21 of the returned surveys.

Total ratings (1-5) by mode all equal 58. Percent comparisons are based on that total.

9 - Please rank each of the following types of transportation with regard to the importance you believe each has on Oklahoma's economy and its future economic development. Please give a 1 to the type that is most important, 2 the second most importance, and so on until you have ranked all five types.



Note: To calculate the sum of ratings for each transportation type, ratings were weighted by a multiple between 1 and 5 (5 for ratings of #1, 4 for ratings of #2 and 1 for ratings of #5, etc). The totals were then added together to equal the "Rating Sum".

4.3 Freight Flows

Commodity flow information can provide insight into the logistics possibilities and intermodal requirements for Oklahoma. This section updates freight flows information compiled as part of the 2000 Intermodal Element Study. Freight flows data are not well organized at the national level, and thus considerable time and effort must be made to collect the most current information – generally from private sector data services. For this section, we have relied on newly published and readily available data at the federal level, supplemented by freight flows data collected in 2000. It is unlikely that the overall freight flows patterns have changed significantly since 2000. However, unlike the 2000 Report, this section seeks to assess the implications of freight flows for the Oklahoma economy and its future intermodal investment options. It also is used to help generate new ideas with respect to logistics opportunities.

4.3.1 Top Commodities Shipped to/from/within Oklahoma

Commodities[14] shipments can be assessed in terms of weight and/or dollar value. Table 4.4 shows the top five commodity groups by weight and value in 1998[15] and projected for 2020.

Non-metallic minerals were by far the largest commodity group by weight (63 tons) shipped to/from/within Oklahoma in 1998, and are projected to remain so in 2020 (83 tons). Farm products (28 million tons in 1998; projected to be 34 million tons in 2020), food and kindred products (22 million tons in 1998; projected to be 50 million tons in 2020), coal (19 million tons in 1998; projected to be 21 million tons in 2020) and chemicals and allied products (16 million tons in 1998; projected to be 29 million tons in 2020) round out the top five commodity groups by weight.

Not only are food and kindred products projected to becoming the second largest commodity group by weight in 2020, they are projected to become the top commodity group by value, growing from $21 billion in 1998 to $78 billion in 2020. Although non-metallic minerals and coal constitute a large share of shipments by weight, they slip completely off the chart of top commodities by dollar value.

Conversely, secondary/warehouse-distribution traffic and transportation equipment, although not large in terms of tonnage, are high in terms of value. Secondary traffic is defined as freight flows to and from distribution centers or through intermodal facilities. No commodities are assigned to this intermediate step in the transportation process. Secondary traffic shipments were valued at $16 billion in 1998 and projected to grow to $69 billion in 2020. Transportation equipment shipments were valued at $26 billion in 1998, projected to grow to $50 billion in 2020.

[14] Different data sources use different industrial and commodity classification codes; as a result some commodities may appear with somewhat different names in the descriptions and tables that follow, or, in rare cases, may appear in some sources and disappear in others.

[15] Rail data are available on an annual basis through 2002; however, the most recent comprehensive and comparable data for trucks/highways are from 1998. Therefore, for consistency, 1998 is currently the standard year for "current" freight data. [An economic/truck census was taken in 2002; data from that source are expected to become available beginning in 2005.]

Table 4.4 Top Commodities Shipped To/From/Within Oklahoma

Commodity	Tons (millions)		Commodity	Value (billions $)	
	1998	2020		1998	2020
Nonmetallic Minerals	63	83	Transportation Equipment	26	50
Farm Products	28	34	Food/Kindred Products	21	78
Food/Kindred Products	22	50	Chemical/Allied Products	17	50
Coal	19	21	Secondary Traffic	16	69
Chemicals/Allied Products	16	29	Farm Products	10	16

Source: "State Profile – Oklahoma," Office of Freight Management and Operations, Federal Highway Administration, http://ops.fhwa.dot.gov/freight/freight_analysis/, 9/29/04[16]

The other top five commodities by dollar value include chemicals and allied products (valued at $17 billion in 1998, projected to reach $50 billion in 2020) and farm products (worth $10 billion in 1998 and projected to be worth $16 billion in 2020).

4.3.2 Transportation Modes and Markets by Weight and Value

Table 4.5 shows the key transportation systems involved in moving freight to, from and within Oklahoma and the distribution by domestic or international destination.

In the 22 years between 1998 and 2020, freight tonnage is projected to increase by 67 percent, but value will increase by 202 percent.

In 1998, trucks carried 78 percent of all freight tonnage (87 percent of value); by 2020 truck freight is projected to grow by 73 percent, grow slightly as a share of all freight tonnage (80 percent), and increase in value by 200 percent -- but to decline slightly in share of total value (86 percent).

Rail freight, projected to grow by 45 percent between 1998 and 2020, already grew 26 percent from 1998 to 2001.[17] Rail freight is projected to increase in value by 136 percent between 1998 and 2020. However, as with truck freight, rail freight is projected to decline as a share of total value, from 8 percent to 6 percent.

The increase in share of total value (replacing the declining shares of truck and rail) will be in air cargo – projected to increase in 2020 by 328 percent over 1998 value – representing an increase in air cargo's share of total value from 5 percent to 7 percent.

[16] USDOT's Freight Analysis Framework (FAF) information on freight flows is based on freight transportation data from both public and private sources, notably the 1993 Commodity Flow Survey (CFS), a public data set, and Reebie Associates' proprietary Transearch data set. Because of data gaps, some of the FAF freight flows were synthesized by using models. The FAF describes domestic and international freight movements within the United States, by commodity and mode, on a network of FAF transportation facilities for 1998 (base case), 2010, and 2020. The FAF projections of commodity volume and value are based on proprietary economic forecasts developed by DRI-WEFA, Inc. (now Global Insight, Inc.).

[17] Rail waybill data 1998-2002 to/from Oklahoma

During the same 22 year period, international shipments will more than double, and increase in value by 300 percent, but still represent less than 5 percent of total value.

Table 4.5 Freight Tons and Value by Mode and Market

State Total	Tons (millions)			Value (billions $)		
	1998	2010	2020	1998	2010	2020
	219	304	367	140	263	424
By Mode						
Air	<1	<1	<1	7	17	30
Highway	171	241	296	122	228	366
Other*	<1	<1	<1	<1	<1	<1
Rail	44	56	64	11	18	26
Water	4	6	7	<1	1	2
By Destination/Market						
Domestic	210	290	348	135	252	403
International	9	14	19	5	11	20

Source: FHWA Office of Freight Management and Operations
* e.g., pipeline

4.3.3 What Oklahoma Produces and Sends Out Into the World

Some 75 million tons of goods originated in the three Business Economic Areas (BEA's) that are primarily located within Oklahoma and cover most of the state – Western Oklahoma BEA, Oklahoma City BEA (including Lawton), and Tulsa BEA – in 1998. Manufacturing employment in Oklahoma (approximately 10 percent of total jobs in the state) is concentrated in Oklahoma City (Oklahoma, Canadian and Cleveland counties) and Tulsa (Rogers, Tulsa and Creek counties).

Approximately 45 percent of the goods originating in the three BEA's was destined within or among the three BEA's, and 55 percent was "exported" to domestic markets outside Oklahoma.

Oklahoma's primary exports included:

- Grain – 4.8 million tons
- Warehouse and Distribution Center – 3.3 million tons[18]
- Soybean Oil or Products – 2.7 million tons
- Broken Stone – 2.7 million tons
- Portland Cement – 2.3 million tons
- Petroleum Refining Products – 1.6 million tons
- Miscellaneous Industrial Organic Chemicals – 1.5 million tons
- Potassium or Sodium Compound – 1.5 million tons
- Liquefied Gases, Coal or Petroleum – 1.1 million tons
- Miscellaneous Waste/Scrap – 0.8 million tons

[18] As noted in section 3.2.1, no commodities are assigned to freight flows to and from this intermediate step in the transportation process

- Minerals: helium, gypsum, zinc, copper, silver
- Meat Packing
- Food Processing
- Machinery Manufacturing (construction, oil equipment)

4.3.4 Who are Oklahoma's Customers?

Some 40.9 million tons of freight were shipped to US domestic markets from Oklahoma in 1998. The distribution of that freight by the six largest regions was as follows:

South Texas –9.3 million tons (grain 35 percent, warehouse and distribution center 11 percent, soybean oil or by-products 8 percent)

North Texas –7.7 million tons (broken stone 32 percent, Portland cement 10 percent, warehouse and distribution center 8 percent)

Northeast –6.9 million tons (soybean oil or by-products 10 percent, warehouse and distribution center 8 percent, Portland cement 7 percent)

Southeast –6.0 million tons (grain 13 percent, soybean oil or by-products 8 percent, miscellaneous waste or scrap 6 percent)

North (Midwest US) –6.0 million tons (Portland cement 13 percent, warehouse and distribution center 8 percent, miscellaneous industrial organic chemicals 8 percent)

Northwest –1.7 million tons (industrial organic chemicals 8 percent, potassium and sodium compounds 7 percent, industrial inorganic chemicals 6 percent)

4.3.5 Transportation Systems that Carry Oklahoma's Exports

Trucks: Transport 100 percent of the shipments to warehouse-distribution centers, 96 percent of liquefied gases, coal or petroleum, 89 percent of soybean oil/products, 86 percent of miscellaneous industrial organic chemicals, 77 percent of potassium/sodium compounds, 76 percent of Portland cement, and 51 percent of petroleum refining products. Table 4.6 shows the amount of freight carried by truck from Oklahoma's three primary BEAs to the Dallas/Fort Worth BEA (North Texas) and each US region.

Rail: Transports 100 percent of broken stone, 90 percent of grain, 36 percent of petroleum refining products, 24 percent of Portland cement, 23 percent of potassium or sodium compound, 14 percent of miscellaneous industrial organic chemicals, 11 percent of soybean oil or products, and 4 percent of liquefied gases, coal or petroleum.

Water: Used to transport 99 percent of miscellaneous waste/scrap, 13 percent of petroleum refining products, 10 percent of grain, and less than 1 percent of liquefied gases, coal or petroleum.

Air: Used to transport less than 1 percent each of miscellaneous industrial organic chemicals, and potassium or sodium compounds.

Table 4.6 Outbound Oklahoma Truck Freight

Tons									
Origin BEA	**To Dallas-Fort Worth BEA**	**To South Texas Region**	**To West Texas Region**	**To South-west Region***	**To North-west Region**	**To North Region**	**To North-east Region**	**To South-east Region**	**From Oklahoma to All Regions**
Tulsa	2,293,923	1,889,302	351,031	663,922	651,313	2,486,800	2,703,976	1,590,292	12,630,559
Oklahoma City	1,781,311	2,930,805	394,108	588,447	418,373	1,654,368	2,396,035	1,669,743	11,833,190
Western Oklahoma	70,254	173,528	89,452	87,998	94,860	248,078	116,485	151,204	1,031,859
Total	4,145,488	4,993,635	834,591	1,340,367	1,164,546	4,389,246	5,216,496	3,411,239	25,495,608

Source: TRANSEARCH DATABASE, from Reebee Assoc. 1998
*excluding West Texas

4.3.6 Imports to Serve Oklahoma's Industries and Consumers

Some 58 million tons of freight terminated in Oklahoma in 1998. Thus, Oklahoma imported considerably more than it exported (40.9 million tons). [In some cases, Oklahoma imported some of the same general category of commodities that it exported. This may primarily be attributable to general commodity classifications used in the data sources, which do not distinguish at this level between, for example, the type of petroleum refining products that Oklahoma exports versus the petroleum refining products that it imports. However, it may also be attributable in part to markets and distribution patterns to/from/within different portions of the state.]

Commodities of at least 1.0 million tons imported included:

- Coal – 16.0 million tons
- Warehouse and Distribution Center – 5.8 million tons
- Petroleum Refining Products – 1.7 million tons
- Prepared or Canned Feed – 1.6 million tons
- Liquefied Gases, Coal or Petroleum – 1.5 million tons
- Grain – 1.4 million tons
- Flour or other Grain Mill Products – 1.1 million tons
- Broken Stone – 1.0 million tons
- Plastic Matter or Synthetic Fibers – 1.0 million tons

4.3.7 Where the Domestic Imports Come From

When compared with the export distribution described in section 4.3.3, it is evident that Oklahoma's trade balance with other US regions is considerably skewed by direction. Thus, Oklahoma tends to export primarily to the south – to North Texas and South Texas – and import primarily from the northwest, southeast, and north/northeast.

Much of the freight imported from the northwest is one commodity from one location: coal from Wyoming's Powder River Basin.

The domestic sources of freight flows by the six largest regions of the US are shown below:

Northwest – 15.5 million tons (coal 83 percent, potassium and sodium compounds, nut or vegetable oils 2 percent each)

Southeast –12.5 million tons (warehouse & distribution center 17 percent, broken stone 8 percent, fertilizer 7 percent)

North (Midwest US) – 11.7 million tons (coal 24 percent, warehouse and distribution center 12 percent, flour 7 percent)

Northeast – 9.0 million tons (warehouse and distribution center 11 percent, grain 7 percent, electrometallurgical products 5 percent)

South Texas – 4.5 million tons (liquefied gases, coal or petroleum, petroleum refining products 15 percent each, warehouse and distribution center 12 percent)

North Texas – 3.2 million tons (prepared or canned feed 18 percent, warehouse and distribution center 16 percent, soybean oil or by-products 8 percent)

4.3.8 Transportation Systems that Carry Freight Destined for Oklahoma

As with exports, the modes used to transport freight to Oklahoma are stratified to a considerable extent by the type of commodity carried.

Trucks: Transport 100 percent of freight from warehouse and distribution centers, 99 percent of prepared or canned feed, 96 percent of liquefied gases, coal or petroleum, 72 percent of petroleum refining products, 57 percent of flour or other grain mill products, and 50 percent of plastic matter or synthetic fibers.

Rail: Transports 100 percent of coal (89 percent of imports from the Northwest are by rail), 99 percent of broken stone, 96 percent of grain, 50 percent of plastic matter or synthetic fibers, 43 percent of flour or other grain mill products, 22 percent of petroleum refining products, and 4 percent of liquefied gases, coal or petroleum.

Water: Used to transport 6 percent of petroleum refining products and 4 percent of grain.

4.3.9 Freight Movement Through Oklahoma

Some 450 million tons of freight move through Oklahoma - 4.5 times as much freight as that which originates in or is destined for Oklahoma. A majority of freight flows (57 percent) move in a general north-south direction (as opposed to east-west). About 32 percent of truck traffic on USDOT's Freight Analysis Framework road network involved trucks traveling across the State of Oklahoma to other markets.

Through freight movement by mode was predominantly by:

- **Rail:** coal 25 percent, grain and mixed freight (FAK: Freight All Kinds) shipments 9 percent each, plastic matter or synthetic fibers and broken stone 7 percent each.
- **Truck:** warehouse and distribution goods 5 percent, potassium or sodium compounds, miscellaneous agricultural chemicals, liquefied gases, coal or petroleum, flour or other grain mill products 3 percent each.

4.3.10 Intrastate Freight Flows

Some 34 million tons of freight moves between or within Oklahoma's BEAs, 93 percent of that by truck. Intrastate freight flows between the major BEA's are comprised of the following:

- 9.8 million tons within the Oklahoma City BEA
- 8.1 million tons from the Oklahoma City BEA to the Tulsa BEA
- 7.6 million tons from the Tulsa BEA to the Oklahoma City BEA
- 6.9 million tons within the Tulsa BEA

4.3.11 Freight Flows to/from/within Oklahoma by Rail and Truck

Figure 4.1 shows freight flows (by weight, in tons) by rail to, from and within Oklahoma. While there is some distribution throughout the country, particularly to Iowa, Illinois, Indiana and Ohio and through the southeast, freight movement by rail is quite concentrated to/from areas near to Oklahoma. Except for the major coal movement from the Powder River Basin, large freight movement to/from Oklahoma is predominantly north-south and largely confined to/from eastern Kansas, the southeastern tip of Nebraska and Kansas City to the north and Dallas to the south. However, were this figure to include through rail traffic, at least one more major rail line would be prominent (see section 4.3.12).

Figure 4.2 shows freight flows by truck to, from, and within Oklahoma. While the distribution is far more extensive, and particularly so throughout Texas, Kansas and the eastern half of the country, major truck flows are still pretty concentrated in the immediate vicinity of Oklahoma – to/from southern Kansas, through Missouri to Illinois, through Arkansas and northern Mississippi, and through eastern Texas (north-south) to Houston. Figure 4.2 also shows state-to-state flows to/from Oklahoma by weight. Major trading partners with Oklahoma are Texas and Kansas. The second tier of trade partners includes Missouri, Arkansas and Georgia. Other measurable freight flows by truck are to/from Louisiana, Alabama, Illinois, Indiana, Michigan, Ohio, Nebraska and California.

Figure 4.3 shows the combined (international plus domestic) freight flows to, from, and within Oklahoma. With the addition of the international routes, major corridors or extensions of domestic corridors are evident to/from Canada through Illinois and Ohio, to/from Mexico through central Texas, and to/from Asia through the ports in Southern California.

Figure 4.1 Rail Flows To/From/Within Oklahoma

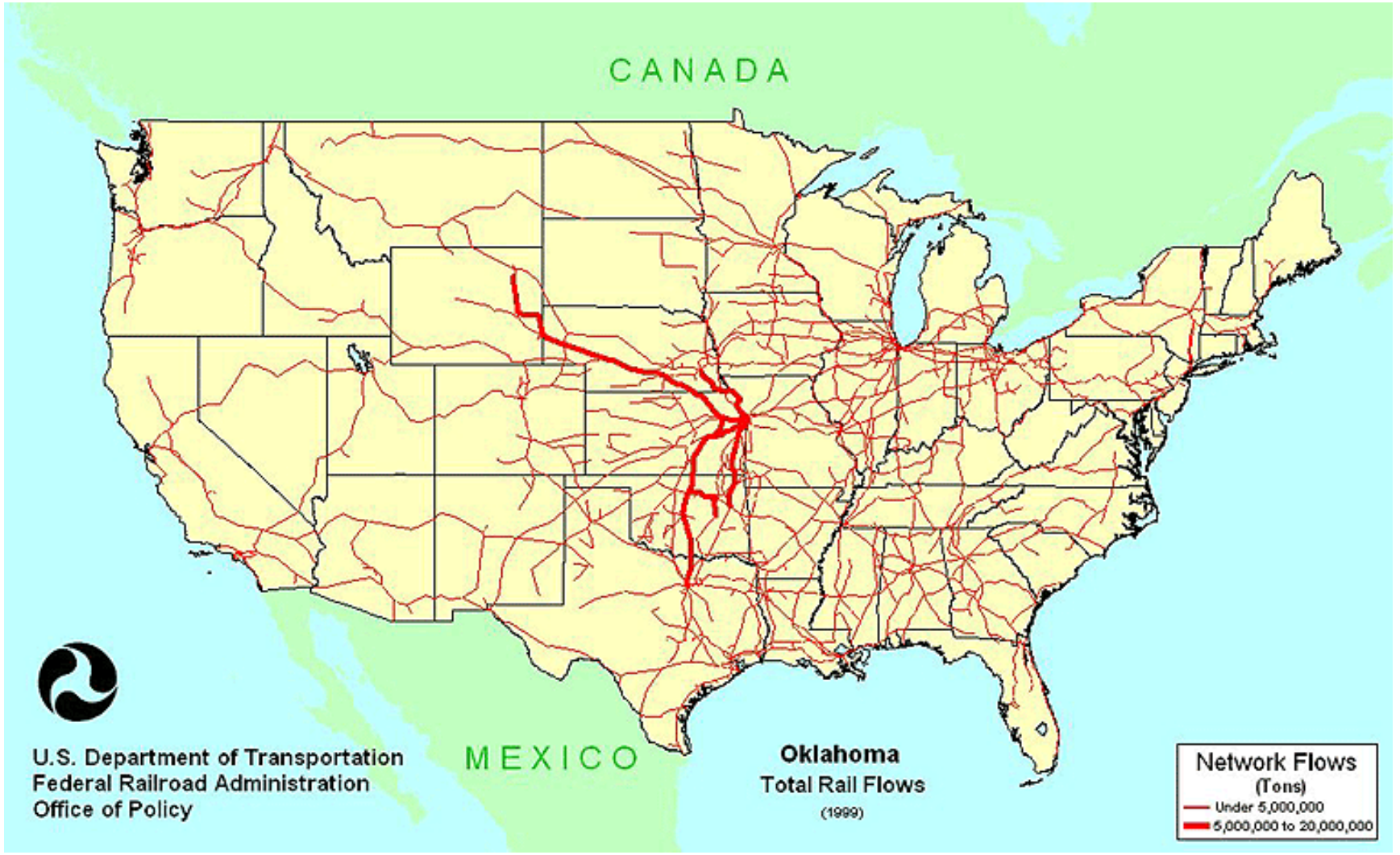


Figure 4.2 Domestic Freight Flows To/From/Within Oklahoma by Truck

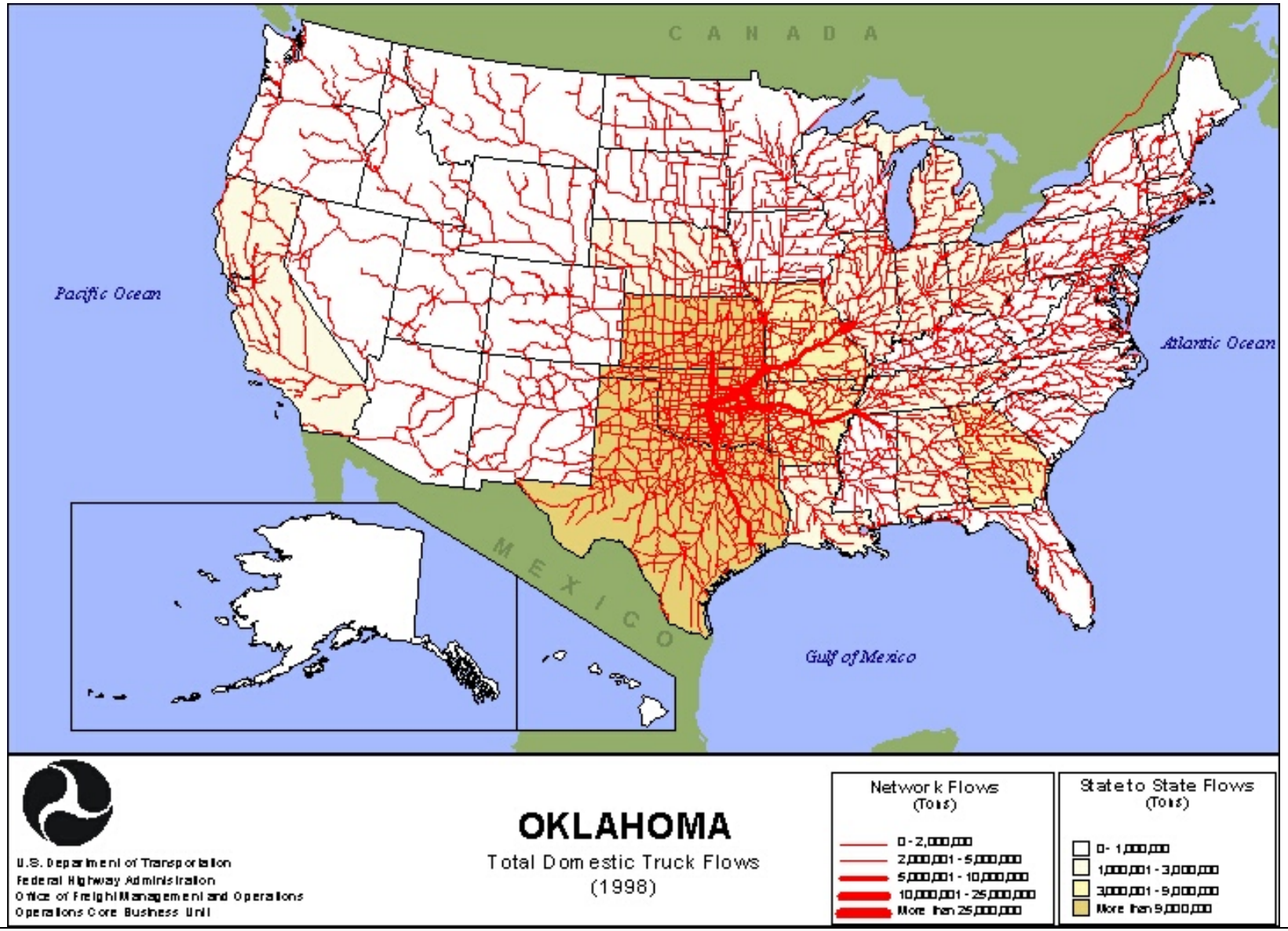
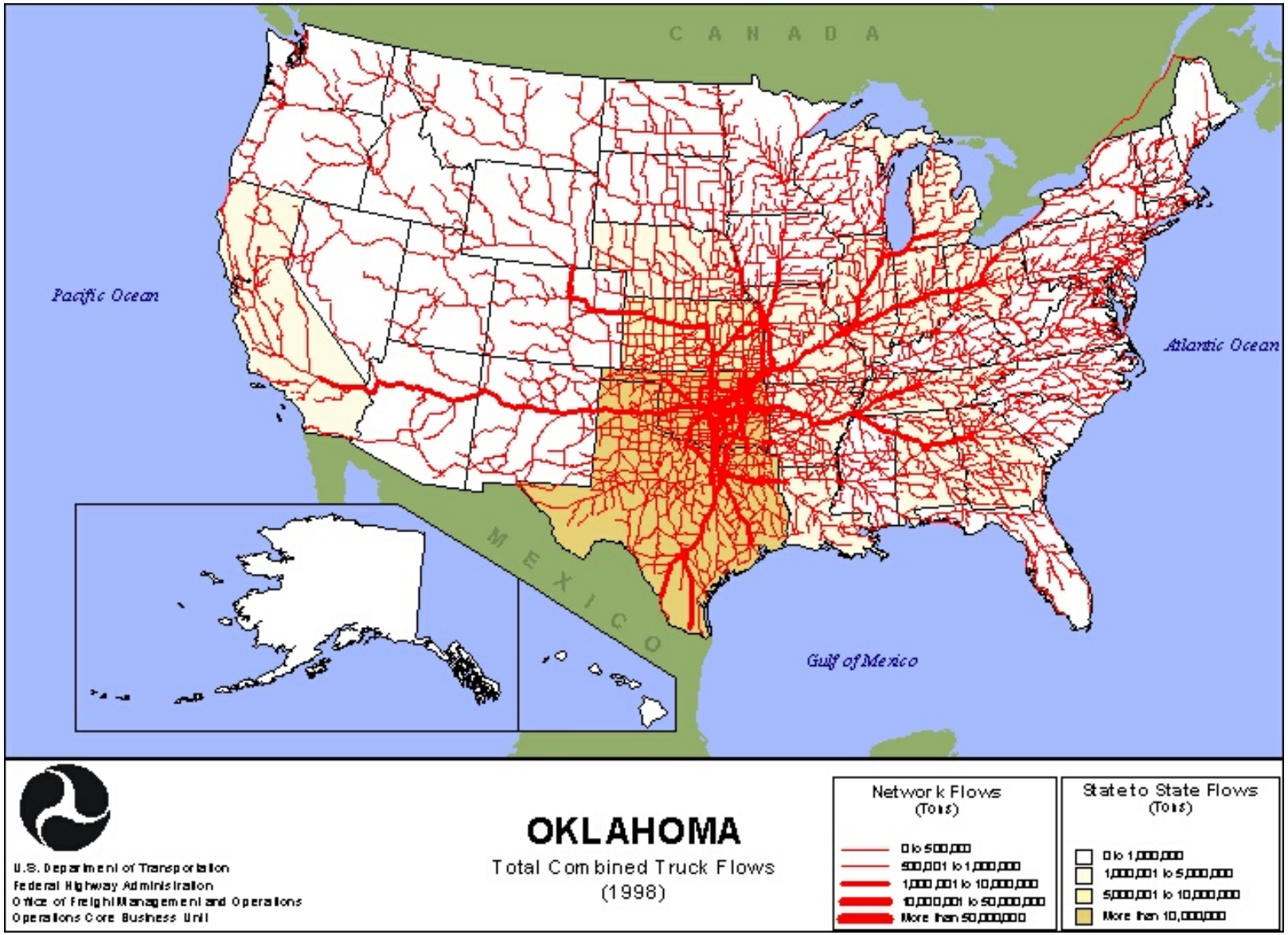


Figure 4.3 Domestic and International Freight Flows To/From/Within Oklahoma by Truck



4.3.12 Oklahoma Freight Flows Relative to US Freight Flows as a Whole

Oklahoma is considerably more truck dependent relative to the nation as a whole. Some 87 percent of freight tonnage carried to/from/within Oklahoma is carried by truck compared with about 70 percent nationally. Shipments to/from Oklahoma via truck represent 12 percent of the AADT (truck) on the USDOT freight analysis road network[19] – an outsize proportion of the nation's truck freight movement. Moreover, as noted in section 4.3.9, approximately 32 percent of truck traffic on USDOT's freight analysis road network involves through truck traffic to/from other markets.

Table 4.7 shows the amount and value of goods transported by all modes in the US in 1998. Over 15 billion tons of goods, worth over $9 trillion were moved in 1998. The number of tons is expected to grow by 70 percent by 2020 and to more than triple in value to nearly $30 trillion.

Table 4.7 US Freight Shipments by Tons and Value

Mode	Tons (millions)			Value (billions $)		
	1998	2010	2020	1998	2010	2020
Total	15,271	21,376	25,848	9,312	18,339	29,954
Domestic						
Air	9	18	26	545	1,308	2,246
Highway	10,439	14,930	18,130	6,656	12,746	20,241
Rail	1,954	2,528	2,894	530	848	1,230
Water	1,082	1,345	1,487	146	250	358
Total Domestic	13,484	18,820	22,537	7,876	15,152	24,075
International						
Air	9	16	24	530	1,182	2,259
Highway	419	733	1,069	772	1,724	3,131
Rail	358	518	699	116	248	432
Water	136	199	260	17	34	57
Other[a]	864	1,090	1,259	NA	NA	NA
Total International	1,787	2,556	3,311	1,436	3,187	5,879

Source: FHWA Office of Freight Management and Operations

[a] Includes international shipments via pipeline or unspecified

[19] The FAF road network draws on state-specific databases and data from federal road inventories The network includes the National Highway System (NHS) and totals over 274,154 miles of equivalent road mileage (3436 "dummy" centroid connector links -- from trip origin/destination points to a nearest FAF road link -- are added to the FAF network of road links for network modeling purposes). The data set covers the 48 contiguous States plus the District of Columbia.

By 2020, the US-based transportation system is expected to handle nearly 26 billion tons of cargo. International freight volumes are projected to nearly double.

While the movement of bulk goods, such as grains, coal, and ores, comprises a large share of the tonnage, lighter and more valuable goods, such as computers and office equipment, make up an increasing proportion of what is moved.

Oklahoma is part of the national supply chain for major commodity categories, and the major types of commodities transported (in tonnage) to/from/within Oklahoma are similar to the top five commodities nationally: gravel/crushed stone, coal, gasoline/aviation fuel, non-metallic minerals, cereal grain. That raises the question of how much Oklahoma may be able to influence freight trends through state intermodal or other transportation improvements, if these trends are to some extent driven by the national economy. It also suggests that Oklahoma examine what might be done to better serve its more unique commodity niches, such as soybean oil and products (high value export) and prepared/canned feed (import).

The parallels between Oklahoma and the nation as a whole are not quite so striking in terms of highest value commodities; the nation's top three commodities by value are 1) electronics equipment and components, 2) motorized or other vehicles, and 3) misc. manufactured products. Oil and gas production and products were excluded from the national economic census/transportation statistics that provided these rankings.

Of 10 major external challenges named by the trucking industry in a national study,[20] only one – urban congestion and travel time reliability – relates directly to state transportation systems. Strategies listed for addressing congestion and travel time reliability, in addition to capacity improvements, included: improved information systems giving advance warning and improved incident management procedures to reduce the effect of incidents; real time traffic information systems; and integrating carrier route planning systems with measures of travel time reliability. The same study cited national shifts in the market: growth in time-sensitive delivery requirements, growth in intermodal/containerized freight; and demands for new information technologies.

The top three external challenges cited were: rising insurance costs, hours of service rule changes, and fuel price variability. Recent innovations in truck stop provisions and accommodations might indirectly address effects of the service hours rule and other external challenges.

Figure 4.4 shows rail freight flows for the nation as a whole. As noted above, the BNSF Railway (BNSF) intermodal line, which cuts through Oklahoma's Ellis, Woodward and Woods counties, carrying a major share of the Los Angeles (ports) to/from Chicago rail freight traffic, appears prominently in this figure, along with the aforementioned major north-south lines of the BNSF and Union Pacific (UP).

Figure 4.5 shows truck freight movement for the nation as a whole. Projected truck flows for 2020 would show a notable increase in truck traffic along the I-44 corridor between Oklahoma City and the northeast corner of the state.

[20] "Evaluation of US Commercial Motor Carrier Industry Challenges and Opportunities," IFC Consulting for FHWA, 2003

Figure 4.4 Freight Flows by Rail – 1998 (tons)

Federal Railroad Administration

Figure 4.5 Freight Flows by Truck – 1998 (average daily volumes)

Federal Highway Administration
Note: Alaska and Hawaii are at a different scale than the continental United States.

4.3.13 Major Freight Corridors in Oklahoma

As noted in previous sections, major rail freight corridors include the north-south BNSF and UP corridors between Wichita and Kansas City on the north and Fort Worth/Dallas on the south and the major intermodal line cutting across Oklahoma en route between Los Angeles/Long Beach and Chicago. Other major rail freight corridors include the BNSF line from St. Louis to Fort Worth and the Kansas City Southern (KCS) line from Kansas City to Louisiana.

Available rail freight flow data does not distinguish among specific rail lines (for proprietary reasons).

Major highway freight corridors identified[21] include:

National Corridors
I-35
I-40
I-44

Regional Corridors
US 54
US 69 (from I-44 to Texas line)

Statewide Corridors
Cimarron Turnpike
Indian Nation Turnpike
Muskogee Turnpike
US 75
US 412

Highway freight corridors of statewide significance are defined as those that carry 10 million tons or more per year. The approximate amount of freight carried in these corridors in 2000 was:

- I-35 (20 million tons north of the Logan/Payne county line, 30 million tons south of that point)
- I-40 (30 million tons between the Texas state line and the Caddo/Canadian county line, 50 million tons between the Caddo/Canadian county line and roughly the Pottawatomie/Seminole county line, 20 million tons between the Pottawatomie/Seminole county line and roughly the midpoint of its route through Muskogee county, and 30 million tons between roughly the midpoint of its route through Muskogee county and the Arkansas state line)
- I-44 (40 million tons between the Missouri state line and Tulsa, 20 million tons between Tulsa and Oklahoma counties, and 10 million tons south of Oklahoma county)
- US 54 (10 million tons through the panhandle)
- US 69 (20 million tons immediately south of I-44 increasing to 40 million tons between Pittsburg county and the Texas state line)
- Cimarron and Muskogee Turnpikes (10 million tons)

[21] "Oklahoma Statewide Intermodal Transportation Plan: Freight Report," TranSystems Corporation for Oklahoma Department of Transportation, 10/2000

- US 75 (10 million tons between I-44 and I-40)
- Indian Nation Turnpike (10 million tons between I-40 and US 69)
- US 412 (10 million tons between I-44 and the Arkansas state line)

Truck freight (in tons per year) was projected for 2025, and additional corridors of statewide significance are expected as a result, including portions of US 70 and US 81, another portion of 412 and 64 west of I-35, and the southern portion of the Indian Nation Turnpike. Projected 2025 freight[22] by corridor is:

- I-35 (40 million tons north of the Logan/Payne county line, 50 million tons south of that point)
- I-40 (60 million tons between the Texas state line and the Caddo/Canadian county line, 100 million tons between the Caddo/Canadian county line and roughly the Pottawatomie/Seminole county line, and 40 million tons between the Pottawatomie/Seminole county line and the Arkansas state line)
- I-44 (60 million tons between the Missouri state line and Tulsa, 40 million tons between Tulsa and Oklahoma counties, and 20 million tons south of Oklahoma county)
- US 54 (40 million tons)
- US 69 (40 million tons immediately south of I-44 to approximately the Arkansas River in Wagoner county, 70 million tons between the Arkansas River and the Pittsburg/Atoka county line, and 90 million tons between Pittsburg/Atoka county line and the Texas state line)
- Cimarron and Muskogee Turnpikes (20 million tons)
- US 75 (20 million tons between I-44 and I-40)
- Indian Nation Turnpike (20 million tons between I-40 and US 69, 10 million tons between US 69 and US 271 to the Texas state line)
- US 412 (20 million tons between I-44 and the Arkansas state line)
- US 70 (10 million tons between western Carter county and US 69, and between the Indian Nation Turnpike and the Arkansas state line)
- US 81 (10 million tons between US 64 and I-40, and between I-44 and southern Stephens county)
- US 64/412 (20 million tons between US 81 and the Cimarron Turnpike)

This represents enormous growth and a strain on the state's highway system. Several sections of these highways are already rated as being in poor or fair condition, and there are many structurally deficient or functionally obsolete bridges along these routes.[23]

[22] Statewide Intermodal Freight Report, 2000
[23] Oklahoma Department of Transportation Planning & Research Division GIS Management Branch, July 10, 2003, and October 1, 2004

4.4 Key Economic Sectors/Clusters

Given Oklahoma's current and trending economy, the characteristics of its freight flows, its current transportation system, and other factors, economic growth sectors most likely to benefit from selected and perhaps strategic intermodal improvements have been identified. These sectors, discussed below, may also provide opportunities for intermodal logistics hub developments in Oklahoma. Logistics hub opportunities on a modal basis – i.e., for air cargo, rail freight, and waterway – are explored in greater detail in Chapter 5.0.

4.4.1 High Value-Added Agricultural Production

As noted in previous sections of this report, high value-added agricultural production has been designated by the ODOC as a targeted industry cluster for economic development. Value added food processing entails the manufacture of higher value added products from raw agriculture outputs. Examples include production of ethanol from grain, meat processing and packaging, or manufacture of canola or other edible oils from seeds. While major agribusiness firms such as Seaboard farms are vertically integrated enterprises, including meat packing and processing, much of this processing of Oklahoma agricultural output continues to be done outside of the state.

Oklahoma should greatly benefit from the expansion of a local economy in value-added food processing. Increased higher value-added and/or perishable processed foods will necessitate a greater shift toward fast and reliable transport. Increasingly efficient supply chain systems, including efficient truck distribution systems and in some cases even air cargo transport of highly perishable or high cost specialty food items should come more to the fore.

4.4.2 Industrial ("High Tech") Livestock Production

Oklahoma will need to consider the specific transportation needs of high tech livestock production, which has become a major economic presence in the Panhandle area. This may include increased or improved rail freight service to these areas, as well as a more comprehensive supply chain and transportation study for this sector. The potential for specialized high volume-truck to rail hub facilities for livestock should be investigated, including the potential for a direct tie-in with UP's transcontinental route through the Panhandle. The potential for public private partnering in this area may be substantial.

4.4.3 Military Logistics

Oklahoma may gain considerable economic advantage by leveraging the existing military – particularly Air Force – infrastructure in the State. The Oklahoma City Air Logistics Center at Tinker AFB may be a catalyst for additional development in the Oklahoma City area. Indeed, studies and other efforts are underway to complement the Tinker Logistics Center operation with the development of an Oklahoma Maintenance, Repair and Overhaul Facility (MROTC) jointly with the Tinker AFB. That proposal would construct a 360-acre facility to provide technology-

based solutions for commercial and military aging aircraft and engines. The MROTC would be a joint development between the private sector, the military, and the Oklahoma Industries Authority. In addition, the State may wish to explore, in partnership with the US Defense Department, other military logistics centers developments, such as in Tulsa, where there is a critical mass of both civilian and military aerospace activities. Consolidation of such facilities in Oklahoma holds the promise of delivering increased efficiency within the growing need for military logistics solutions.

4.4.4 Aviation and Aerospace "After-Market"

The civilian aviation "after-market" – airplane maintenance and overhaul – is an important industry cluster in Oklahoma, and may provide a good niche opportunity, especially in Tulsa, where airplane maintenance and overhaul is conducted by American Airlines, and where Boeing has a major production facility. The potential for outsourcing other carriers' maintenance has been discussed, and should be explored. The extent to which this facility has excess capacity, or could be expanded, could be explored in the context of potential additional users. Clearly, new business models will need to be explored, particularly as American Airlines, together with the other traditional airlines, are experiencing financial difficulties and downsizing. As noted above, the Tinker MROTC proposal, if advanced, would represent another opportunity for exploiting this advantage, in this case in Oklahoma City. Air facility needs to enhance these opportunities must be studied.

4.4.5 Warehousing and Distribution

Warehousing and distribution activities have blossomed close to the Texas border and along the I-35 NAFTA Corridor. The Ardmore and Durant areas, for example, have been highly successful in attracting large retailer distribution centers, such as Dollar Tree and Big Lots, but there is substantial capacity for growth and development of this sector. The location of facilities close to Texas takes advantage of cost of business "border differentials," and all locations south of I-40 have the potential to capture some regional distribution activities serving North Texas. Most of the major retailers, such as Home Depot and WalMart, however, will continue to prefer to locate their major regional hub distribution centers in Texas, as the population and urbanization there are much greater, the Port of Houston is proximate, and intermodal rail service from the west coast ports is available. From those major distribution centers, the big retailers truck their goods to Oklahoma. I-35 is one of the key corridors in NAFTA international trade, and the nation's major surface trade link with Mexico. It also serves a major role in freight transportation for the domestic market, and the volume of trucks on the portion of I-35 between Oklahoma City and Dallas is second only to portions of the route between San Antonio and Waco. Oklahoma will benefit from close coordination of its transportation plans with those of bordering states, especially Texas, so that volumes of north-south truck and rail freight can be consistently accommodated to, from and through Oklahoma. Improved east-west highway links, including enhanced highway capacity for trucks, between these distribution centers, and Oklahoma's sub-regional economies as a whole, and the I-35 Corridor is crucial to the increasing viability of this sector and for the economic growth potential served by this corridor.

4.4.6 Energy Production and Field Servicing

Currently, transport of oil and gas is readily accomplished within the existing Oklahoma transport system. However, the industry may be somewhat hampered by difficulties associated with the transport of oversized drilling equipment and machinery. Drill field equipment, which is also an important manufacturing sector in Oklahoma, can and does move efficiently via barge on the waterway system to selected oil and gas fields, but would benefit from a more relaxed treatment of oversized loads on the highway system. Most oil and gas fields are not proximate to the waterway system, although some transport cost savings may be incurred by providing for efficient intermodal transfer of oversized loads from the waterway to truck for transport to more distant oil and gas fields. Wind turbines, a potential long term growth sector, would require similar relaxed treatment of oversized truck loads in the future, to the extent that this industry becomes more viable. As wind energy is most likely to be concentrated in the northern and western parts of the state – away from the inland waterway system – transport of oversized and overweight loads via truck become an even more critical need to be addressed.

4.4.7 Gaming

While most of the 30-plus Indian owned gaming facilities are small and in rather rural locations, several, most notably the Winstar casino and resort, have the potential to become very important regional destinations. Winstar's proximity to the Texas border provides a large customer market for this facility, particularly as gaming is not (yet) legal in Texas. Enhanced public transportation service and intermodal connectivity linking the nearby Amtrak line to Winstar may be pursued in the form of public-private partnerships to serve Winstar and other large gaming facilities.

5.0 INTERMODAL LOGISTICS OPPORTUNITIES

In addition to identifying markets and sectors of current and future advantage in Oklahoma, this chapter also describes logistics hub potential from the standpoint of modes of transportation, including air cargo hub opportunities, intermodal rail freight hub opportunities, and intermodal developments associated with Oklahoma's inland waterway system.

5.1 Air Cargo

Potential air cargo hub opportunities have been identified from an examination of market trends, air cargo express operations, and particular advantages that Oklahoma may provide for air cargo.

5.1.1 Air Cargo Market Trends

Forecasts: According to the FAA and large aircraft manufacturers' forecasts, the air cargo market is expected to grow at approximately six percent annually for the next twenty years. The trend toward the combined use of air and truck package delivery is expected to continue with major emphasis on deferred second-day delivery segments of the market. These trends emphasize the importance of the processing hubs being located within 400 to 500 miles from major population centers.

Internet Based Business: As late as 1995, sales through the Internet were essentially zero. By 1999, U.S. Internet based business-to-business and consumer sales had grown to nearly $7 billion and 166 million packages were shipped by internet retailers, with approximately 70% going by express air freight. In 2003 approximately 1.2 billion packages were shipped by "e-tailers" with overall global e-commerce approaching $7 trillion. Because the Web cannot move a box, e-commerce distribution centers are located at and near airports that have extensive flight networks. Airport-located facilities to serve e-commerce can include:

- Special transfer facilities or warehouses to serve just-in-time supply chain products (such as refrigerated warehouses for perishable flowers) that facilitate transfers between aircraft and trucks
- Emergency parts provision centers
- Reverse logistics facilities for repair and upgrade of high tech products such as computers and cell phones

Aircraft Technology: The growth in the air cargo transportation sector is largely due to the ability of new engines for large air cargo aircraft (Boeing-747, A-380 Airbus) to have non-stop ranges of over 7,000 miles. This aircraft flying range puts Oklahoma within non-stop flying distances to any place in the world. Long-range aircraft technology combined with the growth in global trade allows air cargo operators as well as the major international and domestic manufactures of goods to by-pass the traditional east coast (New York and Miami) and west coast (Los Angeles and Seattle) international air cargo distribution centers and fly direct to regional end-user destinations, such as the Oklahoma/Texas markets.

Air Cargo Facilities: Other major trends that will benefit Oklahoma are that both the major east coast and west coast air cargo airports are operating at capacity and have no available land for

expansion of additional air cargo processing facilities. The only air cargo facility development at these major coastal airports is the normal redevelopment of existing facilities.

Air Cargo Security: The new Transportation Security Agency (TSA) is in the process of developing guidelines for the 100 percent inspection of all goods that are shipped by air cargo aircraft. The implementation of this mandate will cause delays in the movement of goods and the expansion of processing facilities and freight truck staging areas. These air cargo delay issues may result in the air cargo operators shifting their east coast and west coast operations to in-land airports that have the land to accommodate both the air cargo processing facilities as well as the highway infrastructure that is required to maintain the next-day and second-day delivery schedules that have become the normal customer demand of the air cargo industry.

Environmental Issues: The typical air cargo operating requirement of picking up packages in the evening and flying the packages at night has resulted in severe noise impacts to the populations that live within ten miles of an air cargo airport. With the doubling of the air cargo market every decade, it is anticipated that the existing air cargo hub operations will be restricted and that new international and regional hubs will have to be established. States such as Oklahoma that have vast areas of undeveloped flat land and mild weather are positioned to attract future international and regional air cargo hub facilities.

5.1.2 Next Day/Second Day Cargo Operators

The express-air freight market is currently dominated by five major carriers. With their roots in next day/second day domestic package deliveries, these carriers took advantage of their multi-modal system needs, available space, lower costs, and acceptable weather to locate their hubs in the Ohio River valley. The five major carriers and their principal hubs are:

- Federal Express – Major hub in Memphis
- United Parcel Service – Major hub in Louisville
- DHL – Major hub in Wilmington/Cincinnati
- Emery/Menlo – Major hub in Dayton
- BAX – Major hub in Toledo

Of these five operators, FedEx and UPS control over 75 percent of the next-day and second-day air freight market. DHL has recently started to expand its operations and is expected to increase its market share. Emery and BAX both concentrate on specific segments of the market. Over the next 20-years, it is expected that certain operators will consolidate their operations and that additional international-domestic express air freight operators will enter the market.

The primary hub locations of the five major operators are all located within a one-day drive of over ten million people. In addition, having the principal hubs located on the western edge of the Eastern Time zone gives the operators an additional hour of package pick-up time for package delivery to the western time zones at the least possible air distance. These hubs, however, do not serve only truck-to-air or air-to-truck functions; much of the growth of these businesses requires truck-to-truck transfers at these hubs. Both FedEx and UPS have an established system of regional hubs; the FedEx southwest regional hub is located at Fort Worth Alliance Airport. Only DHL appears to be still looking for sites for additional regional hub locations.

To expand their markets as well as meet aggressive business plans, the major operators such as FedEx and UPS are moving beyond multi-modal transfers to contract with major mail-order suppliers, such as Lands End, to locate the product warehousing, customer shipping, internet computer center, and product return operations at the hub facilities. This trend for next-day and second-day service to international markets is expected to be expanded to also include the manufacturing of the products at the air cargo hub location.

5.1.3 Advantages and Opportunities for Oklahoma

Positive Aspects for Oklahoma

- Low labor and other business costs
- Central mid-continent location
- Mild weather
- North-south and east-west Interstate Highway network
- Close to Dallas-Fort Worth industrial and population base
- Major Defense Department Logistics Center location
- Land available in many locations for the development of a new air cargo/industrial park airport (6,000-10,000 acres) that could accommodate large aircraft noise footprints
- Land available for air cargo facilities at Oklahoma City/Will Rogers World Airport
- Within non-stop air cargo aircraft range of the major cities of Asia, Europe, and South America
- Center of aircraft systems manufacturing industry and oil field support industry
- One-day drive time to major Midwestern, Southeastern, Southwestern and Plains states' population centers
- Close proximity to Mexico and the trade benefits of NAFTA

Potential Oklahoma Air Cargo Hub Initiatives - Short Term (see Table 5.1)

- Explore feasibility of encouraging the TSA to team with a major express freight operator (i.e., DHL) to establish a prototype air cargo security test facility at Tulsa International Airport or Oklahoma City/Will Rogers World Airport.
- Initiate studies to determine the feasibility of establishing a site for a major industrial park that would include an air cargo airport with parallel runways and could focus on high value oil field support manufacturing equipment and the manufacturing of aerospace equipment.
- Conduct a feasibility study to identify market potential for development or expansion of regional air cargo hubs, including potential for expansion and development of the Ardmore Airpark as a regional air cargo facility having the potential to effectively serve north Texas markets, as well as the potential for significant development/enhancement of intermodal hubs at Oklahoma City/Will Rogers World and Tulsa International airports, or other locations in the vicinity of these cities, such as the previously-considered Stroud location or Muskogee airport.
- Explore feasibility of establishing potential air transportation partnerships with Mexican (Aero Mexico) and Central American air cargo airlines to build upon existing commercial links in delivering perishable fresh flowers by establishing a larger fresh flower distribution center within the Free Trade Zones at either Tulsa International or Will Rogers World airports. The NAFTA ground transportation agreements would help to enhance air trade ties with Mexico and Central America.

- Explore the potential of encouraging the US Department of Defense (USDOD) to establish a central US Air Transportation Logistics Center in Oklahoma for worldwide transport of multiple forms of material and personnel. USDOD charter flights to the Mid-East, Europe and Asia could operate from the existing runway systems at the Tulsa and Oklahoma City airports.

Potential Oklahoma Air Cargo Hub Initiatives – Long Term (see Table 5.1)

- Seek partnerships to attract Asian and European high value product manufactures (auto, computer, cell phone, pharmaceutical, textiles, etc.) to establish manufacturing and air/ground distribution centers at an existing or new air cargo airport site in Oklahoma.
- Initiate studies to determine the potential of attracting international air cargo airlines (Japan Airlines, Cathy Pacific, ANA Airlines, British Air, Singapore Airlines, Lufthansa Airlines, Emirates Airlines, Korean Airlines EVA Airlines, etc.) to establish an International Air Cargo Hub in Oklahoma that would provide a "by-pass" (to the congested east coast and west coast air cargo international gateways) air cargo distribution point.

Table 5.1 Potential Air Cargo – Specific Opportunities

Opportunity	Location	Market/commodity	Mode	Activities	Major Advantages/ Obstacle(s)/Other implementation related comments
Major Air Cargo Facility to serve foreign and domestic deliveries	New rural international airport with 6,000 acres; De-commissioned military airport	High value product manufacturing market base (auto, computer, cell phone, aircraft systems, etc.) that currently use East and West Coast gateway airports	Air/ Truck/ Rail	Market study; Partnership with Asian or US firm	Available land; low labor cost; mild climate; roadway network
DHL Regional Hub	OKC or Tulsa	Express Freight next day and second day service	Air/ Truck	Market study; Partnership with DHL	Regional hub not likely; Uncertain of DHL business model
Regional Air Cargo Facility serving existing/potential new high tech manf. centers – single firm model (Apple, Dell); multi firm model (industrial park or FTZ) and markets within a two day trucking radius	Close to OKC and/or Tulsa airports, Stroud, Muskogee, Ardmore, Burns Flat	Serve on- or near-site high tech manufacturing and markets for high value added goods within a two day trucking radius	Air/ Truck	Market study	Major competition from DFW and Alliance Airport. Areas with good highway access would be most favorable. OKC airport has substantial available land, capacity; Ardmore Airpark already established, and proximate to warehousing and distribution centers
TSA Prototype International Air Cargo Processing Center	OKC or Tulsa airports	Option to constrained east coast and west coast gateway airports	Air/ Truck	Market study; partnership with TSA	Existing international air cargo gateway airport facilities are constrained
Mexico & Central America NAFTA/ Foreign Trade Zone site for Perishable Goods Distribution Center	OKC and/or Tulsa airports	Perishable goods (flowers) same day distribution to Mid-America Region	Air/ Truck	Market Study; partnership with Mexican or Central American flower producer	Close to Dallas and several other large metropolitan areas within 500 miles; low labor costs; roadway network

5.2 Rail Freight

Oklahoma's ability to attract one or more major rail/truck intermodal lift facilities is considered limited. An intermodal facility is one where containers or truck trailers are carried via rail to a facility where they are lifted off of the rail flatcar and then sent off by way of a truck carrying that trailer (or a truck trailer specially created to carry the container) to the shipments' final destination.

Oklahoma City sits in the "middle" of a triangle between Denver, Kansas City and Dallas. Those three locales already have major rail intermodal facilities, each operated by BNSF. Monthly lifts, not including UP facilities in these locations, are as follows:

- Dallas/Fort Worth at Alliance 45,000 per month
- Kansas City Argentine Yard 25,000 per month
- Denver 10,000 per month

(There are two small BNSF intermodal facility operations in the region: Oklahoma City (1200 lifts per month; no containers, only trailers on flat cars), and Amarillo (670 lifts per month).

Contributing to the unlikelihood of a major intermodal rail facility in Oklahoma are the distances between the three cities mentioned above:

- Denver to Kansas City – 605 miles
- Kansas City to Dallas – 552 miles
- Denver to Dallas – 780 miles

Thus, most parts of Oklahoma are already well served by truck to major intermodal rail facilities within a day's drive.

In addition, 75 percent of all rail traffic in Oklahoma is "through" traffic; i.e., it has neither an origin nor a destination within the state. This means that there may not be sufficient concentration of demand for intermodal to be efficiently served on a major scale in Oklahoma.

The Class I Railroads' preference is to move long 50 to 110 car unit trains long distances without intermediate stopping, carrying coal, grain, and aggregate products, as well as fast, high priority intermodal trains carrying containers or truck trailers. Travel distances and the nature of rail freight commodity moves in Oklahoma thus seem to dictate against the Class I Railroads' preferences for intermodal service.

While major intermodal rail facilities are not likely to be of interest to any of the Class I Railroads in Oklahoma, the potential for "transload" facilities does exist, and should be explored with the railroads. Transloading is a concept through which a freight customer without rail access contracts with a third party to have his products (e.g., 100 large cardboard cartons of some product) taken to a railroad siding (i.e., the transload facility), loaded on the rail box car, and taken to a destination by rail for storage in a warehouse until it is sent by truck to its final destination.

There are two principal types of Transload facilities: bulk and dimensional. A transload facility for **bulk** commodities (perhaps fuels or liquid chemicals) transfers the bulk cargo from a pipeline or truck onto a train; it is then shipped across the country, and then loaded onto trucks or into large storage tanks or warehoused. **Dimensional** transload facilities serve lumber or oversized products/shipments. Transload facilities could also interface with the inland waterway system, for selected bulk (e.g., scrap steel) or dimensional (e.g., raw timber or lumber) commodities.

The BNSF maintains a large transload facility in the Fort Worth area, owned by Saddle Creek Corp. That facility has 860,000 square feet of storage area. There is a Saddle Creek Corp. facility in Oklahoma City, but of much smaller dimension (120,000 square feet of storage).

Oklahoma is a candidate for more of these types of facilities, including dimensional and bulk, based on the kinds of products and commodities produced or consumed in Oklahoma. For example, forestry products from the southeastern portion of Oklahoma could benefit from such a facility. Specific opportunities are shown in Table 5.2 below.

Table 5.2 Potential Rail Freight – Specific Opportunities

Possible Opportunity	Location	Market/commodity	Mode	Activity	Major Advantages/ Obstacle(s)/Other implementation related comments
Rail/Truck Intermodal facility serving OKC General Motors Plant	OKC	Auto assembly	Rail/Truck	Partnering: GM, BNSF, UPRR, ODOT, ODOC	Manufacturing plant is on BNSF; finished vehicles are now shipped by truck approximately 6-7 miles to rail load-out on UPRR.
Rail/Truck Intermodal facility serving auto assembly plant in rural areas	Rural OK	Auto assembly	Rail/Truck	Partnering with auto manufacturer	Better to establish in rural areas to avoid union labor issues
Transload or specialized handling of Forestry Products	SE Oklahoma	Raw timber; wood pulp; furniture	Special rail/cargo handler		Possible market for three shortline railroads in SE Oklahoma
Short Line RR Improvements/ Rehabs & Upgrades	Statewide	Existing RR customer base serving various markets	Short haul RR	Interline improvements for short haul RR to access Class 1 mainlines	Funding constrained; ODOT may consider financial support to upgrade track and bridge infrastructure of State-owned rail lines leased to short line railroads.
Locomotive maintenance facilities relocate to OK, e.g., from Denver					Railroads usually locate these facilities in higher traffic density locations
Expand rail capacity and connectivity in Southern OK	Southern OK, Ardmore	Crushed stone; aggregates	Rail	Enhance existing flow of Oklahoma aggregates to Texas markets	Would significantly reduce heavy truck traffic flows in Ardmore and other Southern OK areas
Public Sector (ODOC) Work with Developer & RR to Jointly Develop Intermodal Ramps (e.g., transload)	Statewide	All commodities eligible	Rail, truck, barge, pipeline		Pre-mature to identify locations at this time
Military Logistics		Air Force, Military-Information Technology; Selected Materials	Rail, Other	Movement/ mobilization of materials; Perform market study to determine economics for OK & DOD	Oklahoma centrally located nationally
Agricultural Processing Production (value added food production)	Western OK	Processed grain, edible oils, canola oil, ethanol, livestock	Short Lines	Ship raw products in or finished products out	A growth market

5.3 Inland Waterway

Movement of cargoes by the waterway system tend to be limited to the least time sensitive, but transport cost sensitive, heavy bulk commodities. Many commodities now moved by truck were transported at one time or another on the waterway. However, due to scheduling reasons (unpredictability), many of those commodities shifted to trucks when fuel prices were lower and incremental cost increases for trucking were rather nominal. Given the increase in fuel prices, the transport cost balance may again be tipping to favor barge service for some commodities, and shifting of transport modes could follow if the waterway ports and barge service operators can develop a way to guarantee delivery schedules. ODOT is working with an Oklahoma–Arkansas industry consortium to address that problem.

While low valued bulk commodities will inevitably dominate the waterway system, container on barge (COB) service has emerged in parts of the Gulf of Mexico and within the Mississippi River system. As described below, the potential for this service may have increased with the emergence of an important COB operation from Houston to New Orleans.

The following commodity movements represent potential areas of growth for the inland waterway system. Support for these potential commodity movements may be facilitated by selected investments, including intermodal investments serving the two major public ports at Catoosa and at Muskogee, as well as improved access to the numerous private sector ports (e.g., Port 33) along the waterway system.

- Scrap steel is a significant business for the waterway system, but most of it goes across the state line to the Port of Ft. Smith, Arkansas, for loading onto barges, because of existing facilities there (operated by the Yaffee Company). Until now, the Oklahoma ports have not expressed a keen interest in the scrap business because it is viewed as quite messy and somewhat disruptive to their other businesses. Scrap steel goes to New Orleans to feed a mini-mill in LaPlace, Louisiana, owned by Bayou Steel. Specialized facilities to handle scrap steel may be considered to capture some of this market.
- Tulsa has a significant concrete pre-casting industry but most of the product is moved by truck to the Oklahoma interior. Apparently the waterway service is not convenient for the in-state use of these products. Only an out-of-state shipment of heavy or oversize items would likely go by water.
- Oklahoma coal was at one time a significant export moved by barges, reportedly 3 to 4 barges per day at its peak. Coal was destined for power plants located along the Mississippi and Ohio waterways. Due to a variety of causes, the coal industry in Oklahoma has declined, but there is some potential for this industry to re-emerge on a selected basis.
- Containers on barges (COB) are thought by some officials within the ODOT to be a potential area of significant growth. One such operator, Osprey Lines, has started successful Houston to New Orleans COB shuttle service that has been extended up the Mississippi River to Baton Rouge. Osprey is considering extending the service to Memphis, and perhaps beyond. ODOT has not identified any specific users or cargo for a potential COB service at this time. An increasingly popular logistics strategy of warehousing cargo in the "pipeline" fits well with COB service and overcomes its inherently slower delivery. A difficult issue needing further attention is reliability of COB service -- meaning certainty of on-time

delivery, despite occasional delays encountered on the inland waterway system. Waterway transportation companies are exploring ways to overcome this issue with 'back-up' delivery schemes. Pacific Northwest ports are moving relatively low value cargo such as scrap paper and hay via COB service.

With respect to the waterway system itself (apart from intermodal connections to the ports) there are a number of initiatives which could improve the marketing opportunities for the waterway. These include:

- Addressing problems of deteriorating waterway infrastructure.
- Increasing the available draft in the waterway to 11.5 feet, from 8.5 feet currently. This additional draft would allow significantly heavier loads in each barge that produce net cost savings. Most of the system already meets this depth, but several areas require dredging to eliminate 'high spots'. Locks are adequate and will not require changes.
- Adding "tow haulage" equipment to the locks on the system in Oklahoma (tow haulage equipment has already been installed on all locks in Arkansas). This involves the installation of large winches and rigging to allow barge strings to be moved through locks without the tow boat. Benefits of such equipped locks would include reduced locking times and lower towing costs, as well as higher throughput capacity in the locks.

More specific opportunities are shown in Table 5.3.

Table 5.3 Potential Ports & Waterways – Specific Opportunities

Opportunity	Location	Market/commodity	Mode	Activities	Major Advantages/ Obstacle(s)/Other implementation related comments
Pre-cast Concrete; Fabricated Steel	Counties proximate to Waterway	Highway/Bridge Construction	Waterway	Pre-cast concrete; fabricated steel	Raw materials such as cement and aggregates are locally produced
Scrap Steel	Counties proximate to Waterway	Steel mini-mills downstream	Waterway	Incentives to ship materials – e.g., out of recycling centers and junk yards	Currently being handled at Port of Ft. Smith, AR; OK ports have not been interested in this business
Oversized Cargo	Counties proximate to Waterway	Aerospace industry components, esp. in Tulsa area; oil and gas drilling components; windmill components	Waterway		
Containerized General Cargo	Counties proximate to Waterway	Major retail distribution centers; local manufacturers & producers	Waterway	Various commodities	Requires regularly scheduled and reliable barge service, along with rise in fuel costs, to become attractive alternative; requires synergistic backhaul
Coal	Eastern OK mines	Power and manufacturing facilities on US inland waterway system	Waterway	Bituminous and metallurgical coal	World energy prices affect coal mining economics and local incentives
Steel Coils	Counties proximate to Waterway	Local manufacturers	Waterway	Major appliances; metal fabrications; pipes	Requires regularly scheduled and reliable barge service along with rise in fuel costs to become attractive alternative
Wood Pulp/Paper Products	Counties proximate to Waterway	Two paper mills near Waterway	Waterway	Plants process wood pulp into refined tissue paper	Container barge service required to attract this business
Minerals	Counties proximate to Waterway	New major manufacturing facility near Tulsa under construction to produce porcelain tiles	Waterway	Import clay and related raw minerals; export porcelain tiles	Minerals shipped in bulk form; finished product would likely require container barge service

6.0 INTERMODAL ELEMENT POLICIES, STRATEGIES, AND PROJECT CONCEPTS

This chapter identifies policies, strategies, and project concepts that can enhance the intermodal transportation system in Oklahoma, that take advantage of Oklahoma's comparative logistics advantages, and that are supportive of the state economy and opportunities for economic development.

The capital improvements, planning and operational strategies and regulatory strategies herein are described in the context of a Policy Framework, in which short term and long term actions follow from a specific policy, and each is tied to an economic development objective and an implementation strategy. A matrix of all policies and actions, economic development objectives, and implementation strategies is included at the end of this chapter. The Task 5 Report, part of the Intermodal Element Study, presents these ideas in much greater detail, including description of economic benefits associated with the various proposed measures, as well as implementation strategies.

Policies have been developed for each mode:

- highway-commercial vehicle operations
- freight rail
- waterways
- air cargo
- public transportation

The strategies, policies and projects described are intended to maximize the potential for short and long term economic growth, result in measurable results, and demonstrate to the private sector the state's commitment to partnering with the private sector in promoting economic development through strong transportation planning.

The policies, which are listed by mode in Table 6.1, are intended to be consistent with the overall ODOT policy framework, as specified in its most recent long term plan. Appendix E contains the complete policy framework in matrix format.

Table 6.1 Policies by Mode

Highway-Commercial Vehicle Operations
1. Restore Bridge Conditions to Levels that Sustain the Flow of Goods in Critical Truck Corridors 2. Upgrade Intermodal Connectors and Maximize the Efficiency of Operations on the Existing Highway System 3. Enhance Highway Access and Connectivity to Serve Key Economic Sectors/Clusters 4. Enhance Highway Access and Connectivity to Serve Existing and to Promote Development of New Intermodal and Logistics Centers
Freight Rail
1. Support the Improved Efficiency of the Freight Rail System 2. Enhance Freight Rail Service Connectivity to Serve Selected Economic Sectors/Clusters 3. Improve Connectivity to Serve Existing and to Support Development of New Multi-Modal Freight and Logistics Centers 4. Continue Cooperation and Coordination with Operating Railroads Regarding Safety at Rail-Highway Crossings 5. Evaluate the Rail Network for Potential State Acquisition of Lines Subject to Abandonment
Waterways
1. Encourage Increased Federal Funding for Waterway Facility Maintenance and Improvement to Maintain Reliability and Increase Efficiency 2. Enhance Highway and Rail Connections to Ports to Support Current and Future Demand 3. Through Selected Transportation Investments, Support Location of Industries that Can Maximize the Transportation Efficiencies of the Waterway System
Air Cargo
1. Support Potential Market Driven Expansion of Air Cargo Operations at Will Rogers World and/or Tulsa International Airport 2. Support Development of Potential New Air Cargo Hub Facilities through Selected Highway Access Improvements
Public Transportation
1. Continue to support Statewide Marketing to Maintain Heartland Flyer Ridership Increases 2. Support Selected Expansions of Amtrak Service to Support Economic Activity in Oklahoma 3. Enhance the Connectivity of Public Transportation Modes and Services 4. Support Multiple Modes of Transportation to Employment Opportunities, particularly for Transit Dependent and Zero Car Households 5. Continue to Aggressively Pursue FTA and Other Discretionary Funds for Public Transportation 6. Safeguard Existing Rural Transportation Services and Support New Services through Creative Partnerships 7. Support Improved and Additional Transit Connections among the Major Downtown Areas and to/from Important Modal Centers

6.1 Highway-Commercial Vehicle Operations

Oklahoma is considerably more truck dependent than the nation as a whole. Some 87 percent of freight tonnage carried to/from/within Oklahoma is carried by truck compared with about 70 percent nationally.

The four policies under this mode give rise to short and long term actions appropriate to: 1) restoring the bridge system in critical truck corridors to a state of adequate repair that will eliminate current impedances to goods flows, 2) making the most efficient use of the existing highway system for the movement of freight, 3) enhancing the highway system to provide access to and connectivity among important economic activity centers, and 4) enhancing highway access and connectivity to existing and potential new intermodal and logistics hubs.

HIGHWAY/COMMERCIAL VEHICLE OPERATIONS POLICY #1. RESTORE BRIDGE CONDITIONS TO LEVELS THAT SUSTAIN THE FLOW OF GOODS IN CRITICAL TRUCK CORRIDORS

Structurally deficient and functionally obsolete bridges are located throughout the state, including Interstate and other major highway corridors. Bridge deficiencies affect mobility, safety and economic development. As reported by ODOT in October 2004, there are 1,082 structurally deficient and 547 functionally obsolete bridges on the state system. There are also 151 load posted bridges on the state's US and state highways.

Where they must be closed to trucks or load posted, substandard bridges impede the flow of goods and cause circuitous truck routing with resulting economic costs. Using Oklahoma Highway Performance Monitoring System (HPMS) data, an estimate of current costs to the Oklahoma economy from detours caused by substandard bridge conditions is approximately $41 million per year – not including costs to through truck travel or safety costs. At current rates of bridge maintenance and repair, costs will continue to increase in proportion to the growth in truck traffic and further deterioration of bridge conditions – resulting in a 220 percent increase in economic costs by 2015. By 2020, the statewide economic cost of deficient and aged bridges in Oklahoma is projected to increase to $98 million per year.

The actions under this policy acknowledge that substandard conditions stem from a lack of funding and will not be ameliorated overnight, and that even with the Oklahoma Department of Transportation (ODOT) accelerated bridge replacement program, the growth in the number of aging bridges – and truck traffic – will continue to exceed financial resources. Graduated steps – focusing on the importance of goods movement to the state economy – are proposed. Dedicated funding to accelerate the bridge repair and rehabilitation program can yield substantial economic benefits to the state over time.

Capital Improvements Related to Highway/CVO Policy #1

- **Short Term Action #H1-CS-1**: Repair and upgrade obsolete and deficient bridges on critical truck corridors and connections to major multimodal freight facilities.[24]

[24] Actions and strategies have been numerically coded, and are keyed to the matrix in Appendix A. The first alphanumeric combination refers to the policy (e.g., H1 refers to Policy 1 for the Highway Sector); the second group of letters refers to type of action (Capital, Operational/Planning, Regulatory) and Long or Short Term time frame (L or S); the last number is the sequence of measures for the previous two. Thus, H1-CS-1 refers to the Highway Policy # 1, Short Term Capital Improvement # 1.

- **Long Term Action #H1-CL-1**: Repair and upgrade load posted bridges in Truck Priority Corridors and connections to major multimodal freight facilities, as part of a larger Bridge Capital Improvement Program (BCIP).
- **Long Term Action #H1-CL-2**: Implement a comprehensive Bridge Capital Improvement Program (BCIP) for Truck Priority Corridors and connections to major multimodal freight facilities.

Planning and Operational Strategies Related to Highway/CVO Policy #1

- **Short Term Strategy #H1-POS-1**: Identify Truck Priority Corridors for bridge improvements as part of a larger Bridge Capital Improvement Program (BCIP) – based on Return on Investment Criteria and jobs-based criteria.
- **Short Term Strategy #H1-POS-2**: Enhance trucker information systems for bridge conditions.

Regulatory Strategies Related to Highway/CVO Policy #1

- **Short Term Strategy #H1-RS-1**: Enhance enforcement of load posted bridges to minimize structural degradation and minimize safety concerns.

HIGHWAY/COMMERCIAL VEHICLE OPERATIONS POLICY #2. UPGRADE INTERMODAL CONNECTORS AND MAXIMIZE THE EFFICIENCY OF OPERATIONS ON THE EXISTING HIGHWAY SYSTEM

Beyond restoration of the existing bridge and highway system to a state of acceptable repair, the next priority for investments in transportation infrastructure to facilitate goods movement and economic development is to assure that the state is getting the most possible out of its existing assets. The actions under this policy urge the use of relatively lower-capital cost improvements to the existing system to maximize efficiency in system operations.

In the long term, such actions could include the widening and dedication of one or more highway lanes specifically for trucks. In its version of the pending multi-year transportation authorization bill, the US House of Representatives makes available $960 million over a six-year period for truck corridor dedicated lane construction.

Intermodal connectors are roads that provide access between major intermodal facilities and the highway system, allowing for transfer of passengers and goods between modes. Examples of intermodal connectors that are part of the designated National Highway System include the connectors to Will Rogers World Airport and Tulsa International Airport, the connector road to the Williams Pipeline truck terminal, the connector road to the Burlington Northern truck/rail facility in Oklahoma City, and the road between US 169 and the Port of Catoosa.

Capital Improvements Related to Highway/CVO Policy #2

- **Short Term Action #H2-CS-1**: Upgrade critical intermodal connectors as part of the larger highway program.
- **Long Term Action #H2-CL-1**: Continue to upgrade intermodal connectors to ports, rail intermodal facilities, air cargo facilities, and major warehousing and distribution centers.
- **Short Term Action #H2-CS-2**: Improve and develop ITS systems (including on-highway variable message signs/special radio frequencies).

- **Long Term Action #H2-CL-2**: Further improve and develop ITS systems (including on-highway VMS/special radio frequency and on-line web sites with real time information).
- **Long Term Action #H2-CL-3**: Increase selected lane widths on Truck Priority Corridors, as identified in the Statewide Freight Plan.

Planning and Operational Strategies Related to Highway/CVO Policy #2

- **Short Term Strategy #H2-POS-1**: Conduct studies of important highway freight corridors, such as I-35, US 69, I-44, US 54 and US 75, to identify improvements to facilitate goods movement.
- **Short Term Strategy #H2-POS-2**: Prepare Commercial Vehicle Operations (CVO) element within the context of a Statewide Freight Plan – plan to include identification of Truck Priority Corridors of significant value.
- **Long Term Strategy #H2-POL-1**: Implement ongoing freight planning process, including CVO element.
- **Short Term Strategy #H2-POS-3**: Identify trucking industry representatives to serve on a temporary freight advisory committee in connection with a Statewide Freight Plan.
- **Long Term Strategy #H2-POL-2**: Create on-going Oklahoma Freight Advisory Council, including trucking industry representatives.

Regulatory Strategies Related to Highway/CVO Policy #2

- **Short Term Strategy #H2-RS-1**: Continue to support the Oklahoma Corporation Commission (OCC) in implementing the "One Stop Trucking Shop" to expedite regulatory processing (e.g., licensing, registration, International Fuel Tax Agreement). As described in the Task 4 Report, a One Stop Trucking Shop is being implemented by a phased consolidation within OCC of functions formerly handled by three separate state agencies. The first phase of the consolidation was completed in July 2004, and the second phase is scheduled for July 2005.

HIGHWAY-COMMERCIAL VEHICLE OPERATIONS POLICY #3. ENHANCE HIGHWAY ACCESS AND CONNECTIVITY TO SERVE KEY ECONOMIC SECTORS/CLUSTERS

Capital Improvements Related to Highway/CVO Policy #3

- **Long Term Action #H3-CL-1:** Enhance east-west connectivity to the major I-35 corridor for areas such as Durant (e.g., I-70). Non-metallic minerals, including aggregates, crushed/broken stone, cement, sand and gravel among others, constitute the largest commodity group shipped to/from/within Oklahoma by weight – projected to grow to 83 million tons by 2020 – and the largest commodity group shipped by rail. Mining of these materials is an important economic sector in parts of south Oklahoma, in and around Ardmore and Durant.

  Long Term Action #H3-CL-2: Enhance highway connectivity serving major agricultural production areas, such as the Panhandle and Northeastern Oklahoma, on the basis of special regional studies. Agriculture has long been a pillar of the Oklahoma economy. Farm products and food/kindred products are projected to remain among the top five commodities shipped to/from/within Oklahoma during the next 15 years.

Planning and Operational Strategies Related to Highway/CVO Policy #3

- **Short Term Strategy #H3-POS-1**: Initiate special transportation-economic development studies for the Northwest and Southeast Oklahoma regions. As noted above, the Panhandle is a major center of "high tech" hog production, wheat and other grain production. Southeast Oklahoma is a center of natural gas and timber and wood products, as well as mined minerals, aggregates, cement products, etc.
- **Short Term Strategy #H3-POS-2**: Initiate special transportation-economic development studies for expanded development of the "southern tier" region as support/distribution component of bi-state economy. As of 2003, warehousing and distribution – the principal "logistics" enterprises – comprise 3 percent of the total employment base of the state.

Regulatory Strategies Related to Highway/CVO Policy #3

- **Short Term Strategy #H3-RS-1**: Streamline permitting process for transport of oversized and overweight loads. Transport of drilling equipment to the fields of western and eastern Oklahoma frequently involves oversized loads.

HIGHWAY-COMMERCIAL VEHICLE OPERATIONS POLICY # 4. ENHANCE HIGHWAY ACCESS AND CONNECTIVITY TO SERVE EXISTING AND TO PROMOTE DEVELOPMENT OF NEW INTERMODAL AND LOGISTICS CENTERS

Capital Improvements Related to Highway/CVO Policy #4

- **Long Term Action #H4-CL-1:** Improve highway capacity and connectivity to existing rail, water, and air multimodal freight facilities of significant economic value.
- **Long Term Action #H4-CL-2:** Support development of new multimodal freight rail or air cargo facilities of significant economic value with improved or new highway connections.

Planning and Operational Strategies Related to Highway/CVO Policy #4

- **Short Term Strategy #H4-POS-1**: Evaluate highway capacity and connectivity requirements for intermodal connectors of significant economic value, including geometry improvements for efficient truck operations.

6.2 Freight Rail

The freight rail policies encourage the improved efficiency of the existing freight rail system through actions over which the State of Oklahoma has jurisdiction, primarily state-owned rights-of-way and infrastructure, as well as actions that the state might take to encourage or support improvements throughout the state's rail network to serve selected economic sectors/clusters and improve connectivity to existing and potential new multimodal freight and logistics centers. In addition, the policies and proposed capital improvements and operational, planning and regulatory strategies encourage continued cooperation and coordination with the operating railroads regarding safety and rail-highway crossings, as well as a forward-thinking evaluation of the potential for state acquisition of rail lines subject to abandonment.

Rail transports major portions of several of Oklahoma's most significant commodity exports, including nearly 100 percent of broken stone, 90 percent of grain, 36 percent of petroleum refining products and 24 percent of Portland cement. Rail is also the transportation mode for nearly all of the 16 million tons of coal imported to Oklahoma to serve the state's industries. Rail freight, projected to grow by 45 percent between 1998 and 2020, had already grown by 26 percent as of 2001. Rail freight is projected to increase in value by 136 percent between 1998 and 2020.

FREIGHT RAIL POLICY #1. SUPPORT THE IMPROVED EFFICIENCY OF THE FREIGHT RAIL SYSTEM

Capital Improvements Related to Freight Rail Policy #1

- **Short Term Action #F1-CS-1:** Maintain existing State-owned railroad properties in order to maintain/increase current service levels. Oklahoma has done a good job of maintaining its rural freight rail systems, having acquired some 900 miles of track and right-of-way, mainly for short line rail services. Retention of those services has supported the continuing economic well-being of the mining, agricultural and other businesses that depend on rail service.
- **Long Term Action #F1-CL-1:** Fund upgrades to state-owned rail track and structures to allow 286,000 pound rail cars, to support mainline train traffic loads.
- **Long Term Action #F1-CL-2:** Conduct other infrastructure improvements to state-owned rail properties to increase efficiency.

Planning and Operational Strategies Related to Freight Rail Policy #1

- **Short Term Strategy #F1-POS-1**: Identify and prioritize state- owned rail track and structures most in need of upgrade to 286,000 pound rail car standard.
- **Short Term Strategy #F1-POS-2:** Update Oklahoma State Rail Plan (last updated in 1992).
- **Short Term Strategy #F1-POS-3**: Prepare rail freight element within the context of a Statewide Freight Plan (updated Oklahoma State Rail Plan placed on the same planning cycle as Statewide Freight Plan).
- **Short Term Strategy #F1-POS-4**: Identify freight rail industry and user group representatives to serve on a temporary freight advisory committee in connection with Statewide Freight Plan *(see Highway-Commercial Vehicle Operations Policy #2, Planning/Operational Long Term Strategy #2).*

- **Long Term Strategy #F1-POL-1**: Implement ongoing freight planning process, including rail freight element.
- **Long Term Strategy #F1-POL-2**: Create on-going Oklahoma Freight Advisory Council, including freight rail industry representatives and major user groups.

FREIGHT RAIL POLICY #2. ENHANCE FREIGHT RAIL SERVICE CONNECTIVITY TO SERVE SELECTED ECONOMIC SECTORS/CLUSTERS

Capital Improvements Related to Freight Rail Policy #2

- **Long Term Action #F2-CL-1:** Encourage and promote development of Transload and/or major intermodal freight rail facilities. The potential for "transload" facilities in Oklahoma should be explored with the railroads On the basis of the kinds of products and commodities produced or consumed in the state, Oklahoma is a candidate for both bulk and dimensional transload facilities.
- **Long Term Action #F2-CL-2**: Support short line railroad improvements, rehabilitations and upgrades, including selective upgrades to 286,000 pound railcar standard *(See Freight Rail Policy #1, Long Term Action #1.).*

Planning and Operational Strategies Related to Freight Rail Policy #2

- **Short Term Strategy #F2-POS-1**: Identify manufacturers, warehousing and distribution firms, and/or commercial facilities developers with potential interest in developing Transload or multimodal freight facilities – e.g., auto industry.

FREIGHT RAIL POLICY #3. IMPROVE CONNECTIVITY TO SERVE EXISTING AND TO SUPPORT DEVELOPMENT OF NEW MULTI-MODAL FREIGHT AND LOGISTICS CENTERS

Capital Improvements Related to Freight Rail Policy #3

- **Short Term Action #F3-CS-1:** Identify key rail intermodal connectors and facilitate rehabilitation and improvements as needed.
- **Long Term Action #F3-CL-1:** Encourage and promote development of Transload and/or major intermodal facilities *(See Freight Rail Policy #2, Long Term Action #1.).*
- **Long Term Action #F3-CL-2:** Preserve right-of-way for construction of sidings, yards, and connectors to multimodal freight facilities and logistics centers within the state.
- **Long Term Action #F3-CL-3:** Support short line railroad improvements, rehabilitations and upgrades, including selective upgrades to 286,000 pound railcar standard *(See Freight Rail Policy #1, Long Term Action #1.).*

Planning and Operational Strategies Related to Freight Rail Policy #3

- **Short Term Strategy #F3-POS-1**: Facilitate the development of Public/Private and Private/Private (Railroad/Shipper) Partnerships.

FREIGHT RAIL POLICY #4. CONTINUE COOPERATION AND COORDINATION WITH OPERATING RAILROADS REGARDING SAFETY AT RAIL/HIGHWAY CROSSINGS

Capital Improvements Related to Freight Rail Policy #4

- **Short Term Action #F4-CS-1:** Expend all Federal and State Highway/Railroad Grade Crossing and Protection Program funds on priority crossings.
- **Long Term Action #F4-CL-1:** Implement Railroad Grade Separation Plan/Railroad Grade Crossings Closure Plan.

Planning and Operational Strategies Related to Freight Rail Policy #4

- **Short Term Strategy #F4-POS-1**: Prioritize crossings for elimination, consolidation.
- **Long Term Strategy #F4-POL-1**: Participate with governmental and private partners on programs such as Operation Lifesaver. Operation Lifesaver is a national, non-profit education and awareness program dedicated to ending collisions, fatalities and injuries at highway-rail grade crossings and on railroad rights-of-way. To accomplish its mission, Operation Lifesaver promotes education, enforcement and engineering.
- **Short Term Strategy #F4-POS-2**: Prioritize list of grade crossings meeting warrants for grade separation.
- **Short Term Strategy #F4-POS-3**: Promote Highway/Railroad Crossing safety through ODOT educational/promotional programs.

FREIGHT RAIL POLICY #5. EVALUATE THE RAIL NETWORK FOR POTENTIAL STATE ACQUISITION OF LINES SUBJECT TO ABANDONMENT

Capital Improvements Related to Freight Rail Policy #5

- **Long Term Action #F5-CL-1:** Fund State acquisition of railroad properties to continue justifiable railroad operations.

Planning and Operational Strategies Related to Freight Rail Policy #5

- **Short Term Strategy #F5-POS-1**: Update Oklahoma State Rail Plan (last updated in 1992)
- **Short Term Strategy #F5-POS-2**: Monitor Class I Railroads' ongoing rationalization of their networks and establish criteria for possible future State acquisitions.

6.3 Waterways

Waterways policies are all focused on maximizing use of the existing McClellan-Kerr Arkansas River Navigation System (MKARNS) and its ports. The 445-mile system includes 17 locks and dams in Oklahoma and Arkansas that provide a variety of benefits including water supply, navigation, fish and wildlife conservation, recreation, and hydropower generation. Federal cost of the system was $1.2 billion, and the Corps of Engineers reports a 99 percent return on its investment.[25] Over $3.5 billion in public and private investment has occurred along the MKARNS in the two states. According to information provided by ODOT for the Arkansas River Historical Society's Tulsa port website, there are over 65 industries on the Oklahoma segment of the MKARNS, with the segment between Catoosa and Muskogee providing direct employment for over 4,000 people and indirect employment of another 6,000 jobs. The 2,000 acre Tulsa Port of Catoosa is the largest port on the MKARNS and the largest and most inland ice-free port on the entire 25,000 miles of the US inland waterway system. Major commodities shipped include chemical fertilizer, farm products, sand/gravel and rock, iron and steel, petroleum products, wheat and soybeans.

Waterways Policy #1. Encourage Increased Federal Funding for Waterway Facility Maintenance & Improvement to Maintain Reliability and Increase Efficiency

Adding "tow haulage" equipment to the locks on the system in Oklahoma would reduce locking times, provide higher throughput capacity, and lower towing costs. This involves installation of large winches and rigging to allow barge strings to be moved through the locks without the tow boat. Tow haulage equipment already has been installed on all locks in Arkansas.

Planning and Operational Strategies Related to Waterways Policy #1

- **Short Term Strategy #W1-POS-1**: Work with the Oklahoma Congressional delegation to pursue increased Federal funding.
- **Long Term Strategy #W1-POL-1**: Seek long term, multi-state agreements to pursue federal and other funding sources for facility maintenance and improvement.
- **Short Term Strategy #W1-POS-2**: Encourage multi-state planning studies to identify benefits of enhanced waterway facility maintenance and improvement, including increasing channel depths to at least 10 feet. Increasing the available draft in the waterway would allow heavier loads in each barge. The principal benefit would be to enhance the potential for container-on-barge service *(see Waterways Policy #3, Long Term Action Item #2).*

Waterways Policy #2. Enhance Highway and Rail Connections to Ports to Support Current and Future Demand

Inland waterway transportation provides competitive shipping rates, and intermodal connections for shipments help keep overall truck and rail transportation costs low, while consuming less

[25] Arkansas River Historical Society at tulsaweb.com/port

energy and producing lower pollutant emissions. One jumbo barge has the same capacity as 15 railroad cars or 58 semi-trucks.[26]

Capital Improvements Related to Waterways Policy #2

- **Long Term Action #W2-CL-1:** Implement Port/Waterway element of the Statewide Freight Plan, including highway connections to ports.
- **Long Term Action #W2-CL-2:** Implement Capital Improvement Program for highway connectors for oversized loads *(See Highway-Commercial Vehicle Operations Policy #3, Regulatory Short Term Strategy #1.).*

Planning and Operational Strategies Related to Waterways Policy #2

- **Short Term Strategy #W2-POS-1**: Prepare Port/Waterway element within the context of a Statewide Freight Plan, focusing on highway to port connectivity.
- **Long Term Strategy #W2-POL-1**: Implement ongoing freight planning process, including Port/Waterway element.
- **Short Term Strategy #W2-POS-2**: Identify private port and port user representatives to serve on a temporary freight advisory committee in connection with Statewide Freight Plan *(see Highway-Commercial Vehicle Operations Policy #2, Planning/Operational Long Term Strategy #2).*
- **Long Term Strategy #W2-POL-2**: Create on-going Oklahoma Freight Advisory Council, including port and port user representatives.
- **Short Term Strategy #W2-POS-3**: Develop Capital Improvement Program for highway connectors for oversized loads *(See Highway-Commercial Vehicle Operations Policy #3, Regulatory Short Term Strategy #1.).*

Waterways Policy #3. Through Selected Transportation Investments, Support Location of Industries that Can Maximize the Transportation Efficiencies of the Waterway System

With good intermodal connections and because of its cost, energy and air quality advantages, the waterway system offers an attractive transportation environment for new or expanding industries. The Port of Catoosa has 2,000 acres of contiguous land area, more than any other inland port.[27] Intermodal investments serving the two major public ports at Catoosa and at Muskogee, as well as improved access to the numerous private sector ports (e.g., Port 33) along the waterway system, as well as some specialized facilities (e.g., for handling scrap metal) can help to support potential growth in waterway transportation by such commodities as scrap steel, the concrete pre-casting industry (which currently has a significant presence in Tulsa), coal, steel coils, wood pulp/paper products (two paper mills are already located near the waterway), and clay and related raw minerals (a major porcelain tile manufacturing facility is under construction in Tulsa).

Capital Improvements Related to Waterways Policy #3

- **Short Term Action #W3-CS-1:** ODOT to consider transport of highway construction materials and components (e.g., cement, guard rail) via waterway, for highway work proximate to the waterway system.

[26] Arkansas River Historical Society at tulsaweb.com/port
[27] Arkansas River Historical Society at tulsaweb.com/port

- **Long Term Action #W3-CL-1:** Program and make transportation improvements in and around ports/waterway system that would encourage location of industrial or warehousing and distribution concerns.
- **Long Term Action #W3-CL-2:** Improve port roadway connections to encourage existing industries to consider shifting freight off roadways and onto waterways through facilitation of container-on-barge services.
- **Long Term Action #W3-L-3:** Assist short line railroads to maintain and improve existing connections to the Ports of Catoosa and Muskogee, to facilitate future container-on- barge service. While low valued bulk commodities will inevitably dominate the waterway system, container-on-barge (COB) service has emerged in parts of the Gulf of Mexico and within the Mississippi River system.

Planning and Operational Strategies Related to Waterways Policy #3

- **Short Term Strategy #W3-POS-1**: Identify transportation improvements in and around ports/waterway system that would encourage location of industrial or warehousing and distribution concerns.

6.4 Air Cargo

According to the FAA and large aircraft manufacturers' forecasts, the air cargo market nationally is expected to grow at approximately six percent annually for the next twenty years. Projections of freight flows to, from and within Oklahoma show that air cargo will represent an increasing share (from 5 to 7 percent) of the total value of commodities transported – an increase of 328 percent in value between 1998 and 2020. The trend toward the combined use of air and truck package delivery is expected to continue with major emphasis on deferred second-day delivery segments of the market. These trends emphasize the importance of the processing hubs being located within 400 to 500 miles from major population centers.

Major new users of air freight services include Internet-based businesses; in 2003, approximately 1.2 billion packages were shipped by "e-tailers" with overall global e-commerce approaching $7 trillion. Airport-located facilities to serve e-commerce can include special transfer facilities or warehouses to serve just-in-time supply chain products (such as refrigerated warehouses for perishable flowers), and at least one South American supplier of fresh flowers to the US market already has made Oklahoma City its US home base. Other airport-located facilities for this market might include emergency parts provision centers and reverse logistics facilities for repair and upgrade of high tech products such as computers and cell phones.

Other trends influencing the air cargo market include: a) the technology of new aircraft engines that put Oklahoma within non-stop flying distances to any place in the world and allow air cargo operators as well as the major international and domestic manufacturers of goods to by-pass the traditional east and west coast distribution centers and fly directly to regional end-user destinations, b) the capacity and land expansion limits of east and west coast cargo airports, c) new Transportation Security Agency guidelines for the 100 percent inspection of all goods shipped by air cargo aircraft that may necessitate the availability of sufficient land area to accommodate processing facilities, as well as the highway infrastructure required to maintain next-day and second-day delivery schedules, and d) noise impacts from evening and night time air cargo flights on populations within 10 miles of air cargo airports that may cause restrictions on existing airports and pursuit of new hubs with available land and mild weather removed from population centers.

Air Cargo Policy #1. Support Potential Market Driven Expansion of Air Cargo Operations at Will Rogers World and/or Tulsa International Airports

Capital Improvements Related to Air Cargo Policy #1

- **Long Term Action #A1-CL-1:** Program and implement selected highway access improvements to support development of market driven expansions of air cargo operations at Will Rogers World or Tulsa International.

Air Cargo Policy #2. Support Development of Potential New Air Cargo Hub Facilities through Selected Highway Access Improvements

Oklahoma enjoys some potential advantages for air cargo hub facilities, including its central mid-continent location; north-south and east-west Interstate Highway network; availability of land in several locations; its one-day drive time to major Midwestern, Southeastern, Southwestern and Plains states' population centers, and its mild weather. Other positive aspects for Oklahoma include low labor and other business costs, its proximity to the Dallas industrial and population base, the major Defense Department Logistics Center location, and its importance in the aircraft systems manufacturing and oil field support industries.

Potential air cargo hub initiatives to be explored could include the feasibility of a prototype air cargo security test facility, a major industrial park-air cargo facility focused on high value oil field support and/or aerospace equipment, expansion and development of Ardmore Airpark as a regional air cargo facility, potential partnerships with Mexican or Central American air cargo airlines to expand existing commercial links with the Free Trade Zones at Tulsa International or Will Rogers World airports, and a centralized defense materiel and personnel logistics center, among others.

Capital Improvements Related to Air Cargo Policy #2

- **Long Term Action #A2-CL-1:** Program and implement selected highway access improvements to support development of potential new or expanded air cargo hub facilities.

Planning and Operational Strategies Related to Air Cargo Policy #2

- **Short Term Strategy #A2-POS-1**: Prepare Air Cargo element within the context of development of Statewide Freight Plan, focusing on highway to air terminal connectivity and identification of potential new air cargo hub facility locations.
- **Short Term Strategy #A2-POS-2**: Identify air cargo suppliers and users to serve on a temporary freight advisory committee in connection with the Statewide Freight Plan *(see Highway-Commercial Vehicle Operations Policy #2, Planning/Operational Long Term Strategy #2)* Include military representatives (e.g., from Tinker, Altus, Ft. Stills).
- **Long Term Strategy #A2-POL-1**: Implement ongoing freight planning process, including air cargo access element.
- **Long Term Strategy #A2-POL-2**: Create an on-going Oklahoma Freight Advisory Council, including air cargo suppliers and users' representatives, and military representatives.

6.5 Public Transportation

Public Transportation Policy #1. Continue to Support Statewide Marketing to Maintain Heartland Flyer Ridership Increases

Planning and Operational Strategies Related to Public Transportation Policy #1

- **Short Term Strategy #P1-S-1**: Expand ongoing marketing/awareness campaign working with Amtrak and state tourism officials.
- **Long Term Strategy #P1-L-1**: Continue to expand ongoing marketing/awareness campaign working with Amtrak and state tourism officials.
- **Short Term Strategy #P1-S-2**: Survey current ridership every 2-3 years to create demographic and trip purpose profiles. A ridership profile and understanding of why people currently use the service establishes a base for targeted marketing efforts that can increase the existing ridership pool.
- **Long Term Strategy #P1-L-2**: Continue to survey current ridership every 2-3 years to create demographic and trip purpose profiles.
- **Short Term Strategy #P1-S-3**: Coordinate and fund marketing/survey efforts with Amtrak and the State of Texas.
- **Short Term Strategy #P1-S-4**: Obtain an agreement with BNSF for increased priority operation for Amtrak.

Public Transportation Policy #2. Encourage Selected Expansions of Amtrak Service to Support Economic Activity in Oklahoma

Capital Improvements Related to Public Transportation Policy #2

- **Short Term Action #P2-CS-1:** Add an additional north-south train per day.
- **Short Term Action #P2-CS-2:** Add a stop serving the Winstar Casino south of Marietta..
- **Long Term Action #P2-CL-1:** Extend Heartland Flyer service north to Newton, Kansas.
- **Long Term Action #P2-CL-2:** Add a Heartland Flyer branch to Tulsa.
- **Long Term Action #P2-CL-3:** Provide a separate single track for the Heartland Flyer through Oklahoma.

Planning and Operational Strategies Related to Public Transportation Policy #2

Short Term Strategy #P2-POS-1: Update the needs assessment for intercity rail for Oklahoma.

Public Transportation Policy #3. Enhance the Connectivity of Public Transportation Modes and Services

Capital Improvements Related to Public Transportation Policy #3

- **Short Term Action #P3-CS-1:** Interconnect rural transit systems with intercity bus stops/terminals and Heartland Flyer stops.
- **Long Term Action #P3-CL-1:** Continue to interconnect rural transit systems with intercity bus stops/terminals and Heartland Flyer stops.

- **Short Term Action #P3-CS-2:** Coordinate with urban public transit systems to define and implement formal park and ride lot locations adjacent to ODOT right-of-way where ridership warrants.
- **Long Term Action #P3-CL-2:** Continue to coordinate with urban public transit systems to define and implement formal park and ride lot locations adjacent to ODOT right-of-way where ridership warrants.

Public Transportation Policy #4. Support Multiple Modes of Transportation to Employment Opportunities, particularly for Transit Dependent and Zero Car Households

Capital Improvements Related to Public Transportation Policy #4

- **Long Term Action #P4-CL-1:** Coordinate with ODOC, transit providers and the private sector to provide new transit service or enhancement of existing service to employers of 1,000 or more where warranted.

Planning and Operational Strategies Related to Public Transportation Policy #4

- **Short Term Strategy #P4-POS-1**: Support Access to Job initiatives proposed by urban transit providers.
- **Planning/Operational Short Term Strategy #P4-POS-2**: Coordinate with ODOC and transit providers to identify transportation needs for employers of 1,000 or more (at a single location).

Public Transportation Policy #5. Continue to Aggressively Pursue FTA and Other Discretionary Funds for Public Transportation

Capital Improvements Related to Public Transportation Policy #5

- **Short Term Action #P5-CS-1:** Prepare a statewide program of FTA-eligible capital projects and operational needs every 3-5 years.
- **Long Term Action #P5-CL-1:** Continue to prepare a statewide program of FTA-eligible capital projects and operational needs every 3-5 years.
- **Short Term Action #P5-CS-2:** Identify non-federal match for FTA eligible projects.
- **Long Term Action #P5-CL-2:** Continue to identify non-federal match for FTA eligible projects.
- **Short Term Action #P5-CS-3:** Identify other federal agency transportation funding sources, and program projects accordingly.
- **Long Term Action #P5-L-3:** Continue to identify other federal agency transportation funding sources, and program projects accordingly.

Planning and Operational Strategies Related to Public Transportation Policy #5

- **Short Term Strategy #P5-POS-1**: Encourage continued cooperation among ODOT and the urban transit systems and appear as one voice to the Oklahoma legislative delegation on all FTA funding requests.

Public Transportation Policy #6. Safeguard Existing Rural Transportation Services and Support New Services through Creative Partnerships

Oklahoma's rural transit program has been well conceived, but services are constrained by lack of funds.

Capital Improvements Related to Public Transportation Policy #6

- **Long Term Action #P6-CL-1:** Implement additional services as funds become available.

Planning and Operational Strategies Related to Public Transportation Policy #6

- **Short Term Strategy #P6-POS-1**: With the existing rural systems as a benchmark, establish other opportunities statewide for future consideration.
- **Short Term Strategy #P6-POS-2**: Investigate potential for agreements between ODOT and other social service providers plus large employers.

Public Transportation Policy #7. Support Improved and Additional Transit Connections Among the Major Downtown Areas And to/from Important Modal Centers

The Oklahoma City and Tulsa metropolitan areas are the major economic engines of the state economy. Together, they comprise about 63 percent of all employment in the state. The vitality of the commercial centers of these cities is intrinsic to the economic health of the metropolitan areas and to their attractiveness as a place to live and conduct business. A component of maintaining the vitality of the downtown areas is the provision of safe and convenient access by a variety of transportation modes to and from all parts of the metropolitan area, and to and from the airports and other modal and activity centers, for residents, employees, visitors and shoppers.

Capital Improvements Related to Public Transportation Policy #7

- **Short Term Action #P7-CS-1:** Support COTPA efforts to provide direct bus service from downtown to Will Rogers World Airport.
- **Short Term Action #P7-CS-2:** Support increasing schedule coordination between the Oklahoma CBD transit center, the Amtrak station and intercity bus service.
- **Short Term Action #P7-CS-3:** Continue examination of intercity rail between Oklahoma City and Tulsa.
- **Short Term Action #P7-CS-4:** Continue to support development of the Oklahoma portion of the designated high speed rail corridor. The South Central High Speed Rail Corridor would extend from Tulsa south to Oklahoma City, Dallas-Fort Worth, Austin and San Antonio, with a branch from Little Rock through Texarkana to Dallas.

Appendix A

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Appendix B

Survey Methodology

SURVEY METHODOLOGY

The survey reported on here for the Intermodal Study was designed with the assistance of the Oklahoma State University's Bureau for Social Research. The Bureau for Social Research has many years of experience in the administration of statistically valid surveys in Oklahoma, including small survey research.

Sample Design/Selection

A stratified sampling approach was selected as most likely to yield representative results. Under the scope of services for the Intermodal Element Study, the overall survey size was specified to be approximately 200 recipients.

A stratified sample is one in which randomized selection is made within subgroups considered to reflect the overall composition of the "population"[28] of interest. Stratified sampling assures that the overall sample will represent all important subgroups, even if those groups are relatively small within the population. The following strata comprised the overall sampling frame. The numbers in parenthesis represent the total number of each type within the overall sample of 200.

- Local elected officials, including tribal representatives (70)
- Local economic development authority officials (20)
- Local chambers of commerce (10)
- General aviation airports (8)
- Rural transit systems (27)

Randomized sample selection was conducted within these strata.

In addition to these randomly drawn strata, a number of additional categories or groupings were surveyed on a non-randomized basis. That is, some public and private organizations were regarded as having such a significant role in the intermodal transportation system in Oklahoma that they were added to the sample, without randomized selection. These groups included Oklahoma representatives of the following categories:

- trade associations (11)
- individual freight using firms (16)
- intercity transportation providers (3)
- major metro transit systems (3 - OKC, Tulsa, Lawton)
- freight railroads (6)
- trucking, third party logistics (3PL), freight forwarding firms (8)
- air cargo firms (4)
- public ports (2)
- private ports (1)
- major commercial airports (2 - Will Rogers, Tulsa)
- major port users (2)
- major air cargo users (2)

[28] In statistical language, population refers to any target grouping that is to be survey sampled. It does not necessarily refer to population in the sense in which it is used by demographers.

- major rail freight users (3)
- military installation (2)

The complete list of survey recipients is provided in Appendix C which follows.

Questionnaire Design and Content

The survey questionnaires were carefully designed to yield results of interest to the study, while yielding an acceptable response rate. It was felt that a tradeoff between response rate and depth of information would best suit the needs of the study. Accordingly, a series of quantitative (e.g., ranking) and qualitative, or open ended questions, were included in the survey. The latter required the recipient to spend some time thinking about transportation system problems and opportunities in greater depth than would normally be the case with more standard ordinal multiple choice ranking questions.

Two slightly different surveys were developed and sent, depending on the characteristics of the survey recipient. For private sector freight transport providers and users, such as United Parcel, Boeing, the Class I Railroads, specific questions were asked about the potential for Intermodal Logistics Hub development in Oklahoma in the context of their enterprise's business plans.

The following topics were covered in the survey:

- Overview of the Transportation System in Oklahoma
- Transportation System Strengths and Weaknesses
- Goods Movement
- Transportation and the Economy
- Intermodal Logistics Hub Opportunities (selected survey recipients)

Overall, the first version of the survey comprised 23 questions; the second version had 30 questions.

The survey questionnaires are also included in Appendix C.

Stakeholder Interviews

To supplement and follow up on the mailed surveys, more focused person to person interviews were conducted with a target group of some 30 persons. These interviews provided key stakeholders with the opportunity to explore intermodal transportation strengths, weakness, and opportunities in greater depth. Interviews tended to focus on the non-randomized group of survey recipients. Several interviews were also held with persons not included in the mailed survey. Interviews were sought with 30 persons; in total, 24 interviews were held.

Appendix C

List of Survey Recipients & Survey Questionnaires

List of Survey Recipients

NON-RANDOMIZED SELECTION OF RECIPIENTS THAT MUST BE SURVEYED OR INTERVIEWED				September 16, 2004	
ID	RECIPIENT	CONTACT	ADDRESS	PHONE	OTHER
PUBLIC PORTS/WATERWAY					
V1-NRS-01	Tulsa Port of Catoosa	Craig Tomlinson	5350 Cimarron Rd. Catoosa, OK 74015	918-266-2291	
V1-NRS-02	Port of Muskogee	Scott Robinson	4901 Harold Scoggins Drive Muskogee, OK 74403	918-682-7886	
V1-NRS-03	Army Corp of Engineers, Tulsa District	John Sparlin	1645 South 101st East Ave. Tulsa, OK 74128	918-669-7366	
FREIGHT RAILROADS					
Class I					
V2-NRS-04	RailAmerica/Kansas City Southern	Thomas Owen	53001 Broken Sound Blvd NW Boca Raton, FL 33487	1800-211-7245	
V2-NRS-05	BNSF	Van Cunningham	2650 Lou Menk Drive, 2nd Floor Fort Worth, TX 76131	817-867-6336	817-352-0376 fax
V2-NRS-06	UP	Steven McLaws	1400 Douglas Street, Mailstop 1370 Omaha, Nebraska 68179	402-544-4215	402-233-2550 fax
Short Line					
V2-NRS-07	South Kansas and Oklahoma Railroad	Steve Tucker	401 W. 2nd Ave, Owasso, OK 74055	918-272-1744	
	Port of Catoosa RR	Alan Vierthaler	5350 Cimarron Rd. Catoosa, OK 74015	918-226-2291	
	Arkansas & Oklahoma	Heather Williams	200 N. Aydelotte Ave. Shawnee, OK 74801	405-275-8663	
V2-NRS-08	Grainbelt Corp.	Rodney Roof	P.O. Box 1750 Clinton, OK 73601	580-323-4567	
V2-NRS-09	Kiamichi RR Co.	Mitch Becker	128 S. 5th Street Durant, OK 74701	580-326-8357	
MAJOR AIRPORT AUTHORITIES					
V1-NRS-10	OKC - Will Rogers International	Luther Trent	7100 Terminal Drive, Box 937 Oklahoma City, OK 73159	405-680-3200	
V1-NRS-11	Tulsa Int'l Airport	Mary Smith	7777 E. Apache Tulsa #217a, OK 74115	918-838-5000	
INTERCITY PASSENGER PROVIDERS					
V1-NRS-12 B	Amtrak	Ray Lang	525 West Van Buren, Suite 200 Chicago, IL 60607	312-880-5233	312-880-5167 fax
V1-NRS-13 B	Greyhound	Michael Ake	205 South Lamar Dallas, Tx 75202	214-655-7909	214-741-9074 fax
V1-NRS-14 B	Jefferson Lines	Bonnie Buchanan	2100 E 26th Street Minneapolis, MN 55404	612-359-3476	612-359-3437 fax bbuchanan@jeffersonlines.com
MAJOR PUBLIC TRANSIT SYSTEMS					
V1-NRS-15	Metro Transit (Central Oklahoma Transportation and Parking Authority, COTPA)	Randy Hume	300 Southwest 7th St. Oklahoma City, OK 73102	405-297-0236	
V1-NRS-16	Tulsa Transit (Metropolitan Tulsa Transit Authority, MTTA)	Bill Cartwright	PO Box 52488 Tulsa, OK 74152	918-585-1195	
V1-NRS-17	LATS (Lawton Area Transit System)	Steve Sherrer	PO Box 286 Lawton, OK 74103	580-248-5252	

List of Survey Recipients

NON-RANDOMIZED SELECTION OF RECIPIENTS THAT MUST BE SURVEYED OR INTERVIEWED					September 16, 2004
ID		CONTACT	ADRESS	PHONE	OTHER
MAJOR AIR CARGO COMPANIES					
V2-NRS-18	Fed Ex	Ratan Bhagat	3610 Hacks Cross Road - FedEx 7001 Memphis, TN 38125	901-434-7640	Federal Express Global Strategic Planning - Managing Director
V2-NRS-19	DHL	Herb Parr	1200 South Pine Island Rd, Suite 600 Plantation , FL 33324	954-423-3867	as per Jonathan Baker
	Airborne	merged with DHL			
	Emery	Perry Mason	1555 W. 23rd Dallas, Tx 75261	972-465-5590	
V2-NRS-20	United Parcel	Jim Coughlan	4240 International Parkway, Suite 180 Carrollton, TX 75007	972-360-2340	972-360-2493 fax
V2-NRS-21	Martinaire	Ellen Scott	4745 Frank Luke Dr. Addison, TX 75001	972-349-5700	
MAJOR PORT USERS IN OKLAHOMA					
	W. B. Johnston Grain Co. (already included)	Lew Meibergen	3225 E. Willow Enid, OK 73701	580-249-5380	
	Consolidated Grain and Barge	Jeff Baumgart	2600 Port Place Dr. Muskogee, OK 74403	800-625-4438	
V2-NRS-22	Terra Nitrogen	Richard Sanders	6606 E. 540 Rd., Claremoore, OK 74017	918-266-1511	
	LMI Finishing, Inc.	Jim Crist	5350 N. Skiatook, Catoosa, OK 74015	918-379-0899	
V2-NRS-23	Summit Industries	Mike Wish	5702 E. Channel Rd., Catoosa, OK 74015	918-266-1882	
	Metals, USA	James Pruitt	2800 N. 43rd St. East, Muskogee, OK 74403	918-682-7833	
MAJOR AIR CARGO USERS (other than air cargo companies such as Fed X)					
	Foreign Trade Zone 106 (Will Rogers)	Luther Trent	7100 Terminal Drive, Box 937 Oklahoma City, OK 73159	405-680-3200	
V2-NRS-24	Ted Davis Manufacturing, Inc.	Ted Davis	6003 Northwest 5th St. Oklahoma City, OK 73127	405-789-0670	
V2-NRS-25	Boeing	Steve Hendrickson	PO Box 582808 Tulsa, OK 74158-2808	918-832-3352	918-832-2266 fax Director of Strategic Planning & Communication
MAJOR RAIL FREIGHT USERS					
V2-NRS-26	W.B. Johnston Grain Co.	Lew Meibergen	3225 E. Willow Enid, OK 73701	580-249-5380	
V2-NRS-27	Georgia Pacific	Christian Fischer	133 Peachtree St, NE Atlanta, GA 30303	404-652-4000	
V2-NRS-28	Weyerhauser	Dwayne Bell	7101 S Sooner Rd Oklahoma City, Oklahoma 73135	405-671-3540	
OTHER MAJOR FREIGHT USING CORPS.IN OK					
V2-NRS-29	Wal Mart	M. Susan Chambers	702 Northwest 8th St Bentonville, Arkansas 72712	479-273-4000	
V2-NRS-30	Oklahoma Gas and Electric	Richard Clements	PO Box 321 Oklahoma City, OK 73101	405-553-3000	
V2-NRS-31	Seaboard Farms	Gary Reckrodt	PO Box 29135 Shawnee Mission, KS 66201	913-261-2665	
V2-NRS-32	General Motors	Larry Hice	130 E Carpenter Freeway, Suite 200 Irving, TX 75062	972-541-6100	
V2-NRS-33	ConocoPhillips	Pamela McGinnis	600 N Dairy Ashford Houston, TX 77079	281-293-3373	Pamela's Assistant: Phyllis New 281-293-3626
V2-NRS-34	Fleming	JR Campbell	5701 North Shartel Oklahoma City, OK 73118	608-779-3808	
V2-NRS-35	Big Lots	Bill Scribner	2306 Enterprise Drive Durant, OK 74701	877-233-0400	580-931-2193 fax
V2-NRS-36	Cardinal Glass	Rich Valtierra	515 Cardinal Parkway Durant, OK 74701	580-924-2142	
V2-NRS-37	Home Depot	Dan Lett	501 Henrietta Creek Rd Roanoke, Tx 76262	682-831-0961 xt 402	
V2-NRS-38	Albertsons	Bart Bohlen	1939 Memorial Dr. Tulsa, OK 74112	918-384-6500	
V2-NRS-39	Tyson Food	Archie Schaffer	PO Box 2020 Springdale, AR 72765	479-290-4000	
V2-NRS-40	American Airlines Maintenance and Engineering Center	Carmine Romano	3500 N. Mingo Rd. Tulsa, OK 74116	918-292-2110	
V2-NRS-41	Goodyear	Phil Brown	1 Southwest Goodyear Blvd Lawton, OK 73505	580-536-5827	
V2-NRS-42	Whirlpool	David Swift	200 North M-63 Benton Harbor, MI 49022	269-923-5000	
V2-NRS-43	American Transportation	Ed Hartung	2322 N. Mingo Rd. Tulsa, OK 74116	918-833-4000	
V2-NRS-44	Black and Decker (Kwikset)	Edward Scanlon	701 East Joppa Road Townson, MD 21286	410-716-3900	

List of Survey Recipients

NON-RANDOMIZED SELECTION OF RECIPIENTS THAT MUST BE SURVEYED OR INTERVIEWED					September 16, 2004
ID	**RECIPIENT**	**CONTACT**	**ADDRESS**	**PHONE**	OTHER
PRIVATELY OWNED-OPERATED PORTS					
	Johnston's Port 33	Steve Taylor	PO Box 219, Inola, OK 74036	918-266-1490	
V2-NRS-45	Consolidated Grain and Barge	Jeff Baumgart	2600 Port Place Dr. Muskogee, OK 74403	800-625-4438	
BARGE OPERATORS/BROKERS					
V2-NRS-46	Johnston Barge Freight Sales	Steve Taylor	PO Box 219, Inola, OK 74036	918-266-1490	
Trucking, Logistics Freight Forwarders, 3PLs					
V2-NRS-47	Arrow Trucking	Doug Pielsticker	4230 South Elwood Ave. Tulsa, OK 74107	918-446-1441	
V2-NRS-48	D & M Distribution	Ireeta Dallas	PO Box 271150 Oklahoma City, OK 73137	405-745-2142	
V2-NRS-49	Freymiller, Inc. (refrigerated trucking/TL/logistics)	David Freymiller	8125 Southwest 15th St. Oklahoma, City, OK 73128	405-491-2800	
V2-NRS-50	Groendyke Transport, Inc	John Groendyke	810 N. 54th St. Enid, OK 73701	580-234-5765	
V2-NRS-51	JB Hunt	Kirk Thompson	PO Box 130 Lowell, AR 72745	800-643-3622	
V2-NRS-52	Staubach (logistics)	Tom McCarthy	15601 Dallas Parkway Dallas, TX 75201	972-361-5000	
V2-NRS-53	Sitton Motor Lines	Dick Sitton	3210 Enterprise Dr. Durant, OK 74701	580-931-9861	
V2-NRS-54	Total Logistics Control	Robert Koerner	700 N Water, Suite 1200 Milwaukee, WI 53202	414-291-9000	
Trade/Industry/Other Associations					
V1-NRS-55	The State Chamber (of Commerce) (must include)	Richard Rush	330 NE 10th Ave Oklahoma City, OK 73104	405-235-3669	
V1-NRS-56	Oklahoma Industries Authority	Paul Strasbaugh	123 Park Ave. Oklahoma City, OK 73102	405-232-9931	
	Oklahoma Municipal League	Danny George	201 NE 23rd St. Oklahoma City, OK 73105	405-528-7515	
	Oklahoma Railway Association	John Kyle	5101 N. Classen Blvd Suite 503 Oklahoma City, OK 73118	405-521-4203	
	Oklahoma Good Roads & Transportation Assoc.	Stephen Lalli	1140 NW 63rd St. Suite 100 Oklahoma City, OK 73116	405-848-8989	
	Francis Tuttle Technology Center	Peggy Geib	12777 North Rockwell Ave. Oklahoma City, OK 73142	405-717-4740	
	Great Plains Technology Center	Keith Bridges	4500 SW Lee Blvd Lawton, OK 73505	580-255-5550	
	Meridian Technology Center	Kay Wade	1312 South Sangre Rd Stillwater, OK 74074	405-377-3333	
V1-NRS-57	Mid-America Industrial Park	Sanders Mitchell	PO Box 945 Pryor Creek, OK 74362	918-825-1000	
V1-NRS-58	Moore-Norman Technology Center	Karla Marshall	4701 12th Ave NW Norman, OK 73069	405-364-5763	
	Oklahoma Association of Electric Cooperatives	Larry Watkins	PO Box 54309 Oklahoma City, OK 73154	405-478-1455	
V1-NRS-59	i2E	Greg Main	840 Research Parkway, Suite 250, Oklahoma City, OK 73104	405-235-2305	
V1-NRS-60	University of Oklahoma - Ctr. For Bus. & Econ. Dev	R. Clint Miner	1610 Asp Ave Suite 600 Norman, OK 73072	405-325-2121	
V1-NRS-61	Oklahoma Economic Development Council	Dana Fowble	330 NE 10th St. Oklahoma City, OK 73104	405-235-3669	
V1-NRS-62	Oklahoma Trucking Association (must include)	Dan Case	7201 N. Classen Blvd, Suite 106 Oklahoma City, OK 73116	405-843-9488	
V1-NRS-63 B	Oklahoma Passenger Rail Association	Roger Carter	1120 South 21st Street Chickasha, OK 73018	405-224-7423	
	Passenger Rail Oklahoma (PRO)	Evan Stair	2901 Fox Ledge Drive Stillwater, OK 73074	580-242-7245	
V1-NRS-64	Sierra Club - Oklahoma Chapter	Tom Libby	PO Box 60644 Oklahoma City, OK 73146	405-366-5694	
	Inter Tribal Environmental Council	Nancy John	21 Eight Tribes Trail Miami, OK 74354	918-540-2508	
V1-NRS-65	Waterways Advisory Board	Ted Coombes	1 West 3rd Street, Western Tower 1 Tulsa, OK 74103	918-595-6600	C/O: Southwestern Power Resources Association
Military Installations - Logistics					
V2-NRS-66	Tinker AFB	C. Jean Baxter	7701 Arnold St. Bldg 1, Suite 112 Tinker AFB, OK 73145	405-739-7969	
V2-NRS-67	Vance AFB	Col. Michael Callan	71st Flying Training Wing Enid OK 73705	580-213-5000	

Local Government Officials (September 16, 2004):

Survey Id #:	Business:	Contact:	Address:	City:	State:	Zip:	Phone:
V1-ELO-01	City of Guymon	Jess Nelson	219 NW 4th	Guymon	OK	73942	580-338-0137
V1-ELO-02	City of Woodward	Steve Bogdahn	1219 8th St	Woodward	OK	73801	580-256-2280
V1-ELO-03	City of Miami	Brent Brassfield	PO Box 1288	Miami	OK	74354	918-542-6685
V1-ELO-04	City of Durant	Jerry Tomlinson	PO Box 578	Durant	OK	74701	580-924-7222
V1-ELO-05	City of Tahlequah	Ken Purdy	111 S Cherokee	Tahlequah	OK	74464	918-456-0651
V1-ELO-06	City of Ada	Darryl Nemecek	231 S Townsend	Ada	OK	74820	580-436-6300
V1-ELO-07	City of McAlester	Dale Covington	PO Box 578	McAlester	OK	74501	918-423-9300
V1-ELO-08	City of Altus	TL Gramling	300 E Commerce	Altus	OK	73521	580-481-2202
V1-ELO-09	City of Duncan	Al Hinshaw	720 W Willow	Duncan	OK	73533	580-252-0250
V1-ELO-10	City of Ardmore	Sheryl Ellis	PO Box 249	Ardmore	OK	73402	580-223-3425
V1-ELO-11	City of Ponca City	Richard Stone	516 E Grand	Ponca City	OK	74601	580-767-0339
V1-ELO-12	City of Shawnee	Chuck Mills	16 W 9th St	Shawnee	OK	74801	405-273-1250
V1-ELO-13	City of Bartlesville	Ted Lockin	401 S Johnstone	Bartlesville	OK	74003	918-338-4282
V1-ELO-14	City of Muskogee	Hershel McBride	PO Box 1927	Muskogee	OK	74401	918-684-6210
V1-ELO-15	City of Stillwater	Bud Lacy	PO Box 1449	Stillwater	OK	74076	405-372-0025
V1-ELO-16	City of Enid	Ernie Currier	401 W Owen K Garriott	Enid	OK	73701	580-234-0400
V1-ELO-17	City of Lawton	John Purcell	103 SW 4th	Lawton	OK	73501	580-581-3301
V1-ELO-18	City of Tulsa	Bill LaFortune	200 Civic Center, 11th Floor	Tulsa	OK	74103	918-596-2100
V1-ELO-19	City of Oklahoma City	Mick Cornett	200 N Walker Ave, Suite 302	Oklahoma City	OK	73102	405-297-2424
V1-ELO-20	City of Yukon	John Albers	PO Box 850500	Yukon	OK	73099	405-354-1895
V1-ELO-21	City of Owasso	Susan Kimball	PO Box 180	Owasso	OK	74055	918-376-1500
V1-ELO-22	City of Del City	Brian Linley	4517 SE 29th	Del City	OK	73115	405-671-2800
V1-ELO-23	City of Moore	Glen Lewis	301 N Broadway	Moore	OK	73160	405-793-5000
V1-ELO-24	City of Midwest City	Eddie Reed	PO Box 10570	Midwest City	OK	73140	405-739-1209
V1-ELO-25	City of Edmond	Saundra Naifeh	100 E 1st St	Edmond	OK	73083	405-348-8830
V1-ELO-26	City of Broken Arrow	Richard Carter	PO Box 610	Broken Arrow	OK	74013	918-259-8419
V1-ELO-27	City of Norman	Harold Haralson	201 W Gray	Norman	OK	73069	405-366-5406
V1-ELO-28	City of Bethany	JD Johnston	6700 NW 36th	Bethany	OK	73008	405-789-5004
V1-ELO-29	City of Choctaw	Don Griffin	PO Box 567	Choctaw	OK	73020	405-390-8199
V1-ELO-30	City of Claremore	James Cochran	104 S Muskogee	Claremore	OK	74017	918-341-8842
V1-ELO-31	City of Jenks	Vic Vreeland	PO Box 2007	Jenks	OK	74037	918-299-5883
V1-ELO-32	City of Mustang	Chad McDowell	224 W State Highway 152	Mustang	OK	73064	405-376-4521
V1-ELO-33	City of Arkoma	John Scott	1103 Main	Arkoma	OK	74901	918-875-3228
V1-ELO-34	City of Boley	Joan Mathews	PO Box 158	Boley	OK	74829	918-667-9790
V1-ELO-35	City of Goldsby	Glen Berglan	100 E Center Rd	Goldsby	OK	73093	405-288-6675
V1-ELO-36	City of Hartshorne	Carolyn Trueblood	1101 Pennsylvania	Hartshorne	OK	74547	918-297-2544
V1-ELO-37	City of Medford	Don Bowman	615 North Front	Medford	OK	73759	580-395-2823
V1-ELO-38	City of Nichols Hills	Stewart Meyers	6407 Avondale Dr	Nichols Hills	OK	73116	405-843-3358
V1-ELO-39	City of Pawhuska	Mark Buchanan	118 W Main	Pawhuska	OK	74056	918-287-3040
V1-ELO-40	City of Pocola	Donna Williams	PO Box 397	Pocola	OK	74902	918-436-2388
V1-ELO-41	City of Poteau	Jeff Shockley	111 Peters St	Poteau	OK	74953	918-647-4191

V1-ELO-42	City of Tecumseh	Greg Wilson	114 N Broadway	Tecumseh	OK	74873	405-598-2188
V1-ELO-43	Atoka County	LaVaughn Henson	200 E Court, Suite 201	Atoka	OK	74525	580-889-2643
V1-ELO-44	Beaver County	Darrold Strong	PO Box 338	Beaver	OK	73932	580-625-3418
V1-ELO-45	Cotton County	Bill Bates	301 N Broadway	Walters	OK	73572	580-875-3026
V1-ELO-46	Custer County	JM Kelley	PO Box 300	Arapaho	OK	73620	580-323-4420
V1-ELO-47	Harper County	David Weaver	PO Box 369	Buffalo	OK	73834	580-735-2012
V1-ELO-48	Haskell County	Sam Cole	202 E Main	Stigler	OK	74462	918-967-4352
V1-ELO-49	Hughes County	Jerry Martin	200 N Broadway, Suite 7	Holdenville	OK	74848	405-379-2746
V1-ELO-50	Kiowa County	Robert Boelte	PO Box 653	Hobart	OK	73651	580-726-3377
V1-ELO-51	Mayes County	Jim Montgomery	1 Court Place, Suite 140	Pryor	OK	74361	918-825-0639
V1-ELO-52	Murray County	Jim Britt	PO Box 240	Sulphur	OK	73086	580-622-3777
V1-ELO-53	Woods County	Clint Strawn	PO Box 386	Alva	OK	73717	580-327-0998
V1-ELO-54	Canadian County	Phil Carson	201 N Choctaw	El Reno	OK	73036	405-262-1070
V1-ELO-55	Cherokee County	Mike Ballard	213 W Delaware, Room 202	Tahlequah	OK	74464	918-456-4121
V1-ELO-56	Cleveland County	Bill Graves	605 E Robinson	Norman	OK	73071	405-366-0200
V1-ELO-57	Jackson County	Ricky Crouch	101 N Main	Altus	OK	73521	580-482-4420
V1-ELO-58	Lincoln County	Riley Miller	811 Manvel Ave, Suite 4	Chandler	OK	74834	405-258-0080
V1-ELO-59	Logan County	Leon Vadder	312 E Harrison, Suite 101	Guthrie	OK	73044	405-282-2124
V1-ELO-60	McClain County	Loyd Tucker	PO Box 629	Purcell	OK	73080	405-527-3117
V1-ELO-61	Osage County	Scott Hilton	PO Box 87	Pawhuska	OK	74056	918-287-2615
V1-ELO-62	Pittsburg County	Gene Rogers	115 E Carl Albert Parkway	McAlester	OK	74501	918-423-1338
V1-ELO-63	Washington County	Gary Deckard	400 S Johnstone, Room 201	Bartlesville	OK	74003	918-337-2820
V1-ELO-64	Caddo Tribe	LaRue Parker	PO Box 487	Binger	OK	73009	405-656-2344
V1-ELO-65	Cherokee Nation	Chad Smith	PO Box 948	Tahlequah	OK	74465	918-456-0671
V1-ELO-66	Chickasaw Nation	Bill Anoatubby	PO Box 1548	Ada	OK	74821	580-436-7280
V1-ELO-67	Kaw Nation of Oklahoma	Guy Munroe	PO Box 50	Kaw City	OK	74641	580-269-2552
V1-ELO-68	Pawnee Nation of Oklahoma	George E. Howell	PO Box 470	Pawnee	OK	74058	918-762-3621
V1-ELO-69	Association of Central Oklahoma Governments	Zach Taylor	21 E Main, Suite 100	Oklahoma City	OK	73104	405-234-2264
V1-ELO-70	Oklahoma Economic Development Authority	Mike Bostic	PO Box 668	Beaver	OK	73932	580-625-4531

Local Economic Development Officials (September 16, 2004):

Survey Id #:	Business	Contact	Address	City	State	Zip	Phone
V1-EDO-01	Kiamichi Economic Development District	Chester Dennis	PO Box 638	Wilburton	OK	74578	918-465-2367
V1-EDO-02	Sayre Industrial Authority	Jack McKennon	102 W Main	Sayre	OK	73662	580-928-2260
V1-EDO-03	Idabel Industrial Development Authority	Dr. Walter Frey	7 SW Texas	Idabel	OK	74745	580-286-3305
V1-EDO-04	Blackwell Industrial Authority	Shane Frye	PO Box 150	Blackwell	OK	74631	580-363-2934
V1-EDO-05	Cushing Economic Development Council	Robert Felts	1301 E Main	Cushing	OK	74023	918-225-1875
V1-EDO-06	Panhandle Regional Economic Development Coalition, Inc.	Betty Mosburg	Rt. 5, Box 120	Guymon	OK	73942	580-338-8500
V1-EDO-07	Woodward Industrial Foundation	LaVern Phillips	PO Box 1026	Woodward	OK	73802	580-254-5616

V1-EDO-08	Okmulgee Area Development Corporation	Dale Young	112 N Morton Ave	Okmulgee	OK	74447	918-756-6172
V1-EDO-09	Miami Area Economic Development Service	Judee Snoderly	2 N Main, Suite 601	Miami	OK	74354	918-542-8405
V1-EDO-10	Durant Economic Development Council	Tommy Kramer	215 N 4th	Durant	OK	74701	580-924-4570
V1-EDO-11	Tri-County Indian Nations Community Dev. Corp.	Dr. Joe Braly	PO Box 1524	Ada	OK	74821	580-310-9715
V1-EDO-12	Chickasha Economic Development	Marilyn Feaver	PO Box 1717	Chickasha	OK	73023	405-224-0937
V1-EDO-13	Claremore Industrial & Economic Development Authority	Michael Strotheide	PO Box 984	Claremore	OK	74018	918-341-4755
V1-EDO-14	Duncan Area Economic Development Found.	Wes Devero	PO Box 1051	Duncan	OK	73534	580-255-9675
V1-EDO-15	Bartlesville Development Corporation	Evan Zorn	201 S Keeler Ave	Bartlesville	OK	74003	918-337-0001
V1-EDO-16	Shawnee Economic Development Foundation	Patricia McCormick	PO Box 1613	Shawnee	OK	74802	405-273-7490
V1-EDO-17	Muskogee Development Corporation	Lisa Clark	216 W Okmulgee	Muskogee	OK	74401	918-683-2816
V1-EDO-18	Community & Economic Development Committee	David Burnett	PO Box 10980	Midwest City	OK	73140	405-733-3801
V1-EDO-19	Edmond Economic Development Authority	Janet Yowell	825 E 2nd St, Suite 200	Edmond	OK	73034	405-340-0116
V1-EDO-20	Tulsa Area Partnership	Daniel Mann	2 W 2nd St, Suite 150	Tulsa	OK	74103	866-827-6552

Chamber of Commerce Officials (September 16, 2004):

Survey Id #:	Business	Contact	Address	City	State	Zip	Phone
V1-COC-01	Greater Oklahoma City Chamber of Commerce	Roy Williams	123 Park Avenue	Oklahoma City	OK	73102	405-297-8900
V1-COC-02	Ardmore Chamber of Commerce	Wes Stucky	PO Box 1585	Ardmore	OK	73402	580-223-7765
V1-COC-03	Bartlesville Area Chamber of Commerce	Pam Dunlap	PO Box 2366	Bartlesville	OK	74005	918-336-8708
V1-COC-04	Checotah Chamber of Commerce	Lloyd Jernigan	201 N Broadway St.	Checotah	OK	74426	918-473-2070
V1-COC-05	Cherokee Chamber of Commerce	Crystal McWhirt	111 S. Grand Ave	Cherokee	OK	73728	580-596-3053
V1-COC-06	Healdton Chamber of Commerce	Bill Wilson	315 E. Main	Healdton	OK	73438	580-229-0900
V1-COC-07	Idabel Chamber of Commerce	Jerry Speck	7 SW Texas St.	Idabel	OK	74848	580-286-3305
V1-COC-08	Kingfisher Chamber of Commerce	Judy Whipple	123 W. Miles	Kingfisher	OK	73750	405-375-4445
V1-COC-09	Lawton/Ft. Sill Chamber of Commerce & Industry	Mr. Dana Davis	PO Box 1376	Lawton	OK	73502	580-355-3541
V1-COC-10	Moore Chamber of Commerce	Brenda Roberts	PO Box 6305	Moore	OK	73153	405-794-3400

General Aviation Airports (September 16, 2004):

Survey Id #:	Business	Contact	Address	City	State	Zip	Phone
V1-GAA-01	Altus Municipal Airport	David Scott	300 E. Commerce	Altus	OK	73521	580-482-8833
V1-GAA-02	Ardmore Municipal Airport	Roy Givens	Rt 1, Box 5 Airpark Branch	Ardmore	OK	73401	580-389-5439
V1-GAA-03	Elk City Municipal Airport	Jarrod Heard	PO Box 1100	Elk City	OK	73648	580-225-7700
V1-GAA-04	Enid Woodring Municipal Airport	Don Cornell	1026 S 66th	Enid	OK	73701	580-234-5476
V1-GAA-05	Frederick Municipal Airport	Donnie Coleman	City Hall PO Box 399	Frederick	OK	73542	580-335-2421

V1-GAA-06	Henryetta Municipal Airport	Sonny Williams	PO Box 608	Henryetta	OK	74437	918-652-8634
V1-GAA-07	Seminole Municipal Airport	Dale Wallace	Rt 4, Box 83	Seminole	OK	74868	405-382-2180
V1-GAA-08	University of Oklahoma Westheimer Airport	Walt Strong	1700 Lexington Street, #310	Norman	OK	73069	405-325-7233

Rural Transit Systems (September 16, 2004):

Survey Id #:	Business	Area	Contact	Address	City	State	Zip	Phone	Comments
V1-RTS-01	BABS (Broken Arrow Bus Service)	Broken Arrow	Melanie Bolduc	1700 W Detroit	Broken Arrow	OK	74012	918-259-8646	
V1-RTS-02	BCT (Beaver City Transit)	Beaver	Joyce Clark	PO Box 698	Beaver	OK	73932	580-625-3331	
V1-RTS-03	BST (City of Bristow Senior Transportation)	Bristow	Katie Farris	1110 South Chestnut	Bristow	OK	74010	918-367-6313	sr citizen's center
V1-RTS-04	CARPTS (Call-A-Ride Public Transit System)	Ada	Danna Laxton	15425 CR 3540	Ada	OK	74820	580-332-7950	
V1-RTS-05	CART (Cleveland Area Regional Transit, Metro Transit)	Norman	Theta Dempsey	731 Elm	Norman	OK	73019	405-325-2278	
V1-RTS-06	Cimarron Public Transit System (CPTS)	Pawnee	David Ellison	501 6th Street	Pawnee	OK	74058	918-762-3041 xt 178	
V1-RTS-07	City of Hominy	Hominy	Lora Dobbins	PO Box 154	Hominy	OK	74035	918-885-2112	only serves 60 and above including disabled over 60
V1-RTS-08	City of Marlow (Delta Nutrition Program - sr/disabled/meals on wheels)	Marlow	Janice Cain	PO Box 113	Marlow	OK	73055-0113	580-658-5401	City Administrator
V1-RTS-09	City of McAlester	McAlester	Mel Pretty	801 North 9th Street	McAlester	Ok	74501	918-421-4914	
V1-RTS-10	City of Prague (Senior Center)	Prague	Edith Kannady	615 Ayars	Prague	OK	74864	405-567-3605	city owns the van
V1-RTS-11	City of Sallisaw	Sallisaw	Bill Baker	PO Box 5225	Sallisaw	OK	74955	918-775-9550	
V1-RTS-12	City of Seminole	Seminole	Buster Wilcox	PO Box 1218	Seminole	OK	74868	405-382-4330	sr citizen program
V1-RTS-13	COTS (Central Oklahoma Transit System)	Shawnee	Amber Davis	PO Box 486	Shawnee	OK	74802	405-214-4327	
V1-RTS-14	CST (Cherokee Strip Transit) / GATS (Garber Area Transit System)	Garber	Rita Kroll	PO Box 344	Garber	OK	73738	580-863-2279	
V1-RTS-15	ECC (Ellis County Commission)	Shattuck	Beth Eaton	520 North Main	Shattuck	OK	73858	580-938-2025	Sr. Citizen's
	Eufaula Transportation (ET)	Eufaula	Ronnie Cantrell	PO Box 684	Eufaula	OK	74432	918-689-1020	
V1-RTS-16	KiBois Area Transit (KATS)	Stigler	Charla Sloan	PO Box 727	Stigler	OK	74462	800-289-7228	
V1-RTS-17	FASTrans (Kiowa Nation Public Transportation Authority, KNPTA)	Carnegie	Chuck Tsoodle	PO Box 369	Carnegie	OK	73015	580-654-2300 xt 270	
V1-RTS-18	HET (Heritage Express Trolley)	El Reno	Vicki Proctor	300 S. Grand	El Reno	OK	73036	405-262-5121	closed M&T - operates W thru Sun
V1-RTS-19	JAMM Public Transit	Madill	Lequita Thornley	205 E 1st	Atoka	OK	74525	580-371-2352	
V1-RTS-20	LDT (Little Dixie Transit)	Hugo	Jeannie McMillin	502 W Duke St	Hugo	OK	74743	580-326-6441	
V1-RTS-21	WVT (Washita Valley Transit)	Chickasha	Patty Lopez	PO Box 747	Chickasha	OK	73023	405-222-3438	
V1-RTS-22	PCC (Pittsburg County Commission)	Kiowa	Sherry Pierce	104 North Harrison	Kiowa	OK	74553	918-432-5522	
V1-RTS-23	Pelivan Transit (PT)	Big Cabin	Billie Bradbury	PO Drawer B	Big Cabin	OK	74332	918-783-5793	
V1-RTS-24	RRPTS (Red River Public Transportation System)	Frederick	Brent Morey	PO Box 989	Frederick	OK	73542	580-335-5588	
V1-RTS-25	SORTS (Southern Oklahoma Transportation System)	Durant	Allen Leaird	PO Box 1577	Durant	OK	74702	580-924-5331	
V1-RTS-26	Southwest Transit (ST)	Altus	Neil Montgomery	PO Box 1088	Altus	OK	73522	580-482-5083	
V1-RTS-27	The Transfer (Enid Public Transportation Authority, EPTA)	Enid	Leslie Jager	1502 W Poplar	Enid	OK	73703	580-233-0468	

APPENDIX C1
Sample Survey – Version 1

Oklahoma Department of Transportation
in conjunction with
Oklahoma Department of Commerce

INTERMODAL ELEMENT
SURVEY

September 2004

Terminology

Intermodal is defined as the interaction of various modes of transportation for persons and goods as it relates to connections, choices, coordination and cooperation.

Mode is defined as a means to transport persons and goods – automobiles, air travel, railroads, waterways, transit (bus, carpool, fixed guideway), trucking, bicycles, and walking.

Area/Region is defined as your local area of economic influence and transportation usage.

PART I:
OVERVIEW OF THE TRANSPORTATION SYSTEM IN OKLAHOMA

1. **How would you rate the quality of Oklahoma's transportation system, for the state as a whole?** ***For this question, "quality" relates to the physical condition of the transportation system, and how well it is maintained and renewed.***

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor

2. **How would you rate the efficiency of Oklahoma's transportation system, for the state as a whole?** ***For this question, "efficiency" relates to how rapidly and directly people and goods are transported. (e.g., Can people and goods get to where they are going without undue delay or difficulty?)***

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor

3. **Is Oklahoma's transportation system improving, staying the same, or worsening, for the state as a whole?**

- ○ Much improved
- ○ Somewhat improved
- ○ No change
- ○ Somewhat worse
- ○ Much worse

4. **How would you rate the quality of the transportation system serving <u>your area/region</u>?**

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor
- ○ Not applicable

5. **How would you rate the efficiency of the transportation system serving <u>your area/region?</u>**

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor
- ○ Not applicable

6. **How well does Oklahoma's transportation system support its economy?**

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor

7. **How well does the transportation system serving <u>your area</u> support the local/regional economy?**

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor
- ○ Not applicable

8. **In order to best grow the economy of Oklahoma, which type of transportation investment do you think will give the greatest "bang for the buck"?**

- ○ Moving people and passengers
- ○ Moving cargo

9. **Please rank each of the following types of transportation with regard to the importance you believe each has on Oklahoma's economy and its future economic development. Please give a 1 to the type that is most important, 2 the second most importance, and so on until you have ranked all five types.**

_____ Highways
_____ Public transportation
_____ Freight railroads
_____ Ports (e.g., the Port of Catoosa, Muskogee, others)
_____ Airports

PART II:
TRANSPORTATION SYSTEM STRENGTHS AND WEAKNESSES

The next series of questions are about the major strengths and weaknesses of current and future Oklahoma transportation system regarding passengers and, goods.

10. **Briefly identify the greatest impediments which currently inhibit passenger movement in Oklahoma. Impediments may include infrastructure, operations, financial, regulatory, or other factors.**

1) _____
2) _____
3) _____

11. Briefly identify the greatest impediments which will inhibit passenger movement in Oklahoma in the future. Impediments may include infrastructure, operations, financial, regulatory, or other factors.

1) _____
2) _____
3) _____

12. Briefly identify the greatest impediments which currently inhibit goods (i.e., freight) movement in Oklahoma. Impediments may include infrastructure, operations, financial, regulatory, or other factors.

1) _____
2) _____
3) _____

13. Briefly identify the greatest impediments which will inhibit goods movement in Oklahoma in the future. Impediments may include infrastructure, operations, financial, regulatory, or other factors.

1) _____
2) _____
3) _____

14. Briefly identify the most important actions that could be undertaken which would most enhance <u>passenger</u> movement in Oklahoma in the <u>future</u>.

1) _____

2) _____

3) _____

15. Briefly identify the most important actions that could be undertaken which would most enhance <u>goods</u> movement in Oklahoma in the <u>future</u>.

1) _____

2) _____

3) _____

PART III:
<u>GOODS MOVEMENT</u>
The next series of questions relates specifically to goods movement in Oklahoma.

16. How would you rate Oklahoma's freight transportation system, with respect to the following freight modes?

	Excellent	Good	Fair	Poor
Highway/Trucking	○	○	○	○
Ports/Waterway	○	○	○	○
Freight Railroad	○	○	○	○
Airport/Air Cargo	○	○	○	○
Intermodal	○	○	○	○

17. **Please identify the two most beneficial improvements to the freight transportation system in Oklahoma that would enhance <u>Oklahoma's economy</u>:**

1) _____

2) _____

18. Please identify the two most beneficial improvements to the freight transportation system in Oklahoma that would enhance <u>your enterprise's</u> business or organizational <u>objectives</u>:

1) _____

2) _____

PART IV:
<u>TRANSPORTATION AND THE ECONOMY</u>
This set of questions relates more specifically to your views concerning the relationship between Oklahoma's transportation system and its economy. It also seeks to explore your ideas as to what transportation measures and initiatives might be undertaken to enhance the state and local economy of your area.

19. Please identify the markets or industry sectors that could most benefit from improvements to Oklahoma's freight transportation system.

_____

_____

_____

20. Please identify the three most important economic opportunities in Oklahoma (e.g., locations, economic sectors, key growth areas) that would most benefit from transportation system improvements, and identify those improvements. For each opportunity please describe the location, type of transportation improvement, and economic activity/business sector benefited.

#1 Economic opportunity:

_____

Location:

_____

Type of transportation improvement:

_____

Economic activity or business sector benefited:

_____

 # 2 Economic opportunity:

_____

Location:

_____

Type of transportation improvement:

_____

Economic activity or business sector benefited:

_____

 # 3 Economic opportunity:

_____

Location:

_____

Type of transportation improvement:

_____

Economic activity or business sector benefited:

_____

21. Please describe how Oklahoma's transportation system can best be improved to enhance Oklahoma's economy over the long run._____

_____

_____

_____

PART V:
General Information

22. Which of the following do you represent?

- ○ Local government
- ○ County government
- ○ Tribal government
- ○ Metropolitan Planning Organization
- ○ Economic Development Authority
- ○ Council of Government/Development District
- ○ Chamber of Commerce
- ○ Metropolitan Transit Authority
- ○ Rural Transit Authority/Operator
- ○ Port Authority
- ○ Private Port
- ○ Commercial Airport
- ○ General Aviation Airport
- ○ Class I Railroad
- ○ Short Line Railroad
- ○ Trucking/Logistics Firm
- ○ Other (specify:_____)

23. What role does your agency/organization play in transportation?
Check all that apply.

- □ Direct public provider (e.g., operate bus systems, build and/or maintain roads)
- □ Regulatory
- □ Funding
- □ Advisory only

Thank you for taking the time to complete this questionnaire.

Your assistance in providing this information is very much appreciated.

Please return your completed questionnaire in the envelope provided to:

Oklahoma Department of Transportation

200 NE 21st Street

Oklahoma City, Oklahoma 73105

APPENDIX C2
Sample Survey – Version 2

Oklahoma Department of Transportation
in conjunction with
Oklahoma Department of Commerce

INTERMODAL ELEMENT
SURVEY

September 2004

Terminology

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Mode is defined as a means to transport persons and goods – automobiles, air travel, railroads, waterways, transit (bus, carpool, fixed guideway), trucking, bicycles, and walking.

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OVERVIEW OF THE TRANSPORTATION SYSTEM IN OKLAHOMA

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   - ○ Good
   - ○ Fair
   - ○ Poor

2. **How would you rate the efficiency of Oklahoma's transportation system, for the state as a whole?** ***For this question, "efficiency" relates to how rapidly and directly people and goods are transported. (e.g., Can people and goods get to where they are going without undue delay or difficulty?)***
   - ○ Excellent
   - ○ Good
   - ○ Fair
   - ○ Poor

3. **Is Oklahoma's transportation system improving, staying the same, or worsening, for the state as a whole?**
   - ○ Much improved
   - ○ Somewhat improved
   - ○ No change
   - ○ Somewhat worse
   - ○ Much worse

4. **How would you rate the quality of the transportation system serving <u>your area/region</u>?**
   - ○ Excellent
   - ○ Good
   - ○ Fair
   - ○ Poor
   - ○ Not applicable

5. **How would you rate the efficiency of the transportation system serving <u>your area/region?</u>**
   - ○ Excellent
   - ○ Good
   - ○ Fair
   - ○ Poor
   - ○ Not applicable

6. **How well does Oklahoma's transportation system support its economy?**
   - ○ Excellent
   - ○ Good
   - ○ Fair
   - ○ Poor

7. **How well does the transportation system serving <u>your area</u> support the local/regional economy?**
   - ○ Excellent
   - ○ Good
   - ○ Fair
   - ○ Poor
   - ○ Not applicable

8. **In order to best grow the economy of Oklahoma, which type of transportation investment do you think will give the greatest "bang for the buck"?**

- ○ Moving people and passengers
- ○ Moving cargo

9. **Please rank each of the following types of transportation with regard to the importance you believe each has on Oklahoma's economy and its future economic development. Please give a 1 to the type that is most important, 2 the second most importance, and so on until you have ranked all five types.**

_____ Highways
_____ Public transportation
_____ Freight railroads
_____ Ports (e.g., the Port of Catoosa, Muskogee, others)
_____ Airports

PART II:
TRANSPORTATION SYSTEM STRENGTHS AND WEAKNESSES

The next series of questions are about the major strengths and weaknesses of current and future Oklahoma transportation system regarding passengers and, goods.

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1) _____
2) _____
3) _____

11. Briefly identify the greatest impediments which will inhibit passenger movement in Oklahoma in the future. Impediments may include infrastructure, operations, financial, regulatory, or other factors.

1) _____
2) _____
3) _____

12. Briefly identify the greatest impediments which currently inhibit goods (i.e., freight) movement in Oklahoma. Impediments may include infrastructure, operations, financial, regulatory, or other factors.

1) _____
2) _____
3) _____

13. Briefly identify the greatest impediments which will inhibit goods movement in Oklahoma in the future. Impediments may include infrastructure, operations, financial, regulatory, or other factors.

1) _____
2) _____
3) _____

14. Briefly identify the most important actions that could be undertaken which would most enhance <u>passenger</u> movement in Oklahoma in the <u>future</u>.

1) _____

2) _____

3) _____

15. Briefly identify the most important actions that could be undertaken which would most enhance <u>goods</u> movement in Oklahoma in the <u>future</u>.

1) _____

2) _____

3) _____

PART III:
<u>GOODS MOVEMENT</u>
The next series of questions relates specifically to goods movement in Oklahoma.

16. How would you rate Oklahoma's freight transportation system, with respect to the following freight modes?

	Excellent	Good	Fair	Poor
Highway/Trucking	○	○	○	○
Ports/Waterway	○	○	○	○
Freight Railroad	○	○	○	○
Airport/Air Cargo	○	○	○	○
Intermodal	○	○	○	○

17. Please identify the two most beneficial improvements to the freight transportation system in Oklahoma that would enhance <u>Oklahoma's economy</u>:

1) _____

2) _____

18. Please identify the two most beneficial improvements to the freight transportation system in Oklahoma that would enhance <u>your enterprise's</u> business or organizational <u>objectives</u>:

1) _____

2) _____

PART IV:
<u>TRANSPORTATION AND THE ECONOMY</u>
This set of questions relates more specifically to your views concerning the relationship between Oklahoma's transportation system and its economy. It also seeks to explore your ideas as to what transportation measures and initiatives might be undertaken to enhance the state and local economy of your area.

19. Please identify the markets or industry sectors that could most benefit from improvements to Oklahoma's freight transportation system.

_____

_____

_____

20. Please identify the three most important economic opportunities in Oklahoma (e.g., locations, economic sectors, key growth areas) that would most benefit from transportation system improvements, and identify those improvements. For each opportunity please describe the location, type of transportation improvement, and economic activity/business sector benefited.

#1 Economic opportunity:

_____

_____

Location:

_____

Type of transportation improvement:

_____

Economic activity or business sector benefited:

_____

 # 2 Economic opportunity:

_____

_____

Location:

_____

Type of transportation improvement:

_____

Economic activity or business sector benefited:

_____

 # 3 Economic opportunity:

_____

_____

Location:

_____

Type of transportation improvement:

_____

Economic activity or business sector benefited:

_____

21. Please describe how Oklahoma's transportation system can best be improved to enhance Oklahoma's economy over the long run.

_____

_____

_____

_____

_____

_____

PART V:
POTENTIAL FOR DEVELOPMENT OF LOGISTICS HUBS IN OKLAHOMA

As industry users or providers of freight transportation services to industry, you are most directly concerned with moving goods in support of your day to day enterprise. Accordingly, this section focuses on the logistics of your

enterprise, and the ability of the transportation system in Oklahoma to best support your supply chain and logistics support activities.

22. What major markets does your enterprise currently serve?

_____

_____

_____

_____

23. Are you satisfied with the ability of the transportation system in Oklahoma to support your supply chain logistics system currently in place for your enterprise(s)?

○ Yes → Skip to 25
○ No ↓

24. (If No) Briefly explain what improvements could be made to the transportation system to better support your supply chain system.

_____

_____

_____

25. Does your enterprise currently operate or utilize an intermodal facility, or freight distribution facility in Oklahoma?

○ Yes → Skip to 27
○ No ↓

26. (If No) Is your enterprise considering developing an intermodal or freight distribution facility in Oklahoma?

○ Yes
○ No

27. (If Yes) Briefly describe the location and nature of the activities at the intermodal facility or freight distribution facility.

_____

_____

28. Would your enterprise consider opening an intermodal or freight distribution facility in Oklahoma in the future?

○ Yes → Skip to 29
○ No → Skip to 30

29. (If Yes) Please list the major factors or conditions that would have to be satisfied for your enterprise to seriously consider developing such a facility in Oklahoma.

1)

_____

2)

_____

3)

_____

PART VI:
General Information

30. Which of the following do you represent?

- ○ Chamber of Commerce
- ○ Private Port
- ○ Commercial Airport
- ○ General Aviation Airport
- ○ Class I Railroad
- ○ Short Line Railroad
- ○ Trucking/Logistics Firm
- ○ Other (specify:_____)

Thank you for taking the time to complete this questionnaire. Your assistance in providing this information is very much appreciated.

Please return your completed questionnaire in the envelope provided to:
Oklahoma Department of Transportation
200 NE 21st Street
Oklahoma City, Oklahoma 73105

Appendix D

Stakeholders Identified for Interviews

Interview List

Interviews commence Oct. 1

Name	Organization	Type of organization	Address	Telephone	Interviewer	Comments
John Groendyck	Groendyke Transport, Inc	trucking co.	810 N. 54th St. Enid, OK 73701	580-234-5765	PB	
Mike Stone	Beaver Trucking	trucking co.			PB	
Steve White	Dollar Tree	large retailer	Ardmore, Oklahoma		PB	
Bill Scribner	Big Lots	large chain retailer	2306 Enterprise Drive Durant, OK 74701	877-233-0400	MAC	
Steve Hendrickson	Boeing - Tulsa	large manufacturer	PO Box 582808 Tulsa OK 74158-2808	918-832-3352	LL	
Dwayne Bell	Weyerhauser	large manufacturer	7101 S Sooner Rd Oklahoma City, Oklahoma 73135	405-671-3540	MAC	
Gary Reckrodt	Seaboard Farms	agribusiness firm	PO Box 29135 Shawnee Mission, KS 66201	913-261-2665	MAC	
Lew Meibergen	W.B. Johnston Grain Co.	agricultural supply	3225 E. Willow Enid, OK 73701	580-249-5380	LL	
Steve McLaws	Union Pacific	Class I RR	1400 Douglas Street, Mailstop 1370 Omaha, Nebraska 68179	402-544-4215	LL	
Vann Cunningham	BNSF	Class I RR	2650 Lou Menk Drive, 2nd Floor Fort Worth, TX 76131	817-867-6336	LL/PB	
Thomas Owen	Kansas City Southern	Class I RR	53001 Broken Sound Blvd NW Boca Raton, FL 33487	800-211-7245	LL	
Carmine Romano	American Airlines Maintenance and Engineering Center	airline after market - maint.	3500 N. Mingo Rd. Tulsa, OK 74116	918-292-2110	PB	
Jim Coughlan	UPS	package express co.	4240 International Parkway, Suite 180 Carrollton, TX 75007	972-360-2340	PB	
Tom Landers	College of Engineering, University of Oklahoma	university research - logistics expert	Carson Engineering Center, 202 W. Boyd, Room 107, Norman Oklahoma, 73019-1022	405-325-7508	PB	
Roy Williams	Greater OKC C of C.	C of Commerce	123 Park Avenue, Oklahoma City, OK, 73102	405-297-8900	MAC	

Interview List

Interviews commence Oct. 1

Name	Organization	Type of organization	Address	Telephone	Interviewer	Comments
Wes Stucky	Ardmore Dev. Autho & Chamber of Commerce	C of Commerce	PO Box 1585, Ardmore, OK, 73402	580-223-7765	LL	
Tommy Kramer	Durant C of C	C of Commerce	215 N. 4th Ave., Durant, OK, 74701	580-924-4570	LL	
Dan Case	OK Trucking Association	State Trucking Assoc.	7201 N. Classen Blvd, Suite 106 Oklahoma City, OK 73116	405-843-9488	MAC	
Craig Tomlinson	Port of Catoosa Director	Port of Catoosa Director	5350 Cimarron Rd. Catoosa, OK 74015	918-266-2291	LL	
Luther Trent	Will Rogers Intl Airport	Will Rogers Airport Director	7100 Terminal Drive, Box 937 Oklahoma City, OK 73159	405-680-3200	MAC	
Larry Hice	General Motors	large manufacturer	130 E Carpenter Freeway, Suite 200 Irving, TX 75062	972-541-6100	LL/PB	
Kevin Gaskins	Metro Tulsa Chamber of C.	C of Commerce	Two West Second St, Williams Tower II, Suite 150 Tulsa 74103	918-585-1201	LL	
C. Jean Baxter	Tinker AFB	US Air Force	7701 Arnold St. Bldg 1, Suite 112 Tinker AFB, OK 73145	405-739-7969	MAC	
Col. Michael Callan	Vance AFB	US Air Force	71st Flying Training Wing Enid OK 73705	580-213-5000	MAC	
Base Commander	Fort Sill	US Army	TBD	TBD	MAC	
Karla Marshall	Moore - Normal Tech. Ctr.	business/industrial park	4701 12th Ave NW Norman, OK 73069	405-364-5763	MAC	
Roger Carter	Oklahoma Passenger Rail Ass.	Passenger rail group	1120 South 21st St Chickasha OK 73018-3830	405-224-7423	MAC	
Richard Rush	State Chamber	State C of C.	330 NE 10th Ave Oklahoma City, OK 73104	405-235-3669	MAC	
Zach Taylor	Association of Central Oklahoma Governments	MPO	21 E Main St, Suite 100, Oklahoma City, OK 73104	405-234-2264	PB	
Jerry Lasker	Indian Nations Council of Governments	MPO	201 W 5th St. , Suite 600, Tulsa OK 74103	918-584-7526	LL	
Mike Wish	Summit Industries	small manufacturer	5702 E. Channel Rd., Catoosa, OK 74015	918-266-1882	LL	
Ted Davis	Ted Davis Mfg.	small manufacturer	6003 Northwest 5th St. Oklahoma City, OK 73127	405-789-0670	MAC	

Interview List

Interviews commence Oct. 1

Name	Organization	Type of organization	Address	Telephone	Interviewer	Comments
David Freymiller	Freymiller, Inc	trucking/logistics co.	8125 Southwest 15th St. Oklahoma, City, OK 73128	405-491-2800	MAC	
Mark Madden	BAX Global	freight forwarders	6300 Air Cargo Rd., Oklahoma City, OK, 73159	405-682-1601	MAC	

Appendix E

Intermodal Policy Framework

Policy Framework

I Highway-Commercial Vehicle Operations

Highway-Commercial Vehicle Operations Policy #1: Restore Bridge Conditions to Levels that Sustain the Flow of Goods in Critical Truck Corridors

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
H1-S-1: Repair & upgrade obsolete and deficient bridges in critical truck corridors and connections to major multimodal freight facilities	H1-L-1: Repair & upgrade load posted bridges on Truck Priority Corridors and connections to major multimodal freight facilities, as part of a larger Bridge Capital Improvement Program (BCIP)	▪ Achievement of economic and safety benefits ▪ Reduction in diseconomies and enhancement of Oklahoma's competitive position	▪ Promote new bridge funding initiatives, such as dedicated fuel tax surcharges for maintenance, rehabilitation, and construction of bridges.
	H1-L-2: Implement a comprehensive Bridge Capital Improvement Program (BCIP) for Truck Priority Corridors and connections to major multimodal freight facilities		▪ Promote new bridge funding initiatives, such as dedicated fuel tax surcharges for maintenance, rehabilitation, and construction of bridges. ▪ Emphasize and actively seek interstate coordination on needed bridge replacements near state borders
Planning & Operational Strategies			
H1-POS-1: Identify Truck Priority Corridors for bridge improvements as part of a larger Bridge Capital Improvement Program (BCIP) – based on Return on Investment Criteria and jobs-based criteria		▪ Improved economics and efficiency of truck operations, and reduced shipper costs for instate freight producers and recipients	
H1-POS-2: Enhance trucker information systems for bridge conditions			
Regulatory Strategies			
H1-RS-1: Enhance enforcement of load posted bridges to minimize structural degradation and minimize safety concerns		▪ Achievement of economic and safety benefits ▪ Less structural wear and tear and reduced ODOT bridge maintenance and rehabilitation costs, especially emergency repair	▪ Coordinate with Oklahoma state and local law enforcement agencies

Highway-Commercial Vehicle Operations Policy # 2: Upgrade Intermodal Connectors and Maximize the Efficiency of Operations on the Existing Highway System

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
H2-S-1: Upgrade critical intermodal connectors as part of the larger highway program	H2-L-1: Continue to upgrade intermodal connectors to ports, rail intermodal facilities, air cargo facilities, and major warehousing and distribution centers	▪ Improved economics and efficiency of truck operations and reduced shipper costs for instate freight producers and recipients ▪ Expanded activity and employment at existing multimodal freight facilities	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects
H2-S-2: Improve & develop ITS Systems (inc. on-highway variable message signs/special radio frequencies)	H2-L-2: Further improve & develop ITS Systems (inc. on-highway VMS/special radio frequency and on-line web sites with real time information)	▪ Improved economics and efficiency of truck operations, and reduced shipper costs for instate freight producers and recipients	▪ Seek public-private partnerships in development of improved radio transmissions for ITS – evaluate potential for joint commercial and ITS transmission
	H2-L-3: Increase selected lane widths on Truck Priority Corridors, as identified in the Statewide Freight Plan	▪ Improved economics and efficiency of truck operations and reduced shipper costs for instate freight producers and recipients ▪ Improved safety and fewer motor vehicle collisions for the general motoring public	▪ Pursue potential for obtaining funding from US House of Representatives-backed pilot program to construct dedicated truck lanes. Seek earmark under this program.
Planning & Operational Strategies			
H2-POS-1: Conduct studies of important highway freight corridors, such as I-35, US 69, I-44, US 54 and US 75, to identify improvements to facilitate goods movement		▪ Improved economics and efficiency of truck operations and reduced shipper costs for instate freight producers and recipients	
H2-POS-2: Prepare CVO element within the context of a Statewide Freight Plan – plan to include identification of Truck Priority Corridors of significant value	H2-POL-1: Implement ongoing freight planning process, including CVO element		
H2-POS-3: Identify trucking industry representatives to serve on a temporary freight advisory committee in connection with a Statewide Freight Plan	H2-POL-2: Create on-going Oklahoma Freight Advisory Council, including trucking industry representatives		
Regulatory Strategies			
H2-RS-1: Continue to support the OCC in implementing the "One Stop Trucking Shop" to expedite regulatory processing (licensing, registration, IFTA)		▪ Improved economics and efficiency of truck operations and reduced shipper costs for instate freight producers and recipients ▪ Reduced trucking fee evasion	▪ Continue coordination with OCC to implement "One Stop Trucking Shop" regulatory refinement program

Highway-Commercial Vehicle Operations Policy # 3: Enhance Highway Access and Connectivity to Serve Key Economic Sectors/Clusters

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
	H3-L-1: Enhance east-west highway connectivity to the major I-35 corridor for areas such as Durant (e.g., I-70).	▪ Support for the stone, aggregate, cement, and other related mining industries in southern Oklahoma	▪ Fast track projects of major economic importance
	H3-L-2: Enhance highway connectivity serving major agricultural production areas, such as the Panhandle and Northeastern Oklahoma, on the basis of special regional studies	▪ Support for value added agricultural, livestock, and poultry production industries in the Panhandle	▪ Fast track projects of major economic importance
Planning & Operational Strategies			
H3-POS-1: Initiate special transportation-economic development studies for the Northwest and Southeast Oklahoma regions		▪ Improved understanding of the relationship between transportation and economic development ▪ Better focus of ODOT resources in areas where the economic return is greatest	▪ Solicit local and regional interest in such studies, and seek local and regional funding contributions for studies
H3-POS-2: Initiate special transportation-economic development studies for expanded development of the "southern tier" region as support/distribution component of bi-state economy			
Regulatory Strategies			
H3-RS-1: Streamline permitting process for transport of oversized and overweight loads		▪ Improved productivity and efficiency of economic sectors requiring delivery of oversized loads, such as in-field oil and natural gas industries	▪ Continue coordination with OCC to implement "One Stop Trucking Shop" regulatory refinement program

Highway-Commercial Vehicle Operations Policy # 4: Enhance Highway Access and Connectivity to Serve Existing and to Promote Development of New Intermodal and Logistics Centers

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
	H4-L-1: Improve highway capacity and connectivity to existing rail, water, and air multimodal freight facilities of significant economic value	▪ Improved economics and efficiency of truck operations and reduced shipper costs for instate freight producers and recipients ▪ Expanded activity and employment at existing multimodal freight facilities ▪ Diversion of some freight from truck to rail, reducing wear and tear on the highway system	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects
	H4-L-2: Support development of new multimodal freight rail or air cargo facilities of significant economic value with improved or new highway connections	▪ Improved economics and efficiency of truck operations and reduced shipper costs for instate freight producers and recipients ▪ New employment opportunities for local workers ▪ Improved distribution of economic activity, including new employment opportunities in rural areas ▪ Diversion of some freight from truck to rail, reducing wear and tear on the highway system	▪ Fast track those actions that would generate the greatest economic benefit ▪ Fund some access improvements to prospective sites prior to development, to help stimulate private sector developer interest ▪ Identify potential for use of private activity revenue bonds to finance multimodal freight hub connections
Planning & Operational Strategies			
H4-POS-1: Evaluate highway capacity and connectivity requirements for intermodal connectors of significant economic value, including geometry improvements for efficient truck operations			▪ RFP for engineering evaluation of Intermodal Connector needs
Regulatory Strategies			

II. Freight Rail

Freight Rail Policy #1: Support the Improved Efficiency of the Freight Rail System

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
F1-S-1: Maintain existing State-owned railroad properties in order to maintain/increase current service levels	F1-L-1: Fund upgrades to state-owned rail track and structures to allow 286,000 lb rail cars, to support mainline train traffic loads	▪ Maintenance of rail mode share, reducing wear and tear on the highway system & reducing air quality impacts from highway vehicle usage ▪ Support for rail dependent industries, including rural industries ▪ Support for agricultural production and mining industries in Oklahoma – support rural economies	▪ Continue to pursue funding assistance programs such as the Short Line Railroad Loan and grant program in neighboring Kansas ▪ Assist short line railroads in obtaining tax benefits under new federal tax legislation for short line improvements (Short Line and Regional Railroad Tax Credits)
	F1-L-2: Conduct other infrastructure improvements to state owned rail properties to increase efficiency	▪ Improved economies and efficiency of freight rail operations and reduced shipper costs for instate freight producers and recipients	▪ Pursue funding assistance programs such as the Short Line Railroad Loan and grant program in neighboring Kansas ▪ Assist short line railroads in obtaining tax benefits under new federal tax legislation for short line improvements (Short Line and Regional Railroad Tax Credits)
Operational & Planning Strategies			
F1-POS-1: Identify and prioritize state-owned rail track and structures most in need of upgrade to 286,000 lb. rail car standard		▪ Maintenance of rail mode share, reducing wear/tear on highway system & reducing air quality impacts from highway vehicle usage. ▪ Support for rail dependent industries, including rural industries ▪ Support for agricultural production and mining industries in Oklahoma – support for rural economies	
F1-POS-2: Update Oklahoma State Rail Plan (last updated in 1992)	F1-POL-1: Implement ongoing freight planning process, including rail freight element		
F1-POS-3: Prepare rail freight element within context of a Statewide Freight Plan (updated Oklahoma State Rail Plan placed on the same planning cycle as Statewide Freight Plan)	F1-POL-2: Create on-going Oklahoma Freight Advisory Council, including freight rail industry representatives and major user groups		
F1-POS-4: Identify freight rail industry and user group representatives to serve on a temporary freight advisory committee in connection with Statewide Freight Plan			
Regulatory Strategies			

Freight Rail Policy #2: Enhance Freight Rail Service Connectivity to Serve Selected Economic Sectors/Clusters

Capital Improvements		**Economic Development Objective**	**Implementation Strategy**
Short Term Actions	Long Term Actions		
	F2-L-1: Encourage and promote development of Transload and/or major intermodal freight rail facilities	▪ Improved economies and efficiency of freight rail operations and reduced shipper costs for instate freight producers and recipients ▪ New employment opportunities for local workers ▪ Improved distribution of economic activity, including new employment opportunities in rural areas ▪ Diversion of some freight from truck to rail, reducing wear and tear on the highway system	▪ Identify locations that would maximize potential for developer interest, including locations where more than one Class I Railroad service is available ▪ Identify potential for site "swaps" with existing Class I RRs (e.g., BNSF) to move urban intermodal facilities to perimeter areas, where road congestion can be minimized ▪ Partner with ODOC and location consultants ▪ Coordinate with FTZ designations
	F2-L-2: Support short line railroad improvements, rehabilitations and upgrades, including selective upgrades to 286,000 lb. railcar standard	▪ Maintenance of rail mode share, reducing wear and tear on the highway system & reducing air quality impacts from highway vehicle usage ▪ Support for rail dependent industries, including rural industries ▪ Support for agricultural production and mining industries in Oklahoma – support for rural economies	▪ Continue to pursue funding assistance programs such as the Short Line Railroad Loan and grant program in neighboring Kansas ▪ Assist short line railroads in obtaining tax benefits under new federal tax legislation for short line railroad improvements (Short Line and Regional Railroad Tax Credits)
Operational & Planning Strategies			
F2-POS-1: Identify manufacturers, warehousing and distribution firms, and/or commercial facilities developers with potential interest in developing Transload or multimodal freight facilities – e.g., auto industry		▪ Maintenance of rail mode share, reducing wear and tear on the highway system & reducing air quality impacts from highway vehicle usage ▪ Support for rail dependent industries, including rural industries ▪ Support for agricultural production and mining industries – support for rural economies	▪ Partner with ODOC
Regulatory Strategies			

Freight Rail Policy #3: Improve Connectivity to Serve Existing and to Support Development of New Multi-Modal Freight and Logistics Centers

Capital Improvements		**Economic Development Objective**	**Implementation Strategy**
Short Term Actions	**Long Term Actions**		
F3-S-1: Identify key rail intermodal connectors and facilitate rehabilitation and improvements as needed	F3-L-1: Encourage and promote development of Transload and/or major intermodal facilities	▪ Improved economies and efficiency of freight rail operations and reduced shipper costs for instate freight producers and recipients ▪ New employment opportunities for local workers ▪ Improved distribution of economic activity, including new employment opportunities in rural areas ▪ Diversion of some freight from truck to rail, reducing wear and tear on the highway system	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects
	F3-L-2: Preserve right-of-way for construction of sidings, yards, and connectors to multimodal freight facilities and logistics centers	▪ Support for development of rail-served businesses within the state	
	F3-L-3: Support short line railroad improvements, rehabilitations and upgrades, including selective upgrades to 286,000 lb. railcar standard	▪ Maintenance of rail mode share, reducing wear and tear on the highway system & reducing air quality impacts from highway vehicle usage ▪ Support for rail dependent industries, including rural industries ▪ Support for agricultural production and mining industries – support for rural economies	▪ Continue to pursue funding assistance programs such as the Short Line Railroad Loan and grant program in neighboring Kansas. ▪ Assist short line railroads in obtaining tax benefits under new federal tax legislation for short line railroad improvements (Short Line and Regional Railroad Tax Credits)
Operational & Planning Strategies			
F3-POS-1: Facilitate the development of Public/Private and Private/Private (Railroad/Shipper) Partnerships			▪ Encourage public/private partnerships
Regulatory Strategies			

Freight Rail Policy #4: Continue Cooperation and Coordination with Operating Railroads Regarding Safety at Rail/Highway Crossings

Capital Improvements		**Economic Development Objective**	**Implementation Strategy**
Short Term Actions	**Long Term Actions**		
F4-S-1: Expend all Federal and State Highway/Railroad Grade Crossing and Protection Program funds on priority crossings	F4-L-1: Implement Railroad Grade Separation Plan/Grade Crossing Closures Plan	▪ Major safety benefits – reduced accidents and resulting reductions in death, injury, health care costs, time lost from work, etc. ▪ Train speeds can be better maintained, resulting in more efficient train operations	▪ Explore new sources of funding for grade separation ▪ Identify opportunities where railroad funds may be pooled with state funds
Operational & Planning Strategies			
F4-POS-1: Prioritize crossings for elimination, consolidation	F4-POL-1: Participate with governmental and private partners on programs such as Operation Lifesaver		▪ Enlist cooperation of state and local police, OK Dept. of Emergency Management, and other safety related departments
F4-POS-2: Prioritize list of grade crossings meeting warrants for grade separation			▪ Prioritize based on factors such as train frequency, traffic volume, impacts on the community, lack of nearby alternative routes to avoid train blockages, safety and public service impacts and project costs
F4-POS-3: Promote Highway/Railroad Crossing safety through ODOT educational/promotional programs			▪ Enlist cooperation of state and local police, OK Dept. of Emergency Management, and other safety-related departments
Regulatory Strategies			

Freight Rail Policy #5: Evaluate the Rail Network for Potential State Acquisition of Lines Subject to Abandonment

Capital Improvements		**Economic Development Objective**	**Implementation Strategy**
Short Term Actions	**Long Term Actions**		
	F5-L-1: Fund State acquisition of railroad properties to continue justifiable railroad operations	▪ Maintenance of rail mode share, reducing wear and tear on the highway system & reducing air quality impacts from highway vehicle usage ▪ Support for rail dependent industries, including rural industries ▪ Support for agricultural production and mining industries in Oklahoma – support for rural economies	▪ Seek funding from State Legislature for loan program to allow locales to acquire essential rail lines scheduled for abandonment
Operational & Planning Strategies			
F5-POS-1: Update Oklahoma State Rail Plan (last updated in 1992)			
F5-POS-2: Monitor Class I Railroads' ongoing rationalization of their networks and establish criteria for possible future State acquisitions		• Preservation of access to markets and supplies for Oklahoma agriculture and industries	
Regulatory Strategies			

III. Waterways

Waterways Policy #1: Encourage Increased Federal Funding for Waterway Facility Maintenance & Improvement to Maintain Reliability and Increase Efficiency

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
Operational & Planning Strategies			
W1-POS-1: Work with Oklahoma Congressional delegation to pursue increased Federal funding	W1-POL-1: Seek long term multi state agreements to pursue federal and other funding sources for facility maintenance and improvement	▪ Maintenance of the waterway's mode share, reducing wear and tear on the highway system ▪ Support for waterway-dependent industries, including grain production, petroleum fuels, metals and machinery, and industries requiring movement of oversized components ▪ Support for agricultural production and mining industries in Oklahoma – support for rural economies ▪ Lower waterway transport costs ▪ Enhanced prospects for inland container transport	▪ Coordinate efforts with other waterway states and with industry associations such as Arkansas Basin Development Association, Arkansas Waterways Commission, American Waterways Operators and Inland River Ports & Terminals
W1-POS-2: Encourage multi-state planning studies to identify benefits of enhanced waterway facility maintenance and improvement, including increasing channel depths to at least 10'		▪ Maintenance of the waterway's mode share, reducing wear and tear on the highway system ▪ Support for waterway-dependent industries, including grain production, petroleum fuels, metals and machinery, and industries requiring movement of oversized components ▪ Support for agricultural production and mining industries in Oklahoma – support for rural economies ▪ Lower waterway transport costs ▪ Enhanced prospects for inland container transport	▪ Coordinate efforts with other waterway states and with industry associations such as Arkansas Basin Development Association, Arkansas Waterways Commission, American Waterways Operators and Inland River Ports & Terminals
Regulatory Strategies			

Waterways Policy #2: Enhance Highway and Rail Connections to Ports to Support Current and Future Demand

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
	W2-L-1: Implement Port/Waterway element of the Statewide Freight Plan, including highway connections to ports	▪ Improved economy and efficiency of waterway operations and reduced shipper costs for instate freight producers and recipients	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects
	W2-L-2: Implement Capital Improvement Program for highway connectors for oversized loads	▪ Improved productivity and efficiency of economic sectors requiring delivery of oversized loads, such as in-field oil and natural gas industries	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects
Operational & Planning Strategies			
W2-POS-1: Prepare Port/Waterway element within the context of a Statewide Freight Plan, focusing on highway to port connectivity	W2-POL-1: Implement ongoing freight planning process, including Port/Waterway element		▪ Include stakeholders, such as Arkansas Basin Development Association, Arkansas Waterways Commission, American Waterways Operators and Inland River Ports & Terminals
W2-POS-2: Identify private port and port user representatives to serve on a temporary freight advisory committee in connection with Statewide Freight Plan	W2-POL-2: Create on-going Oklahoma Freight Advisory Council, including port and port user representatives		▪ Include stakeholders, such as Arkansas Basin Development Association, Arkansas Waterways Commission, American Waterways Operators and Inland River Ports & Terminals
W2-POS-3: Develop Capital Improvement Program for highway connectors for oversized loads			
Regulatory Strategies			

Waterways Policy #3: Through Selected Transportation Investments, Support Location of Industries that Can Maximize the Transportation Efficiencies of the Waterway System

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
W3-S-1: ODOT to consider transport of highway construction materials and components (e.g., cement, guard rail) via waterway, for highway work proximate to the waterway system	W3-L-1: Program and make transportation improvements in and around ports/waterway system that would encourage location of industrial or warehousing and distribution concerns	▪ Reduced shipper costs for instate users of waterway system ▪ Reduced ODOT highway maintenance costs ▪ Increased employment in manufacturing and warehousing and distribution industries, increasing employment in areas adjacent to the waterway	▪ ODOT engineering to evaluate the potential cost savings
	W3-L-2: Improve port roadway connections to encourage existing industries to consider shifting freight off roadways and onto waterways through facilitation of container-on-barge services	▪ Reduced shipper costs for instate users of waterway system ▪ Reduced truck-related highway congestion and reduced ODOT maintenance costs	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects ▪ Seek partnerships with private sector, inc. major user groups at both ports, and with the railroads
	W3-L-3: Assist short line railroads to maintain and improve existing connections to the Ports of Catoosa and Muskogee, to facilitate future container-on-barge service	▪ Reduced shipper costs for instate freight producers and recipients ▪ Reduced truck-related highway congestion and reduced ODOT maintenance costs	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects ▪ Seek partnerships with private sector, inc. major user groups at both ports, and with the railroads ▪ Identify potential for use of private activity revenue bonds to finance multimodal freight hub connections
Operational & Planning Strategies			
W3-POS-1: Identify transportation improvements in and around ports/waterway system that would encourage location of industrial or warehousing and distribution concerns			
Regulatory Strategies			

IV. Air Cargo

Air Cargo Policy #1: Support Potential Market Driven Expansion of Air Cargo Operations at Will Rogers World and/or Tulsa International Airports

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
	A1-L-1: Program and implement selected highway access improvements to support development of market driven expansions of air cargo operations at WR or Tulsa IA	▪ Improved economies and efficiency of truck operations serving the air cargo elements of the airports ▪ Expanded activity and employment at the air cargo facilities at WR and Tulsa IA	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects ▪ Partner with major air cargo operators to help fund some access improvements
Operational & Planning Strategies			
Regulatory Strategies			

Air Cargo Policy #2: Support Development of Potential New Air Cargo Hub Facilities through Selected Highway Access Improvements

Capital Improvements		**Economic Development Objective**	**Implementation Strategy**
Short Term Actions	**Long Term Actions**		
	A2-L-1: Program and implement selected highway access improvements to support development of potential new or expanded air cargo hub facilities	▪ Use of state funds to leverage development of a private air cargo hub ▪ Major new employment opportunities for local workers, including major expansion of warehousing and distribution, trucking, and other support functions ▪ Improved statewide distribution of economic activity, including possible new employment opportunities in rural areas	▪ Maximize use of federal funding under Freight Intermodal Connector program in transportation reauthorization legislation, including earmarks in the legislation for High Priority Projects ▪ Work with the US DOD for military air cargo hub or expansion proposals
Operational & Planning Strategies			
A2-POS-1: Prepare Air Cargo element within the context of development of Statewide Freight Plan, focusing on highway to air terminal connectivity and identification of potential new air cargo hub facility locations	A2-POL-1: Implement ongoing freight planning process, including air cargo access element		
A2-POS-2: Identify air cargo suppliers and users to serve on a temporary freight advisory committee in connection with Statewide Freight Plan. Include military representatives (e.g., from Tinker, Altus, Ft. Stills)	A2-POL-2: Create on-going Oklahoma Freight Advisory Council, including air cargo suppliers and users' representatives, and military representatives		
Regulatory Strategies			

V. Public Transportation

Public Transportation Policy #1: Continue to Support Statewide Marketing to Maintain Heartland Flyer Ridership Increases

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
Operational & Planning Strategies			
P1-POS-1: Expand ongoing marketing/awareness campaign working with Amtrak and state tourism officials	P1-POL-1: Continue to expand ongoing marketing/awareness campaign working with Amtrak and state tourism officials	• Maintenance of livability and expansion of access for residents and businesses.	• Continue partnership with Amtrak on marketing activities
P1-POS-2: Survey current ridership every 2-3 years to create demographic and trip purpose profiles	P1-POL-2: Continue to survey current ridership every 2-3 years to create demographic and trip purpose profiles		• Form partnership for funding of surveys through a University (OU/OSU) research center
P1-POS-3: Coordinate & fund marketing/survey efforts with Amtrak and the State of Texas			• Expand relationship with TxDOT and jointly fund marketing activities
P1-POS-4: Obtain an agreement with BNSF for increased priority operation for Amtrak			• Continue partnership with the BNSF and seek state or federal funds for priority measures
Regulatory Strategies			

Public Transportation Policy #2: Encourage Selected Expansions of Amtrak Service to Support Economic Activity in Oklahoma

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
P2-S-1: Add an additional north-south train per day	P2-L-1: Extend Heartland Flyer service north to Newton, Kansas	• Maintenance of livability and expansion of access for residents and businesses	• Expand partnership with KDOT & TxDOT to jointly fund the extension
P2-S-2: Add a stop serving the Winstar Casino south of Marietta	P2-L-2: Add a Heartland Flyer branch to Tulsa		• Work with Winstar Casino to jointly fund a new stop
	P2-L-3: Provide a separate single track for the Heartland Flyer through Oklahoma		• Prepare expansion justification plan and convince Oklahoma congressional delegation to develop Oklahoma Amtrak funding
Operational & Planning Strategies			
P2-POS-1: Update the needs assessment for intercity rail for Oklahoma			
Regulatory Strategies			

Public Transportation Policy #3: Enhance the Connectivity of Public Transportation Modes and Services

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
P3-S-1: Interconnect rural transit systems with intercity bus stops/terminals and Heartland Flyer stops	P3-L-1: Continue to interconnect rural transit systems with intercity bus stops/terminals and Heartland Flyer stops	• Sustainability of rural economy, including ease of access to urban areas and intrastate/interstate transportation systems	• Work with Greyhound, Jefferson and TNM & O to define more intermodal locations
P3-S-2: Coordinate with urban public transit systems to define & implement formal park and ride lot locations adjacent to ODOT right-of-way where ridership warrants	P3-L-2: Continue to coordinate with urban public transit systems to define & implement formal park and ride lot locations adjacent to ODOT right-of-way where ridership warrants	• Encouragement for multiple modes of transportation access to urban areas • Reduction of highway congestion through encouragement of higher-occupancy modes	• Have ODOT conduct a park and ride feasibility study in conjunction with COTPA and Tulsa Transit
Operational & Planning Strategies			
Regulatory Strategies			

Public Transportation Policy #4: Support Multiple Modes of Transportation to Employment Opportunities, particularly for Transit Dependent and Zero Car Households

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
	P4-L-1: Coordinate with ODOC, transit providers and the private sector to provide new transit service or enhancement of existing service to employers of 1,000 or more where warranted	• Access to job opportunities through provision of multiple modes of transportation • Retention and expansion of businesses through enhancement of employee access	• Establish a statewide working group to assess transit needs of large employers
Operational & Planning Strategies			
P4-POS-1: Support Access to Job initiatives proposed by urban transit providers			• Work with the Kibois Community Action Foundation, COTPA, Tulsa Transit & LATS
P4-POS-2: Coordinate with ODOC and transit providers to identify transportation needs for employers of 1,000 or more (at a single location)			• Establish a statewide working group to assess transit needs of large employers
Regulatory Strategies			

Public Transportation Policy #5: Continue to Aggressively Pursue FTA and Other Discretionary Funds for Public Transportation

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
P5-S-1: Prepare a statewide program of FTA-eligible capital projects and operating needs every 3-5 years	P5-L-1: Continue to prepare a statewide program of FTA-eligible capital projects and operating needs every 3-5 years	• Expanded financial capacity for transportation improvements through maximizing use of federal transit revenue sources	• Meet regularly with FTA regional office staff and Washington staff to communicate needs
P5-S-2: Identify non-federal match for FTA eligible projects	P5-L-2: Continue to identify non-federal match for FTA eligible projects		• Continue working with State Legislature for public match and ODOC for private match
P5-S-3: Identify other federal agency transportation funding sources, and program projects accordingly	P5-L-3: Continue to identify other federal agency transportation funding sources, and program projects accordingly		• Investigate the potential of the USDOT United We Ride initiatives
Operational & Planning Strategies			
P5-POS-1: Encourage continued cooperation among ODOT and the urban transit systems and appear as one voice to the Oklahoma legislative delegation on all FTA funding requests			• Actively work with Oklahoma congressional delegation to maximize federal funds for Oklahoma
Regulatory Strategies			

Public Transportation Policy #6: Safeguard Existing Rural Transportation Services and Support New Services through Creative Partnerships

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term	**Long Term**		
	P6-L-1: Implement additional services as funds become available	• Sustainability of rural economy and livability of rural communities through provision of mobility alternatives	• Work with Oklahoma congressional delegation to obtain increased 5309 and 5311 rural transit funding
Operational & Planning Strategies			
P6-POS-1: With the existing rural systems as a benchmark, establish other opportunities statewide for future consideration			
P6-POS-2: Investigate potential for agreements between ODOT and other social service providers plus large employers			• Work with FTA and the United We Ride program and establish a demonstration project
Regulatory Strategies			

Public Transportation Policy #7: Support Improved and Additional Transit Connections Among the Major Downtown Areas And to/from Important Modal Centers

Capital Improvements		Economic Development Objective	Implementation Strategy
Short Term Actions	**Long Term Actions**		
P7-S-1: Support COTPA efforts to provide direct bus service from downtown to Will Rogers airport		• Support for measures to sustain the economic viability of urban centers through improved transportation connections	
P7-S-2: Support increasing schedule coordination between the Oklahoma City CBD transit center, the Amtrak station and intercity bus service			
P7-S-3: Continue examination of intercity rail between Oklahoma City and Tulsa			
P7-S-4: Continue to support development of the Oklahoma portion of the designated high speed rail corridor			• Coordinate activities with other states along the designated corridor • Seek earmarks in next year's FRA budget for an initial feasibility study of high-speed service on the Oklahoma portion of the corridor • Seek support from Oklahoma's Congressional delegation for FRA budget funding of the initial feasibility study
Operational & Planning Strategies			
Regulatory Strategies			